Submission for Commission

Meeting date 17 February 2016
Meeting number 1516/XX

Trackit

Title For decision – Consumer Product Safety Intervention- Hoverboards

Recommendation The Commission note and agree to the recommendations in this paper

Project staff Jan Klaver x4923
(Tony Minuta x634)

Responsible SES Neville Matthew

Division, Branch and Office Consumer Product Safety, Canberra

Legal/Economic input Kate McIntyre

☐ This paper contains confidential and privileged material (shaded)

Conflict of interest

☐ Sims ☐ Cifuentes ☐ Walker
☐ Rickard ☐ Court
☐ Schaper ☐ Featherston

Committee consideration

☐ Adjudication Committee ☐ Mergers Review Committee
☐ AER Board ☐ Infrastructure Committee
☐ Communications Committee ☐ Strategic Compliance Committee
☐ Enforcement Committee ☑ Not previously considered

1. Purpose

1.1. Staff seek to update the Commission about an investigation into hoverboard safety and seek agreement for CPSB to have an interim ban of hoverboards with particular dangerous characteristics formally considered by the Minister.

2. Committee consideration
2.1. Given the urgency of this issue, it has been raised briefly at Consumer Product Safety Update but has not been considered by the Enforcement Committee - Strategic Compliance and is submitted directly to the Commission.

3. Background

3.1. Hoverboards are wheeled ride-on devices with a single axle. They are powered by a rechargeable lithium battery via connection to a mains power supply. The devices are also known as self-balancing scooters, gliders or modboards.

3.2. Hoverboards have been around for a number of years, however Chinese production of cheaper devices ($150 AUD and up) boomed over the past 12 months.

3.3. Cheaper devices flooded the market in the lead up to Christmas 2015 and the CPSB started to look into their safety after learning of overseas consumer injuries in late November 2015.

3.4. The ACCC identified two types of safety hazards with hoverboards and their battery chargers:
   - electrical hazards including overheating, explosions and fires
   - personal injuries from falls and crashes and burns or smoke inhalation.

3.5. The ACCC subsequently issued a public warning about the devices on 10 December 2015 (followed by partner consumer law regulators in January 2015).

3.6. The ACCC has identified overseas rider deaths from falls in traffic, increasing numbers of ‘exploding’ devices and house fires and continual consumer injuries from falls (and smoke inhalation).

3.7. In early January 2016 a housefire in Victoria was linked to a charging hoverboard and on 6 January 2016 the Victorian Minister for Consumer Affairs asked the Minister to ban the devices.
   - Investigation of the device implicated in the Victorian fire revealed that the electrical charger supplied with the device was non-compliant with electrical safety regulations. Electrical safety regulators across Australia moved quickly to identify further non-compliant chargers in the market and many devices are now subject to recall. (The ACCC undertook retail surveillance in the NT.)

3.8. On 11 January the ACCC briefed the Minister about safety concerns and recommended issue of a Safety Warning Notice under the ACL and announcement of an investigation.


3.10. The ACCC investigation is now well underway. Events since 12 January and preliminary findings are discussed below.

4. Investigation and recent events

4.1. The ACCC investigation has confirmed that unsafe hoverboards are present in the Australian marketplace.
Four fires relating to hoverboards have been reported nationally to date. Most recently, on 13 February 2016 a child's bedroom in a western Sydney home was reported as destroyed.

Seventeen hoverboard products are currently being recalled by their suppliers due to their non-compliant battery chargers.

4.2. The CPSB has identified that unsafe hoverboards are likely to have the following characteristics:

- they contain substandard lithium batteries
- they are designed and manufactured with substandard electrical circuitry—notably controls on overcurrent, temperature and voltage are absent.
- they are sold with non-compliant electrical chargers.

When these factors are combined it render the devices **high risk**.

4.3. CPSB is concerned that the current product recalls will not mitigate the safety risks as the recalls address non-compliant chargers. Suppliers are responding to the recalls (coordinated by Electrical safety regulators) by either replacing the chargers or taking product returns. Consumers who only receive a replacement charger may still have an inherently dangerous device.

4.4. Advice from electrical and fire safety investigators in Australia is that the batteries appear to be the cause of the reported fire incidents.

4.5. The US CPSC recently advised that at least 50 house fires have been caused by hoverboards in more than 20 American states. Their safety investigators also advise that the fires appear to be caused by the batteries and deficient circuitry.

4.6. 

4.7. The Department of Infrastructure and Regional Development has advised that it has processed at least 60,000 applications for declarations that an imported good (hoverboard) is not a motor vehicle under the Motor Vehicle Standards legislation.

4.8. This information—coupled with our understanding of on-line sales through Amazon—suggests that there may be up to 100,000 devices in the possession of consumers or in domestic supply chains.

5. The nature of the safety concerns with Lithium-ion batteries

5.1. Any energy storage device can have potential risks and the lithium-ion battery is no exception. Sony commercialised the Lithium ion battery in 1991 and it now used extensively in many products, including portable electronic equipment and electric vehicle or hybrid electric vehicles.

5.2. When lithium ion batteries replaced nickel metal hydride, there was increased energy density available, no 'memory effect' and made batteries lighter. However, lithium-ion batteries are flammable.
5.3. Lithium ion batteries in most cases use cobalt oxide, which in certain circumstances have a tendency to undergo "thermal runaway". This occurs when the material in one or more cells is heated up, and it reaches an onset temperature then the neighbouring cells begin heat and this progresses into fire and explosion. The organic electrolytes in many lithium ion batteries are highly flammable when heated.

