

SPORTING REGULATIONS



OASIS SOLAR CAR CHALLENGE
ABU DHABI 2022

www.oasissolarchallenge.com





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2022 Oasis Solar Challenge

Sporting Regulations

Introduction and Welcome

It is with immense pride and great pleasure that I am able to welcome you all to Abu Dhabi for the inaugural Oasis Solar Challenge in the year that we celebrate our 50th year of nationhood and have the privilege of hosting EXPO.

Since its global inception thirty years ago, Solar Car Challenges have influenced tens of thousands of young people around the world and with their strong focus on innovation, science, technology, engineering, youth involvement and gender equality, the Oasis Solar Challenge is set to replicate that here in Abu Dhabi and the broader UAE.

The Al Nowais Group is immensely pleased and feels quite privileged to be an active participant in the global movement towards harvesting and using sustainable renewable energies like solar power. We are also a very strong supporter of STEM education subjects, gender equality and community inclusiveness - all strong pillars of Solar Car Challenges.

As a proud Emirati, I again welcome you to Abu Dhabi and sincerely hope you enjoy your time here.

I am sure you will find the Arabian Peninsula both challenging and charming and the people warm and welcoming.

Thank you for joining us and on behalf of myself and our organising team, we wish you all the very best of luck and good fortune.

H.E. Mr. Abdulla Jasim Al Nowais

Chairman of the Al Nowais Group

Special Credits

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1. Administration

1.1. Scope

- 1.1.1. These regulations apply to the 2022 Oasis Solar Challenge (hereinafter called "the event"), and comprise participants' eligibility, pre-event preparation, scrutineering, testing, on-road components, and any associated activities published by the event organiser as being part of the event.
- 1.1.2. The event will be conducted under the regulations described in this document and any amendments, further regulations or Team Notices that may be issued.

1.2. Correspondence

- 1.2.1. All correspondence shall be conducted in English, the official language of the event.
If you are unsure of the meaning of a regulation, ask for clarification by emailing the Team Liaison Officer at teamdesk@oasischallenge.com
- 1.2.2. Official correspondence must be conducted between the event organiser and the entrant's nominated representative (the Team Manager) as detailed by the entrant on the registration form. Specific written instruction to include others in team correspondence will be accepted.

1.3. Time Zones

- 1.3.1. At the time of the event, United Arab Emirates as a whole observe Gulf Standard Time (GST = GMT/UTC +04:00). The event will observe GST for the duration of the event.

1.4. Conduct of the Event

- 1.4.1. The on-road component of the event is conducted on public roads in the Abu Dhabi Emirate, UAE – a distance of approximately 2400km excluding the calculations of loops. In addition to these event regulations, all activity is conducted under applicable traffic laws, civil laws, and regulations.
- 1.4.2. Specific instructions contained in route notes will be considered part of the event regulations.
- 1.4.3. All activities undertaken by a registered entrant, including activities conducted prior to the commencement of the official event period, are governed by statutory regulations, breaches of which may incur event penalties or further action by law enforcement for which the event organisers will take no responsibility.

1.5. Eligibility

- 1.5.1. Eligible vehicles will be those that meet the design criteria described by the Sporting and Technical Regulations. Participating solar cars must not be used on any public roads during the event period until permission has been granted by the event organisers on behalf of the civil authorities. Further information will be included in the Team Manager's Guide.
- 1.5.2. Solar cars must be powered by solar irradiance collected by the solar car. The only other external energy inputs that may be used are:
 - a. The energy in the energy storage system at the start of the event.

It is accepted that energy from regenerative braking, road gradients and wind incidents on the car while driving may also be used.



1.6. Entrant Obligation

- 1.6.1. By applying, entrants declare that they know and understand the regulations of the event and agree that participation will constitute their full acceptance.
- 1.6.2. Each entrant will appoint an individual to act as the "Team Manager". The Team Manager will be responsible for regulatory compliance, the actions of the team members, and any other individuals associated with the team. Once appointed, the Team Manager may only be replaced with the approval of the event organiser.
- 1.6.3. Entrants are expected to act fairly and in good faith in accordance with the regulations.
- 1.6.4. Penalties (which may include exclusion) will be applied to any team deemed to have departed from the spirit of the event by deliberately acting to gain an unfair advantage over others, or by conduct that could bring the event into dispute.

1.7. Event Organiser

- 1.7.1. The event is promoted by the AL Nowais Group (ANG) and organised by Jukwaa Events (Pty) Ltd, as defined by Decree No. (45/2016) on the Events Licensing System in the Emirate of Abu Dhabi.

Office Address	69 Freight Road, Louwlandia, Centurion, 0046, South Africa
Office Telephone	+27 (12) 661 0285
Event Telephone	+27 82 550 0162
Event Email	admin@oasischallenge.com
Website	https://www.oasischallenge.com/

1.8. Event Management Team

- 1.8.1. Core Operations Team

Robert Walker	Event Director, Oasis Solar Challenge Director, Jukwaa Events (Pty) Ltd
Lizé-Mari Nel	Event & Project Manager, Oasis Solar Challenge, Senior Event & Project Specialist, Jukwaa Events (Pty) Ltd
Rycardo Simoes Alves	Team Liaison Officer, Oasis Solar Challenge Operations & Participant Officer, Jukwaa Events (Pty) Ltd
Chantè van den Berg	Volunteer & Mentorship Program Coordinator, Oasis Solar Challenge Volunteer & Project Officer, Jukwaa Events (Pty) Ltd
Jané Greyling	Digital Content & Communications Officer, Oasis Solar Challenge Digital Content & Communications Officer, Jukwaa Events (Pty) Ltd
Lianda Coetzee	Business & Finance Officer, Oasis Solar Challenge Business & Finance Officer, Jukwaa Events (Pty) Ltd
TBC	Media & PR Manager, Oasis Solar Challenge



