Consultation Paper
Electromagnetic Weapons

Summary

The Department of Home Affairs seeks feedback on introducing a specific import control on electromagnetic weapons, except where the importation is for official purposes. This will allow government agencies to examine these weapons and ensure the control of these weapons are reasonable and proportionate to their risk of harm in the community.

A specific import control is necessary as powerful electromagnetic weapons are currently in development overseas and could be exported before the end of this calendar year. When using recommended ammunition, these weapons fire a projectile with enough kinetic energy to wound and possibly kill. These weapons are hand-held, fire silently and can use improvised ammunition available in any hardware shop.

Once these weapons become commercially available, the prospect of them entering the Australian market and causing harm is foreseeable. States and territories do not uniformly or consistently control these weapons and, if these weapons are not detained at the Australian border, they will be very difficult to contain once they are in circulation.

The issue

Electromagnetic weapons use electromagnetic force to propel a projectile. These weapons come in two varieties:

- a coilgun (known as a gauss gun) – which uses one or more coils arranged along a barrel to exert electromagnetic force on a projectile to produce rapid acceleration, and
- a railgun – a linear motor device that uses a pair of parallel conductors (rails) along which a sliding armature is accelerated by the electromagnetic effects of current that flows down both rails.

The means of projectile acceleration (electromagnetic force) distinguishes these weapons from other firearms which use compressed gas or explosive charge. While these weapons are not new, no commercialised variant of these weapons has been developed to date that could propel a projectile with enough force to wound or kill.

A coilgun, however, is currently in development overseas that can fire a projectile with significantly more force than previous variants. The coilgun is advertised as a lethal weapon and produces a projectile muzzle velocity between 40 and 80 meters per second (similar to that of some low-powered air rifles). When using the recommended ammunition, a kinetic energy of 85 joules is achieved. This is high enough to inflict wounds and potentially be lethal in certain circumstances. The coilgun also poses a potential lethal risk to the user, as handling the high voltage system that powers the coilgun can result in electrocution.

The coilgun operates very quietly, and does not expel a traditional gunshot sound. This means that any incident involving shots fired from the coilgun could easily go undetected by bystanders. In addition, the coilgun does not use conventional ammunition, and any ferromagnetic/conducting material may be used as a projectile. The coilgun does, however, seem to use similar magazines to a standard firearm.

The coilgun is not made up of standard firearm parts. It is battery operated and stores charge in a series of capacitors before discharge. Once a loaded magazine is inserted, the first projectile becomes active as there is no chamber or cocking mechanism. Upon pulling the trigger, the projectile is accelerated by a series of electromagnetic coils that impart a force and act like a barrel for the object to travel along. If there is sufficient charge stored in the capacitors, any projectile loaded in the magazine can be fired, and thus the weapon operates in a semi-automatic action.

These coilguns are still in preproduction and not due for shipment until at least December 2021.
The Department is also not aware of any existing dangerous variants of these coilguns in Australia.
Commonwealth, state and territory laws do not currently regulate these coilguns in a uniform manner.

Currently, the *Customs (Prohibited Imports) Regulations 1956* provides for the seizure of weapons, as described in schedule 13. Should a person seek to import a coilgun, the Australian Border Force will likely seize the good as a weapon.

Proposed action

To put beyond doubt that these weapons are controlled at the Australian border, the Department proposes to introduce a specific import control on electromagnetic weapons, except where the importation is for official purposes. The reason for this is to allow government agencies to examine these weapons and ensure the import control is reasonable and proportionate to their risk of harm in the community.

Specifically, the Department proposes that the *Customs (Prohibited Imports) Regulations 1956* (the Regulations) be amended to include a control on electromagnetic weapons. An 'electromagnetic weapon' could be being defined as:

> *A device designed or adapted to propel any substance by means of electromagnetic force and, when discharged, is capable of causing; a) damage to property; or b) bodily harm.*

So as to not cause disruption to the legitimate trade in electromagnetic goods that fall outside of the proposed definition, and do not pose a threat to the community, the Department is open to providing specific exemptions to the import control. The most common uses for electromagnetic propulsion is in maglev train tracks (which propel trains by means of electromagnetic force) and military railguns. The Department understands that most other practical applications of electromagnetic propulsion remain in the research and development phase.

The proposed import control will not be absolute, as the Minister for Home Affairs, or an authorised officer, may give written permission allowing for importation of an electromagnetic weapon only to Commonwealth, State or Territory Governments, or governments of a foreign country, under the existing 'official purposes' test in the Regulations.

This will allow law enforcement and appropriately qualified government officials to examine the electromagnetic weapons and provide advice to government on possible long-term controls, and otherwise allowing for legitimate government use of the weapons (including by the Department of Defence).

- Under the official purposes test, the Minister or authorised person would also be able to specify conditions or requirements for the permission, and revoke permission where a condition or requirement has not been complied with.

Examples of such conditions of the permit, to reduce the risk of illicit diversion are:

- that the government own the article within a period specified by the Minister or an authorised person who issued the permit considers appropriate (to be specified in the permit); and
- that the government retain ownership of the weapon until it is disposed of to another government, exported or destroyed.

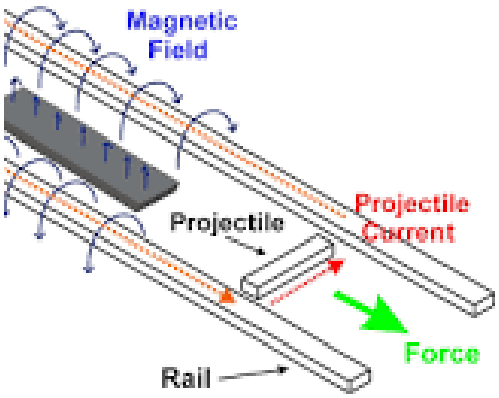
At this stage, the Department proposes that the following would not be controlled:

- ammunition for the weapon – As any ferromagnetic/conducting material may be used as a projectile, a ban on ammunition would be too wide and would likely capture a wide range of products; and
- magazines for the weapon – As the weapon appears to use standard firearms magazines, banning this magazine may lead to unintentional control of magazines that may currently be imported for legitimate purposes. This position may change following physical examination of the magazine.

Also, serial number requirements and safety testing requirement is not expected to be required, as the weapon will only be handled by appropriately qualified government officials and by importers delivering these articles to the government, so the illicit diversion risk should be minimal.

The Department is still considering whether to control parts of the weapon to combat illicit domestic manufacture. At a minimum, the Department considers that parts specifically designed for these weapons should be controlled under the official purposes test. This would include (but not be limited to) the barrel/coil combination used in coilguns and the parallel conductors used in railguns. These parts are fundamentally different to existing firearm barrels, and do not seem to serve any purpose other than allowing ferromagnetic/conducting material to be propelled from these weapons (see the images below).

A parallel conductor for a railgun



Barrel/coil combination

Question 1: Do you support an import control on these electromagnetic weapons?

Question 2: How should these weapons be described for the purposes of the import control, and what goods should be exempt from this ban?

Question 3: For what limited purposes should import of these goods be permitted, and under what conditions?

Question 4: What parts of these weapons, if any, should be subject to import controls?