5.4. This is not limited to occur when the battery is being charged. It can happen during appliance use or during storage after charging.

5.5. The batteries are constructed with electrodes, separators, and contain electrolyte. The separators in newer high ampere-hour(Ah) batteries are often ultra-thin (24-thousandth of an mm or less) and are more susceptible to impurities than the older designs with lower Ah ratings.

5.6. Poor manufacturing processes may mean microscopic metal particles are introduced into the battery cells. These particles may come into contact with other parts of the battery cell, leading to a short circuit within the cell.

5.7. If enough microscopic metallic particles are present in one spot, a sizable current begins to flow between the electrodes of the cell and the spot heats up and weakens.

6. Electrical Safety Regulation

6.1. Regulation in the states, territories and New Zealand requires all electrical equipment, not just equipment that requires certification, to be shown to be electrically safe and, at a minimum, to meet Australian/New Zealand electrical safety standards.

6.2. In early December 2015 ERAC (at the instigation of Energy Safety Victoria) released national supplier guidance on the characteristics that are needed for a hoverboard to be assessed as electrically safe. ESV advise that no hoverboard supplied in Australia would meet all of these specifications, and further, that the advice recommends more than most jurisdictions can currently regulate or enforce.

6.3. ESV is the lead regulator for hoverboards. ESV has advised that electrical safety legislation in Victoria can be invoked to adequately manage both charger and battery safety issues in hoverboard.

6.4. Discussion with ESV indicates that electrical safety regulators in Australia are unlikely to be able to regulate the safety of the actual complete hoverboard devices including their batteries.

6.5. However, the jurisdictional electrical safety regimes vary significantly, and ESV suggests that most jurisdictions will only be able to regulate the power supplies (chargers) but will not be able to reach the devices themselves. CPSB intends to map these controls with the assistance of state regulators and CCLU, as there is a possibility that the legislation contains general provisions about safety that could be invoked to deal with hoverboards.

6.6. However, to date the electrical regulators are focusing on the approval regimes requirements, as hoverboard charging devices can be readily identified as non-compliant (through an absence of certification marks and numbers).

6.7. Even if the electrical safety regimes in all jurisdictions are scrutinised and found to contain general provisions about safety that could be invoked, this will take time and
the electrical safety system is likely to deal with hoverboards on a product by product basis rather than as a cohort of goods.

7. Safety Investigation – next steps

7.1. The next stages in the investigation include purchase of devices and testing for electrical and user safety.

7.2. Testing of batteries is a time consuming process and it may take up to 6 weeks for return of results.

7.3. CPSB considers that there is an imminent risk of further fire incidents which are inherently dangerous and likely to cause injuries or death. It is prudent to consider options to intervene and deter the supply hoverboard that have unsafe characteristics.

8. Options

8.1. There are four broad options to consider:

A. Status quo, continue the safety investigation
B. Seek to further mitigate risks through additional education and awareness
C. Consider the prospects for the Minster mandating the recall
D. Consider the prospects for the Minister to issue an interim ban.

9. Consideration

9.1. CPSB has identified immediate and serious concerns in relation to hoverboard safety due to:

   o electrical hazards arising from poor product design
   o possible regulatory gaps in existing electrical safety laws, which prevent electrical safety regulators from being able to manage the electrical risks posed by the devices.

9.2. CPSB don not consider that options A or B offer significantly improved safety outcomes in light of the interim considerations in the safety investigation.

9.3. CPSB consider that option C may be a sufficient intervention due to the practical effect of a ‘defacto ban’ on supply by any supplier once nominated suppliers are subject to a compulsory recall. However, the statutory threshold is not likely to have been met, as there does not seem to be any evidence of one or more suppliers not taking sufficient action.

9.4. CPSB consider that option D is likely to be a sufficient intervention to improve consumer safety.

9.5. To properly brief the Minister we will need to carefully consider what the “consumer goods of a particular kind” are, because the Minister must be satisfied that “consumer goods of that kind will or may cause injury to any person”.

9.6. If made by the Commonwealth Minister, an interim ban can in practice exist for a period of 120 days from the date specified in the notice as the date on which the ban starts as follows:

   o 60 day ban period: s.111(1);
9.7. It would seem that the proposal to proceed by way of a proposed ban notice issued pursuant to s.132 (rather than a ban without delay pursuant to s.132J) is appropriate. S.132 provides among other things, that the Notice must invite suppliers to request a conference.

9.8. If an interim ban were issued, it would enable time to work with state and territory electrical safety regulators to clarify their regulatory reach and agree a pathway to the longer term safety of lithium-ion powered hoverboards and similar products being fully managed under the electrical safety framework.

10. Recommendation

That Commission notes:

10.1. The identified immediate and serious concerns in relation to electrical safety issues inherent in certain hoverboards

10.2. the risks of consumer injuries from falls are still being investigated

10.3. next steps in the ACCC hoverboard safety investigation.

That Commission agrees:

10.4. To formal consideration by the Minister of an interim ban under the Australian Consumer Law, to close any regulatory gaps in the short-term while electrical safety laws are fixed.