1.8.2. Officials

TBC

Clerk of the Course (COC), Oasis Solar Challenge

Lizé-Mari Nel

Event Secretary, Oasis Solar Challenge
Jukwaa Events, Senior Event & Project Specialist

TBC

Chief Timekeeper, Oasis Solar Challenge

TBC

Chief Medical Officer, Oasis Solar Challenge

TBC

Chief Safety Officer, Oasis Solar Challenge

TBC

Chief Scrutineer, Oasis Solar Challenge

TBC

Chief Energy Scientist, Oasis Solar Challenge

TBC

Technical Consultant, Oasis Solar Challenge

TBC

Technical Steward, Oasis Solar Challenge

TBC

Environmental Steward, Oasis Solar Challenge

TBC

Control Stop Manager, Oasis Solar Challenge

TBC

Community & Social Engagement Officer, Oasis Solar Challenge

1.9. Officials of the Event

- 1.9.1. The event will appoint officials who will be responsible for the conduct of the event.
- 1.9.2. During the event, these officials will wear clearly identifiable clothing marked with "Official" on the back.
- 1.9.3. A full list of all appointed officials can be found in this document and in the case of any amendments teams will be notified via a Team Notice.

1.10. Jury

- 1.10.1. The event organisers will appoint a team of independent jurors to resolve disputes. Jurors will be published via a Team Notice once they have been appointed.
- 1.10.2. The team of appointed jurors is the only authority empowered to determine the interpretation of these regulations.



1.11. Judges of Fact

- 1.11.1. Each official appointed by the event organisers is a Judge of Fact in any event-related activity.
- 1.11.2. Observers appointed by the event organisers are Judges of Fact on all event-related activities.

1.12. Schedule

- 1.12.1. A detailed event schedule including all official functions, promotional activities and public engagement activations will be published on both the event website and distributed to teams via a Team Notice.
- 1.12.2. All registered teams must adhere to the event schedule, attend official functions, media calls, promotional activities and/or public engagement activations with the solar car and/or any other team vehicles or equipment as listed or requested.

Date	Activity	Venue
July 2021	<ul style="list-style-type: none"> • Event dates announced • Regulations published 	Online
July 2021	<ul style="list-style-type: none"> • Team registrations open • Volunteer registrations open 	Online
October 2021	<ul style="list-style-type: none"> • Team application for participation close • Volunteer registration close 	Online
TBC	<ul style="list-style-type: none"> • Group A Documentation submission deadline 	Online
TBC	<ul style="list-style-type: none"> • Group B Documentation submission deadline 	Online
TBC	<ul style="list-style-type: none"> • Group C Documentation submission deadline 	Online
TBC	<ul style="list-style-type: none"> • Official Entry List published 	Online
Friday, 28 th January 2022	<ul style="list-style-type: none"> • Yas Marina Circuit open 	
Friday, 28 th January 2022	<ul style="list-style-type: none"> • Officials onsite registration (AM) • Volunteer onsite registration (AM) • Team onsite registration (PM) 	Yas Marina Circuit
Saturday, 29 th January 2022	<ul style="list-style-type: none"> • Team onsite registration • Team Manager's and team Safety Officer's briefing • Welcome function 	Yas Marina Circuit
Sunday, 30 th January 2022	<ul style="list-style-type: none"> • Scrutineering briefing • Presentation of Group D Documents • Static Scrutineering commences (D 1) 	Yas Marina Circuit
Monday, 31 st January 2022	<ul style="list-style-type: none"> • Static Scrutineering continues (D 2) • Free practice open 	Yas Marina Circuit
Tuesday, 1 st February 2022	<ul style="list-style-type: none"> • Static Scrutineering continues (D 3) • Free practice open 	Yas Marina Circuit
Wednesday, 2 nd February 2022	<ul style="list-style-type: none"> • Static Scrutineering continues (D 4) • Free practice open 	Yas Marina Circuit
Thursday, 3 rd February 2022	<ul style="list-style-type: none"> • Dynamic Scrutineering commences • Free practice open 	Yas Marina Circuit



	<ul style="list-style-type: none"> • Hot lap for starting positions (PM) 	
Friday, 4 th February 2022	<ul style="list-style-type: none"> • Parade on Corniche (AM) • Public Expo (Teams & Mentorship Program) • Team briefing • Media briefing • Parade on Corniche (PM) 	Yas Marina Circuit
Saturday, 5 th February 2022	<ul style="list-style-type: none"> • Official start • On-road segment commences (D 1) • VIP Host 	Yas Marina Circuit + Abu Dhabi public roads
Sunday, 6 th February 2022	<ul style="list-style-type: none"> • On-road segment commences (D 2) 	Yas Marina Circuit + Abu Dhabi public roads
Monday, 7 th February 2022	<ul style="list-style-type: none"> • On-road segment commences (D 3) 	Yas Marina Circuit + Abu Dhabi public roads
Tuesday, 8 th February 2022	<ul style="list-style-type: none"> • On-road segment commences (D 4) 	Yas Marina Circuit + Abu Dhabi public roads
Wednesday, 9 th February 2022	<ul style="list-style-type: none"> • On-road segment commences (D 5) 	Yas Marina Circuit + Abu Dhabi public roads
Thursday, 10 th February 2022	<ul style="list-style-type: none"> • Official Finish • On-road segment concludes (D 6) • VIP Host 	Yas Marina Circuit + Abu Dhabi public roads
Friday, 11 th February 2022	<ul style="list-style-type: none"> • Public display (AM) • Pack up and clean out • Formal Awards Ceremony (PM) 	Yas Marina Circuit
Saturday, 12 th February 2022 [AM]	<ul style="list-style-type: none"> • Final pack up and clean out (AM) • Vacate site (PM) 	Yas Marina Circuit

1.13. Entering the Event

Applications for entry are invited from any entrant prepared to meet the standards and obligations of the competition.

