2013 WSC FAQ

(updated 1 September 2012)

Questions continue to be received concerning regulations for the 2013 event published on World Environment Day 2012.

The World Solar Challenge is primarily a design competition. Create a solar EV to a given set of criteria (Regulation 1.6) In citing UNECE and NCOP regulations there is an opportunity for young engineers and designers to work with to the real world specifications and standards,extending the educational value beyond the traditional boundaries of the event.

These notes have been prepared to assist in the interpretation and clarification of the requirements.

*** Regulation 2.7** and **2.8** apply to Challenger and Cruiser Class Solar EVs only.

*** Regulation 2.14** The chassis may form all or part of the safety cage. The safety cage may be made from any appropriate material, provided that the structure is capable of protecting the driver from an impact of 5 G from any direction. Documentation will need to show appropriate modelling.

*** Regulation 2.15** Cruiser Class vehicles aim to be practical. Local road traffic authority requirements differ around the globe. Teams seeking the ultimate accolade of practicality that of having a licence plate allowing their vehicle to be used on their own public roads will need to meet the requirements of their own country. As mentioned in the preamble, meeting design criteria is an essential part of qualifying and it is an event requirement that vehicles have rollover protection. There are many published standards for this aspect of design and the requirement is for the entrant to nominate, and document, the standard the Solar EV is designed to meet (or exceed).

*** Regulation 2.17** Challenger and Cruiser Class Solar EVs must be designed so that no part of the structure of the car lies inside the region 45° forwards and 25° backwards of the reference point shown in the diagram accompanying Regulation 2.17. It is acknowledged that ambiguity with broader regulations is introduced by the fact that the NCOP allows (a) head-space encroachment by the windscreen and (b) does not consider rolls bars as original equipment.

The technical committee of the WSC have determined that, for the purposes of the event, the entire area described by 2.17 must be clear because it is the region that the driver's head may pass through in the event of a crash, however if a rear seat is fitted, the front seat may lie inside the forward arc segment of the rear seat, as shown in the diagram.

Teams should consider the use of appropriate padding on the back of the front seat if it could be struck by a passenger's head in a crash.

This regulation will be tested at scrutineering by placing a gauge on the reference point shown in the diagram on Page 12 of the regulations and rotating it through the angles shown with lateral extremities extending 100 mm each side of vertical, measured along an arc about the pivot point. Teams that build Solar EVs with small margins for error may experience anxiety during scrutineering.

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*** Regulation 2.18** Challenger and Cruiser Class Solar EVs must be designed to meet all parts of this field-of-view regulation. For eye heights less than about 1.9 m, designs that comply will the second part will also comply with the first part.

If the forwards direction of travel is considered to be 0 degrees, "every forward angle" means every angle, about a vertical axis, between -90 degrees and +90 degrees.

*** Regulation 2.49** Regulation Bulletin #1 2012 allows approval to be sought to use tyres that do not have (E) or DOT compliance markings. Approval will require a statement of suitability from the manufacturer. Tyres marked “Not for highway use” will not be approved. Tyres without (E) or DOT compliance markings may not be suitable for use outside the WSC.

*** Regulation 2.65** The rectangular signage area at the leading edge of the car is for the benefit of the entrant and their team sponsors. It does not have to be horizontal. It may wrap around the curve of the car. It may be placed at any orientation. The event logo will be supplied.

*** Regulation 2.77** Teams wishing to use a mixture of photovoltaic cell types should propose a configuration to the Organisers for approval. It is reasonable to propose a configuration such that if the proposed area of silicon cells is A_s then the maximum allowable area of GaAs cells is

$A_g = 3 \times (1 - A_s/6)$.

*** Regulation 2.82** Capacitors other than described by 2.82 are considered part of the energy storage system and may be charged at the start, however the requirements of Regulation 2.87 apply and the allowable mass will be determined by the Chief Energy Scientist.

*** Regulation 6.13** For Cruiser Class and Adventure Class, the Darwin – Adelaide time will be the sum of the stage times. It will not include the time allocated for Control Stops, but will include penalties. The *stage time* for a stage is:

- the elapsed time between the stage start time and team’s arrival time at the end of the stage
- less the time between the daily finish time and the daily start time for each overnight stop
- less the designated control stop duration for each intermediate Control Stop
- plus all outstanding penalty times.

It is proposed that the start times for Cruiser Class stages will be:

- Darwin: 08:30 on Day 1
- Tennant Creek: 08:00 on Day 3
- Alice Springs: 07:00 on Day 4
- Coober Pedy: 08:00 on Day 5

or such other times as determined by the Organisers.

The intent is that Cruiser teams will camp overnight at Tennant Creek, Alice Springs and Coober Pedy, and recharge from the electricity grid overnight, between stages. The Organiser will arrange a 'powered camp site' for each Cruiser Class entrant. Entrants may choose to make other arrangements at their own cost.

Teams will not be allowed to start a stage before the designated start time. Teams arriving at the end of a stage after the daily finish time will be given a time penalty (Regulation 6.65). Teams not able to keep up will be required to trailer forwards. The start order of each stage will be determined from previous stage times.

Evolution Class participants are not time competitive however it is part of the event risk management strategy that they are not left in desert unsupported. For these reasons it is essential that Evolution Class vehicles 'keep up' with the progress of the event. This calls for an average daily progress of 500Km day (3000Km over 6 days), however key milestones will that Evolution Class vehicles meet the time stamps required of Cruiser Class entrants. Further information will be provided in the Participant Guide which is under preparation and will be supplied to registered entrants.