

# Recycling of Sodium Nickel batteries

Recycling of energy storage batteries is a current weakness in the industry for many battery technologies.

The SoNick or Zebra battery is 100% recyclable with a recycle program already in place in Europe and the USA, which can easily be duplicated in Australia at the appropriate time. The battery materials are recycled to produce stainless steel where the nickel and iron go into alloys, while the salt and ceramic are used for road beds.

One company, Inmetco has successfully recycled more than 20 tonnes of SoNick or Zebra cells. Firstly the management electronics (BMS) are removed then the battery is processed by adding them to a standard submerged arc smelting furnace to produce nickel containing remelt alloy used in the stainless steel industry. The ceramic and salt contained in the cells is collected and the slag is compatible with this process. This is then sold as a replacement for limestone used in road construction – nothing goes to landfill.

Also there is sufficient value in the recycling process to cover any transport costs back to a recycler which makes the recycling process at worst cost neutral which means no additional recycling cost should need to be added to the consumer.



## Guide to recycling options for large and industrial batteries Australian Battery Recycling Initiative



Battery type	Stage of development / applications	UN Number	Components	Manufacturers	Local recycling companies	Overseas recycling companies	Companies with export permits	Collectors	Recycling value and constraints	Transport requirements
(ZEBRA)	hybrid and electric vehicles e.g. buses, trucks Back-up, energy storage	sodium: 3292	(common salt), sodium, aluminium, iron, copper, plastics		existing industries for the production of stainless steel and road paving <sup>5</sup>	Xstrata Nickel (Canada) (?)			industries for the production of stainless steel and road paving <sup>6</sup>	

Excerpt from document providing a guide to the recyclability of batteries that are being used, or are under development, for energy storage. Companies involved in the manufacture, distribution, use or recovery of batteries need to work together ensure that all batteries are recycled at the end of their life.

The guide was developed by the Australian Battery Recycling Initiative (ABRI) with assistance from CSIRO and other members of the Clean Energy Council's PV Storage Working Group.