- 1.13.1. Applications may be made from July 2021, until October 2021, or such other time as the event organisers may determine.
- 1.13.2. Participation for the 2022 Oasis Solar Challenge is strictly by invitation only.
- 1.13.3. Applications for entry must be made via the official online application form, available on the Oasis Solar Challenge website (www.oasischallenge.com).
- 1.13.4. Accepted applications for entry will only be considered confirmed upon receipt of the team's acceptance of their formal invitation.
- 1.13.5. The number of places is limited. Applications received after the limit is reached may be placed on a reserve list.
- 1.13.6. The granting of a place in the event will become void if the team's acceptance of invitation has not been received by the due date.
- 1.13.7. Entrants who do not convince the Chief Scrutineer that they will achieve compliance with the regulations (through documentary submission) may fail to qualify for the event and their place may be offered to a team on the reserve list.



- 1.13.8. The event organiser reserves the right to accept or reject any application without explanation.

1.14. Terms of Entry

- 1.14.1. The entry fee for the 2022 Oasis Solar has been waived for all teams. This subsidy is in recognition of the requirement that participation in the event will require teams to participate in the mentorship program with local universities. More information about the Mentorship Program will be shared in the Team Manager's Guide.
- 1.14.2. This entry includes:
- Team Participation
 - Team Member Registration of up to twenty five (25) team members
 - Up to twenty five (25) Awards Ceremony tickets plus an additional five (5) guests
 - The organisers will provide all invited teams with an accommodation subsidy for their stay during the event days of the Oasis Solar Challenge for up to twenty five (25) team members. Teams will be required to stay with the preferred accommodation partners of the event to qualify for this subsidy. If the subsidy for the accommodation does not cover the team's total accommodation expenses the team will be liable to pay the difference, not the event organisers
 - The accommodation subsidy each participating team will receive will assist teams with their accommodation requirements (teams are required to utilize event partners to qualify for this subsidy)
 - One of the on-road segment nights will be spent in the desert where teams will receive catering, accommodation, and full Arabian Desert hospitality for up to twenty five (25) team members

1.15. Other Fees

- 1.15.1. A fee (estimated at \$500 USD) will be payable to the event organisers by the owner of each solar car in respect of a refundable deposit for the use of each team's allocated pits. Teams will receive the deposit back in full should the pits be returned as they were found upon the conclusion of the event. If a team's pits are deemed to be found in a lesser condition in respect of damages or rubbish, a portion or the whole deposit will be used to restore the pit to its original condition.

1.16. Cancellation of the Event

- 1.16.1. The event organisers reserve the right to cancel or abandon the event for reasons beyond its reasonable control, including but not limited to acts of God, natural disasters, acts of war, weather, riots and strikes outside its organisation, communicable diseases crisis and quarantine restrictions.

1.16. Insurance

TBC

1.17. Team Members

- 1.17.1. Each team must include (but not be limited to):

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Role	Responsibilities
A Team Director	Responsible for communication between the event organisers and the team only in the case of a serious infringement
A Team Manager	Responsible for the overall management of the project and the team, serves as communication post between the event organisers and the team and reports only to the Team Director
A Safety Officer	Responsible for the safety of the team
A Battery Officer	Responsible for the solar car battery
An Interpreter	*If the Team Manager isn't proficient in English
At least three (3) and at most six (6) solar car drivers	Responsible for driving the solar car
At least two (2) drivers for each support vehicle (solar car drivers should not drive support cars on the same day as driving the solar car)	Responsible for driving the support vehicles
At least one (1) person with a recognised first aid certificate that is current for the duration of the event (preferably the Safety Officer)	Responsible for ad hoc/emergency medical support
A Community Engagement Manager	Responsible for interacting with different communities along the route and engaging in official event activations and education programmes

For the team to be granted permission to commence Scrutineering all team members must be registered at Yas Marina Circuit in Abu Dhabi.

- 1.17.2. Each team member will be required to register online and be physically present at the team registration at Yas Marina Circuit in Abu Dhabi. All team members must be at Yas Marina Circuit and registered by 17H00 GST on Saturday, the 29th of January 2022.
- 1.17.3. A person holding the position of Team Director, Team Manager, Safety Officer or Battery Officer may not hold any other of these roles.
- 1.17.4. A person holding the position of Team Manager, Safety Officer or Battery Officer must be seated in the front escort vehicle, solar car, or rear escort vehicle during the on-road component of the event while the solar car is in motion on a public road.
- 1.17.5. The person holding the position of Safety Officer may not be a solar car driver.
- 1.17.6. Each solar car driver must hold an appropriate motor vehicle driver's license recognised by UAE and Abu Dhabi authorities and valid for the total period of the event.

*Driving licenses will be inspected and verified by UAE/Abu Dhabi Road Transport Authorities (RTA) as part of the scrutineering process. Acceptable driving licenses must include a photograph of the holder, the class of vehicle for which the license applies and the expiry date. If these details are not in English, either the license must be accompanied by a certified translation, or a valid International Driving License is required. *Refer to the RTA website for detailed information [here](#).*

- 1.17.7. The event organisers are unable to take responsibility for any person under the age of 18.

An entrant may make a request for a minor to be included in their team provided such request is accompanied by a document giving permission and acknowledgement that supervision of the person concerned is the



responsibility of the Team Manager, not the event organisers. The document must be signed by both the parent or legal guardian of the proposed participant, and the Team Manager.

1.18. Team Identification

- 1.18.1. Team, Team Manager, and solar car details will be taken from the online registration form.
- 1.18.2. Requests to change registration details will only be considered when submitted, by the Team Manager, by email or through other applications arranged by the event organisers.
- 1.18.3. Once a registration has been accepted, any request to change registration details will be subject to the provisions of Sporting Regulations 1.27 and the approval of the event organiser.
- 1.18.4. Each team will be allocated a team number on acceptance of registration.
- 1.18.5. Teams may make a special request for the use of a team number. Requested numbers should contain two digits.
- 1.18.6. Allocation of any number is at the sole discretion of the event organiser.

