December 2016

TEAM NOTICE #2/2017

Batteries

This notice is issued to clarify the battery regulations and how they are applied.

The two issues are safety and capacity. While teams are responsible for the safe construction and operation of their entry, the Organiser needs to take all reasonable steps to ensure the safety of staff, officials and volunteers, and needs to be convinced of the authenticity of documents and statements provided by the Entrant.

BWSC Organisers take the question of battery safety so seriously that some of the worlds most distinguished battery scientists are part of the organising team.

Although a secondary consideration compared with safety, the significance of capacity in the context of fairness of competition is also taken very seriously.

As reflected in the Regulations, each edition of BWSC sees new devices that have come on to the market since the previous event, and it is important for the Teams and the Organiser to understand the technical parameters of the devices employed.

Regulation 2.5.4 states that the nominal mass of each cell (model) must be specified and endorsed by the *manufacturer*. This is no change from previous events.

The problem arises when there is a difference between cell specifications provided by the manufacturer and specifications provided by a supplier.

There is an increasing tendency for teams to present documentation that they have been given by a supplier (or even downloaded by model number), which has been found to be at variance with the actual cells being using. **This practice is not acceptable.**

It is recognised that manufacturers can be reluctant to provide endorsements to solar car teams – one manufacturer has stated that the use of their particularly popular device in solar cars is not recommended!

In such cases a supplier endorsement may be accepted, however The Chief Energy Scientist is more likely to believe specifications provided by the manufacturer than those provided by a supplier.

There is also a growing problem of counterfeit cells with exaggerated specifications. Another problem is the dangerous practice of unscrupulous suppliers rewrapping used cells as new – often with no identification.

For these reasons, Regulation 2.5.5 allows the Chief Energy Scientist to determine the nominal cell mass of any device, however it is the intention of the scientific faculty to publish the determinations of popular devices, once their specifications have been accepted. **Registered Teams who have already committed to a battery choice are invited to submit their battery specification documentation as soon as possible.**

For teams still considering battery choices, we recommend that you ask your supplier to obtain accurate and detailed specifications from the manufacturer of the actual cells they will be supplying you. The manufacturer's specification document should be signed, stamped and dated, with the business card of the certifying representative attached.

Detailed specifications from the manufacturer must include (but are not limited to):

- cell chemistry
- cell model
- maximum cell charging voltage
- minimum cell discharge voltage
- nominal cell voltage
- cell capacity at the manufacturer's specified rate of discharge
- manufacturers published nominal cell mass for the model to the nearest 0.1 g *(do not ask us to watch videos of you weighing each individual cell!)*
- temperature limits
- safety information.

Important Note:
Lithium Ion batteries have recently been classified in the highest category of dangerous goods. This makes it vitally important to pay close attention to the details of packaging, customs regulations and shipping arrangements well before travelling to Australia.