1.19. Permits

- 1.19.1. Motor vehicles, including solar cars, entering the UAE will require a permit from the UAE Federal Customs Authority (FCA).
Strict conditions are in place for the import of all motor vehicles entering the UAE including experimental vehicles (solar cars), therefore the event organisers have partnered with DHL, the official event freight and logistics partner who will assist the teams in this regard. Please see the Freight Manual for detailed information. For assistance from the event organisers teams must contact the Team Liaison Officer at teamdesk@oasischallenge.com.
- 1.19.2. Import permit arrangements for other vehicles (including road trailers) are the responsibility of the entrant.

1.20. Freight

- 1.20.1. All invited teams will receive a \$10,000.00 USD subsidy to cover logistics and freight requirements, when utilising the exclusive partners of the Oasis Solar Challenge, DHL. Freight deliveries to Yas Marina Circuit outside the dates of the event will not be accepted.
Details of all freight, customs and quarantine arrangement will be provided in the Freight Manual supplied by the official freight and logistics partner of the Oasis Solar Challenge – DHL

1.21. Visas

- 1.21.1. Citizens of some countries other than UAE need a visa to enter the UAE.
Visas are the responsibility of the individuals concerned. Visa requirements are detailed by the UAE Federal Authority for Identity and Citizenship. Information on how the event organisers is permitted to support visa applications will be provided in the Team Manager's Guide. For further information regarding Visa requirements and applications visit <https://uae/en/information-and-services/visa-and-emirates-id> or <https://smartservices.ica.gov.ae/echannels/web/client/default.html#/login>

1.22. Vehicle Preparation

- 1.22.1. Preparation facilities will be available at Yas Marina Circuit in accordance with the dates listed in the schedule.

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The event organisers are responsible for all operations at Yas Marina Circuit. Yas Marina Circuit management is unable to assist with early arrivals, pit allocations or freight issues. Detailed arrangements will be published in the Team Manager's Guide and via Team Notices.

1.23. Style Guide

- 1.23.1. The correct title of the event is the *Oasis Solar Challenge*. Entrants and their sponsors must use the correct title in all references to the event.
- 1.23.2. The *Official Logo* of the event will be published as an appendix to these regulations. The *Official Logo* will be supported by a style guide that details its conditions of use.
- 1.23.3. Registered entrants and their sponsors wishing to use the *Official Logo* in non-commercial publicity may do so in accordance with the requirements of the style guide.
- 1.23.4. Registered entrants and their sponsors wishing to use the *Official Logo* in a commercial context (i.e., merchandise offered for sale) must seek the written permission of the event organisers.

1.24. Sponsorship Obligations

- 1.24.1. It is a condition of participation that the entrant acknowledges event and category sponsors in their own publicity. Failure to do so may result in the team being delisted from event publicity.

1.25. Media and Promotional Obligations

A promotional schedule will form part of the schedule of activities. The promotional schedule will contain details of official media calls and other promotional activities created for the benefit of the event, the entrants, and their sponsors.

Per Regulation 1.12.2, requests to attend media calls, promotional activities, public appearances etc. are obligatory for all registered teams.

- 1.25.1. Notwithstanding the provision of Regulation 1.25.6, the event organisers will respect the Intellectual Property of the respective owners. Technical details of solar cars will be kept confidential until the start of static scrutineering and commercial in confidence requests and media embargos will be honoured.
- 1.25.2. Registered entrants must notify the event organisers of public, or media promotional activities held for or on behalf of their attendance in the event, not less than seven days prior to the activity taking place.
- 1.25.3. Media travelling with or in support of any team must comply with the event media accreditation requirements.
- 1.25.4. Entrants will be held accountable, through the application of event penalties, for the unacceptable actions of media representative travelling with or in support of their team, whether registered as such or not.

Standard operational procedure of UAE police is to first remove the cause of any problem. Police have advised that, where media vehicles following a team are creating a danger for other road users, they will take the solar car off the road. Teams are advised to reinforce this point to their country's media in their own language.

- 1.25.5. Registered entrants who maintain an internet presence are required to provide a link to the official Oasis Solar Challenge website: www.oasischallenge.com.



- 1.25.6. The creation and use of any sound recordings or still or moving images of the event used for commercial gain or public performance by the entrant or their sponsors are subject to the prior written approval of the event organisers.
- 1.25.7. Non-commercial media content generated by the entrant must reference the event in accordance with the provisions of Regulation 123.
- 1.25.8. Teams and or their sponsors shall not engage in any marketing or promotional activity that will materially detract from the value and standing of the event or its sponsors.
- 1.25.9. Activity by sponsors of teams shall not imply ownership or sponsorship of the event.
- 1.25.10. Entrants are responsible for the activities of their sponsors.

1.26. Remotely Piloted Aircraft (Drones)

- 1.26.1. Remotely piloted aircraft (RPA) may only be operated with the approval of the event organisers.
- 1.26.2. RPA registration and pilot accreditation must be in accordance with the UAE General Civil Aviation Authority (GCAA) regulations. <https://www.gcaa.gov.ae/en/Pages/Default.aspx>

Further information will be provided in the Team Manager's Guide and/or any subsequent Team Notices.

1.27. Compulsory Documentation

- 1.27.1. Except for Group D documents, each team must submit documentation using online forms. All submissions must be made by the dates stated in the event schedule.

The purpose of the documentations is to help teams identify potential compliance issues before the car is shipped to the event.

Group A

- General Specification
- Electrical System Specification
- Solar Collector Specification
- Energy Storage System Specification

Group B

- Battery Incident Plan
- Team Safety Plan
- Team promotional information
- Publication-quality information and photographs of the team and solar car

Group C

- Logistics schedule
- Travel, arrival, and accommodation information

Group D

Group D documentation must be submitted prior to static scrutineering, as defined in the schedule.

- Final technical documentation that describes the car as built and highlights any changes since earlier submission.



- Two printed A4 copies of a diagram of the solar car in plain view, with the front of the solar car depicted at the top of the diagram, and clearly showing how emergency isolation is to be activated.
- The original signed Roadworthiness Certificate
- A simplified wiring diagram, printed on A4 paper, showing how the main functional blocks (PV array, energy storage packs, electronics modules, etc.) are connected, together with circuit breakers, and fuses.

The example Solar Wombat electrical diagram, available on the Oasis solar challenge Website, indicated the level of detail required for the simplified wiring diagram.

- 1.27.2. If the Team Manager wants to vary the documentation after the submission deadline, the Team Manager must make the request to the event organisers in writing setting out the proposed variations. If the event organisers accept the Team Manager's request, the varied document will supersede all previous versions. The event organisers will not be responsible for failure to broadcast or publish any document for publicity because of variations proposed by the Team Manager.

2. The Adventure

2.1. Supervision

- 2.1.1. The Clerk of the Course is responsible for supervising on-road activities.
- 2.1.2. During on-road activities, communication with the Clerk of the Course must be made through the Challenge Control Centre (CCC).

The Challenge Control Centre (CCC) will serve as the first point of contact between the teams and the Clerk of the Course during the on-road segment. Contact details for emergency contact personnel will be shared with teams via a Team Notice.

2.2. Safety

- 2.2.1. The team Safety Officer is responsible for the general safety of the team.
- 2.2.2. The team Battery Officer is responsible for the safe operation of batteries and for supervising response to any battery emergency.
- 2.2.3. Battery incident response kits must be made readily available to the solar car and any other vehicle carrying solar car batteries.
- 2.2.4. A team member with a recognised first-aid certificate (preferably the Safety Officer), currently for the duration of the event, must travel in the front or rear escort vehicle.
- 2.2.5. It is the responsibility of each team to ensure that the vehicles under its control are maintained in a safe, roadworthy condition and are operated safely and within the law always.
- 2.2.6. All solar cars and escort vehicles are operated and driven at the team's own risk.
- 2.2.7. The Clerk of the Course may exclude any team from the event at any time if any team member operates a solar car or any other vehicle in an unsafe manner.
- 2.2.8. Teams must look after the health and safety of their team members and observer.

Fatigue and dehydration are serious hazards in this event. This is especially relevant to drivers, particularly those of solar cars.

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- 2.2.9. Drivers, team members, officials and observers are to be drug free and maintain a blood alcohol level of 0.00% whilst engaged in any duties associated with the event.
- 2.2.10. Random testing for intoxicating substances may be conducted throughout the event at the organisers' discretion involving any individual who falls under the authority of the event organisers.

2.3. Safety Belts

- 2.3.1. The use of safety belts is mandatory for all occupants of motor vehicles in the UAE, including solar cars.

2.4. Helmets and Safety Apparel

- 2.4.1. Each occupant of a solar car must wear an approved motorcycle helmet securely fitted and fastened in accordance with the manufacturer's instructions.
- 2.4.2. Motorcycle helmets must have a mark certifying compliance with either:
 - DOT standard a.k.a. FMVSS 218
 - UNECE 22.05 standard a.k.a. United Nations Economic Community of Europe Regulation No 22

Half-shell helmets are not permitted.
- 2.4.3. Helmets must not be modified, have unauthorised attachments, or be used in any way contrary to the manufacturer's instructions.
- 2.4.4. Fire-resistant clothing (overall, gloves, shoes, socks, balaclava, and underwear) is specified as mandatory.
- 2.4.5. Such fire-resistant clothing must be in good condition and should be FIA approved or locally produced by a recognised manufacturer from flame-retardant material. The clothing item must be clearly labelled to indicate whether it is FIA approved or locally produced from flame-retardant material. In instances where the racing overall being worn is not FIA-approved, underwear that is FIA-approved should be worn underneath it.
- 2.4.6. Race suits which carry a valid FIA approval (clearly indicated on the collar) and which appear on the official "technical list" of the FIA will be deemed to be similarly approved by the Oasis Solar Challenge.
- 2.4.7. All local race suit manufacturers are required by the Oasis Solar Challenge to include a permanent identification label on the outside of the back collar to indicate compliance with recognised fire-retardant fabrics and specifications.
- 2.4.8. Recognised fire-retardant fabrics for use in race suite manufacturing include:
 - Nomex
 - Diamond
 - Pyrovatex
 - Aflammit
 - Proban
 - Kermal
 - Ter
 - Carmyth Karvin



- Delta C
 - Hoco Tex Aramid
 - PBI
- 2.4.9. In addition to the fabric itself the Oasis Solar Challenge highly recommends that Nomex sewing thread or similar flame-retardant thread be used in the manufacturing of the garment for all stitching and box quilting.
- 2.4.10. The Oasis Solar Challenge recognises fire retardant race suit specifications:
- Level 1: One piece race suit with one layer of approved fire-retardant fabric
 - Level 2: One piece race suit with two layers of approved fire-retardant fabric
 - Level 3: One piece race suite with two layers of approved fire-retardant fabric of which at least one layer is Nomex, or a similar fabric approved by the FIA

2.5. Safety Equipment

- 2.5.1. Suitable and appropriate safety equipment must be carried always. The minimum safety equipment that must be carried in the rear escort vehicle is:
- A first-aid kit
 - Safety glasses and gloves for handling batteries
 - At least two hazard warning cones
 - Two yellow warning flags, minimum size 300 mm x 300 mm
 - Suitable fire extinguishers
 - Fire blankets
 - Sand (or similar material) for extinguishing fires
 - A spade
 - Suitable containers for damaged electrochemical cells
 - Safety vests
 - Two whistles

2.6. Support Vehicles

- 2.6.1. Each team must supply a front and a rear escort vehicle, a means of transporting the solar car, and sufficient additional vehicles to transport and support the team and its equipment during the event.
- 2.6.2. The minimum requirement for transporting the solar car is a suitable truck or trailer, which must accompany the team throughout the journey.
Many vehicle rental companies in the UAE require the hirer and all drivers to be at least 18 years of age, and drivers under the age of 25 can expect additional surcharges. Trailers should be booked early.
- 2.6.3. Each solar car must, always when in motion on the route, be accompanied by two escort vehicles – one immediately in front of the solar car and one immediately behind the solar car.
- 2.6.4. A minimum of two drivers must be available for every vehicle associated with the team.



- 2.6.5. The rear escort vehicle must not be a bus, truck or large campervan or be towing a trailer.
- If traffic approaching from behind sees a large vehicle with a flashing light, the immediate perception is that the vehicle itself is the hazard, not the solar car it is escorting. This may lead to a member or the public overtaking large rear escort vehicle only to encounter an unexpected and previously unsee solar car. Large rear escort vehicles make it difficult for vehicles approaching from the rear to see the solar car.*

2.7. Escort Vehicle Signage

- 2.7.1. All team vehicles must carry a sign, visible from 30 m to the rear, stating the name and team number of the team to which they belong.
- 2.7.2. All team vehicles equipped with Citizen's Band (CB) radio must carry a sign, visible from 30 m to the rear, advising the CB channel number in use.
- 2.7.3. A warning sign larger than 900 mm x 300 mm with black lettering on a yellow background, clearly visible from 30 m, must be displayed on the rear escort vehicle stating:

CAUTION: SOLAR VEHICLE AHEAD

- 2.7.4. No vehicle other than the rear escort vehicle may carry such a sign.
- 2.7.5. Front and rear escort vehicles must be fitted with amber flashing lights visible from all directions at a distance of at least 200 m in daylight. Flashing amber lights must not be obscured by signs or other equipment on the roof of an escort vehicle.
- Beacons designed as warning devices for industrial equipment are unlikely to meet the visibility requirements.*

2.8. Communication

- 2.8.1. Every solar car must have means of two-way voice radio communication with its rear escort vehicle. Communication must be possible whenever the driver is in the solar car, including when the main energy storage contractors are open and when the car is in safe state.
- 2.8.2. Each team must carry a satellite telephone and notify the event organisers of its number. This notification will be required at registration when arriving on site at Yas Marina Circuit. An external antenna is usually required when using a satellite telephone in a vehicle.
- 2.8.3. The front and rear escort vehicles (at least) for each solar car must each have an 80-channel UHF CB radio compliant with the Telecommunications and Digital Government Regulatory Authority of the UAE (TDRA) regulations. Teams must monitor the channel they have been allocated always while on the road, and respond promptly and courteously, in English, to reasonable communications with other road users, teams and officials. <https://www.tdra.gov.ae/en/home.aspx>

2.9. Heavy Vehicles

- 2.9.1. Any team operating or contracting a vehicle over 5.4 tonnes GVM or a passenger vehicle with 12 or more seats must register the full details with the event organisers.
- 2.9.2. Compliance with UAE regulations and campaigns concerning driving hours, record keeping, and fatigue management is mandatory.

2.10. Preparation and Testing

- 2.10.1. The event organisers will provide facilities for team preparation and track testing of solar cars at Yas Marina Circuit in accordance with the dates listed in the schedule.

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- 2.10.2. All participating teams must base themselves, and their solar cars, at Yas Marina Circuit from Saturday, 29th January 2022.
- 2.10.3. The event organisers will appoint a paddock manager to supervise the preparation test facility. The directions of the paddock manager must be followed.
- 2.10.4. Articles 91 to 101 of the UAE Labour Law specify the provisions or employees' safety and health care and will apply to all event-related activities in the UAE.
- 2.10.5. The Clerk of the Course may impose event penalties for breaches of speed limits or other rules at Yas Marina Circuit.
- 2.10.6. No test driving is to be conducted in the paddock, car park or access roads.
- 2.10.7. The track must not be accessed without clearance from the Clerk of the Course/track controller.
- 2.10.8. Any team driving a solar car on a public road without a permit is liable to civil penalties and exclusion from the event.

Teams who make direct contact with UAE road authorities delay this process.

- 2.10.9. The event organisers reserve the right to request a security deposit against damage, rubbish removal or cleaning beyond reasonable expectations.

2.11. Team Registration and Scrutineering

- 2.11.1. All participants are required to attend with their team to complete the registration process and present their solar car for the scrutineering process. The scrutineering process is divided into static and dynamic operations.
- 2.11.2. Team registration and static scrutineering will take place at Yas Marina Circuit, or such other place as determined by the event organisers at the time and date described in the schedule.
- 2.11.3. Teams must attend registration and static scrutineering with:
 - The Team Manager, and an interpreter if required
 - All solar car drivers, with their driving licenses
 - Any waiver documents required for participating under the age of 18
 - Original signed copy of the indemnity form
 - All solar car passengers
 - The team Safety Officer
 - The team Battery Officer
 - The solar car, in road-ready condition
 - Front and rear escort vehicles, including any trailer that may be attached to the front escort vehicle, in road-ready condition
 - The solar car trailer or solar car transport truck they intend to use in the event
 - Tools and personnel required to facilitate inspection of the solar car
 - A list of all vehicles associated with the team, including make, model, colour, and registration number



- Group D compulsory documentation
 - A spare solar car tyre of each type
 - A sample energy storage cell (if cells inside the energy storage packs are not clearly visible)
 - The lockable box in which energy storage packs can be impounded where required
- 2.11.4. Solar cars must be transported to scrutineering on the solar car trailer or truck that will be used during the event.
- 2.11.5. The Team Manager must attend all registration and scrutineering stations. A Team Manager not proficient in English must provide an interpreter to accompany them always during this process.
- 2.11.6. All team members must complete their online registration by signing in at registration.

2.12. Static Scrutineering

- 2.12.1. Static scrutineering will check for compliance with the regulations and will include a regulatory compliance and roadworthiness inspection by the UAE Roads and Transport Authority (RTA).
- 2.12.2. Qualification must be achieved in road-ready condition. *Teams that do not present at the designated time in road-ready condition may fail to qualify.*
- 2.12.3. Up to seven members of a team (including an interpreter and any team media personnel) may accompany the solar car on the scrutineering floor. Team members may be substituted between inspection stations.
- 2.12.4. Some dismantling (such as removal of the solar collector or top shell) may be required to facilitate inspection of the following components:
- Mechanical systems (including seats, tyres, brakes, and steering)
 - Electrical systems
 - Energy storage systems
- 2.12.5. Dismantling and reassembly of the solar car when required to facilitate inspection of the solar car must be conducted (in the sole opinion of the Chief Scrutineer) in a reasonable time.
- 2.12.6. Checks and inspections with the solar car in a road-ready configuration will include, but not be limited to:
- Signage
 - Dimensions
 - Solar collector type and size
 - Egress – all solar car drivers and passengers are required
 - Vision – all solar car drivers are required
 - Lights, indicators, and horn
 - Electrical compliance
- 2.12.7. All energy storage devices must be declared at static scrutineering. Failure to declare any energy storage devise may lead to disqualification.



- 2.12.8. The mass of each Challenger Class solar car driver, with helmet, driving clothes, and shoes, will be determined at scrutineering. If the mass of a driver is less than 80kg, ballast provided by the team will be added to make up the difference. No credit will be given if a driver or passenger weighs more than 80kg. All ballasts provided by the team will be weighed and scrutinized during the scrutineering process to ensure all regulations are abided by. Ballast must consist of non-functional items e.g., batteries may not be used as ballast.

Deliberate consumption of excessive food and drink prior to weigh-in is not in keeping with the spirit of the event and may be hazardous to the health of the individual.

Solar car occupants must wear similar clothes (including shoes) while driving as when they weigh in.

If there is a weight discrepancy regarding the ballasts provided by the team the event organisers will provide additional ballasts to compensate for the discrepancy.

- 2.12.9. Drivers may be re-weighed at any time during the event. Changes in weight considered unreasonable by the Chief Medical Officer will be referred to the Clerk of the Course.
- 2.12.10. Non-compliance penalties may be imposed at the absolute discretion of the Chief Scrutineer and may include failure to qualify. Penalties will be published.

2.13. Dynamic Scrutineering

- 2.13.1. Dynamic scrutineering exercises will test the speed, stability, and braking capability of the solar car.
- 2.13.2. Dynamic scrutineering will be held at Yas Marina Circuit, or such other place as determined by the event organisers, on Thursday, 3rd February 2022. Attendance of Team Managers and drivers at 07:00 roll call is mandatory.
- 2.13.3. No solar car may be submitted for dynamic scrutineering without having first passed static scrutineering.
- 2.13.4. Solar cars must complete dynamic scrutineering in road-ready condition and with occupants and ballast in place.
- 2.13.5. No solar car will be given permission to start the event until it has passed dynamic scrutineering. Any solar car failing dynamic scrutineering will only be permitted to re-scrutineer at the absolute discretion of the Chief Scrutineer. Dynamic scrutineering will close at 15H00 on Thursday, 3rd February 2022.
- 2.13.6. All solar car teams should complete dynamic scrutineering with sufficient time to prepare for the qualifying "hot lap".
- 2.13.7. The qualifying "hot lap" will take place on Thursday evening, 3rd February 2022 during night time under the spectacular lights of the Yas Marina Circuit with a VIP reception for all event stakeholders.
- 2.13.8. Start grid positions for the Official Start of the event will be determined by the final standings of the qualifying "hot lap" results.

2.14. Modifications or Changes After Scrutineering

- 2.14.1. Once a solar car and its drivers have passed static scrutineering, no changes to the design or configuration of the solar car (that is, to any items described in the compulsory documentation) or changes to drivers will be permitted.



- 2.14.2. Once a solar car has passed dynamic scrutineering, and until released from the start line, component exchange, modification or repair to the solar car is not permitted without the approval of the Chief Scrutineer.

2.15. Briefings

- 2.15.1. A compulsory briefing for Team Managers and team Safety Officers will be held at Yas Marina Circuit on Saturday, 29th January 2022 at a time and place to be advised. Team Managers not proficient in English must request permission to be accompanied by an interpreter.
- 2.15.2. A compulsory safety, procedural and media briefing will be held on Friday, 4th February 2022 at a time and place to be advised. All team members must attend.

2.16. Observers

- 2.16.1. The Clerk of the Course will appoint an observer to travel with each team. Observers may be changed between teams at any time during the event.
- 2.16.2. The observer's responsibilities are:
- To record the locations and times that teams start and stop
 - To record the locations and times of all activities and incidents that may affect the outcome of the event
 - To record the number of Cruiser Class occupants travelling between control stops
 - To check that ballast is correct for each driver or passenger change
 - To be satisfied that the energy storage system cannot be charged or interfered with between sunset and sunrise
 - To notify an Event Official or the Clerk of the Course at the earliest opportunity if any breach of regulation is suspected, energy storage cells or modules have been changed or an energy storage system seal broken, or if they have any concerns about the actions of the team
- 2.16.3. Observers are not permitted to interpret regulations or to give advice or directions to teams. Advice or directions from observers do not supersede regulations or directions from Event Officials. The only exception is if an observer asks a team to stop because they feel unsafe – the team must stop.
- 2.16.4. Each team's responsibilities to the observer are:
- To assist the observer in their duties always
 - To provide reasonable food for the observer at least three times a day, and such drinking water as the observer may require (unless otherwise arranged by the event organisers)
 - If requested by the observer, to send for assistance from the event organiser or transmit information to the Challenge Control Centre
 - To provide a proper seat in the rear escort vehicle
 - To provide space for the observer's luggage in the rear escort vehicle
 - To not make any demands of the observer to assist team operations
- 2.16.5. Each team must allocate the front passenger seat of the rear escort vehicle to the observer. This includes fair and reasonable space with, for example, the foot well not being filled with computer equipment such that the passenger space is restricted.



2.17. Start Line and Grid

- 2.17.1. The ceremonial start of the event will be held at Yas Marina Circuit, from 09H00 on Saturday, 5th February 2022, or such other place and time as the event organisers may direct. Detailed procedural instructions will be issued at Yas Marina Circuit via a Team Notice.
- 2.17.2. Starting position will be determined by class and performance during dynamic scrutineering (refer to Regulation 2.13).
- 2.17.3. All solar cars must be in their starting grid position by the appointed time for final inspections. Any solar car not present will have their starting position amended.
- 2.17.4. Teams must not work on their solar cars on the start grid.
- 2.17.5. Two team members must stay with the solar car on the start grid to assist Event Officials with final inspections.
- 2.17.6. Front and rear escort vehicles must be in their designated places by 08H30.
- 2.17.7. Escort vehicles must be in position with the solar car before entering public roads. Solar cars which have left the start line and whose escort vehicles are not ready to merge will be directed to return to the start area.

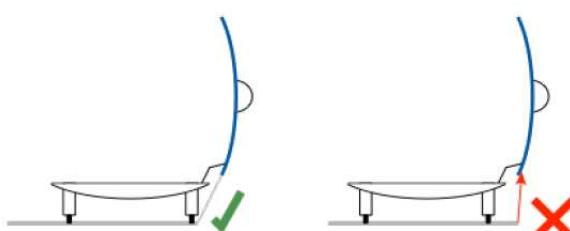
Team Managers should recognise that it is not a realistic expectation for escort vehicle crew members to witness the start and re-join their vehicles to make a timely departure.

- 2.17.8. Except for Day 1, all vehicles must be in place by 07H00 in starting grid position for final scrutineering and vehicle inspections.
- 2.17.9. The starting grid will be classed as "parc fermé" between the hours of 07H15 and 07H45 or such other time as the Clerk of the Course may nominate.
- 2.17.10. Starting positions for all days other than Day 1 will be determined by the previous day's results.
- 2.17.11. Special stages will be declared for various reasons, these include record attempts, required trailering stages, and slower speed stages. Although most special stages will be documented ahead of the event, due to changing conditions or changes to previous special stages, new special stages may be defined during the event.

2.18. Energy Collection and Storage

- 2.18.1. Charging the energy storage system or powering the solar car from an unauthorised source will lead to exclusion from the event.
- 2.18.2. External devices intended to increase the irradiance on the solar collector or increase the efficiency of the solar collector must not be used at any time with the exception of spraying water from a handheld device or external source.

Ground sheets must not be placed in any position where it is possible to draw a straight line from any part of the ground sheet to any part of the solar collector.



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- 2.18.3. from the official start of the on-road component of the event until finish or withdrawal, the energy storage system must never be removed from the observer's control.
- 2.18.4. Damaged energy storage cells may be bypassed, but must not be removed from the energy storage system unless it would be unsafe to leave them in. cells removed must be replaced by ballast with mass greater than the mass of the removed cells.
- 2.18.5. If a solar car is unable to continue because too many energy storage cells have been damaged, the team may, with the event organisers' permission, replace cells and continue. The final ranking of the team will be based on the distance achieved before replacing cells.

2.19. Route

- 2.19.1. This is a multi-stage event consisting of 6 consecutive Challenge days.
- 2.19.2. The event course will be on public roads in and around Abu Dhabi and will include sections of major highways and other national roads – approximately 2400 km excluding loop stops.
- 2.19.3. One printed copy of the official route notes will be provided to each registered team. Additional copies will be available for download from the Oasis Solar Challenge website before the event commences.
- 2.19.4. Mandatory control stops will be established along the route. The locations of the control stops will be published in the official route notes.
- 2.19.5. Any detour signs erected by the civil authorities must be observed and the correct route re-joined at the first opportunity.
- 2.19.6. The event organisers may change the course at any time.
- 2.19.7. Longer distances can be achieved via completing loops, which will give competitors the ability to travel farther than the set distance in a single day.

2.20. Special Stages

- 2.20.1 The organisers reserve the right to implement special stages to the route to test participating teams' strategy skills and teamwork. There will be 1 special stage implemented at the 2022 Oasis Solar Challenge. Each special stage consists of a different set of rules or instructions.

Marathon Stage

A 2-day Marathon Stage will be implemented on day stage 3 and 4 during the on-road segment of the event. The event organisers carefully plan where the Marathon Stage will take place to ensure the safety of all participating teams and parties involved. The following key rules or instructions apply:

- Information regarding the Marathon Stage will be provided to the teams prior to the event with the wholistic compilation of the published Route Notes
- The following information will be known to all teams as published in the Route Notes
 - Location of the start line for the day's stage
 - Location of the control stop for the day's stage
 - Location of the finish line of the day's stage
 - Any information relating to the day's route



- Any information relating to the day's loop
- Rules and instructions for the Marathon Stage
 - Teams will start the day's stage as per normal circumstances
 - Once teams cross the finish line solar cars are required to complete the mandatory 30min in parc fermé
 - Any tools, gear or equipment of any kind that is required to work on the solar car must be transported by the team, no logistical support will be provided by the event organisers during the Marathon Stage
 - Teams may set up their main workshop in designated areas, this will be monitored at the discretion of the event organisers
 - Teams may erect a structure over or around their solar car within reason of other teams and their solar cars, this will be monitored at the discretion of the event organisers
 - Teams will spend the night in the Arabian Desert where Bedouin culture, hospitality and entertainment will form part of the Oasis Solar Challenge experience (more information regarding the Arabian Nomadic Experience to be released closer to the time of the event)

Distance Based Stages

Distance based stages are designed with the goal for solar car teams to attempt to rack up as many kilometres as possible by completing the set daily distance and to accumulate additional kilometres by completing loops set out by the event organisers.

Time Based Stages

Time based stages are designed with the goal for solar car teams to attempt to complete the set daily distance in the fastest time with the provision of abiding by all local traffic regulations and authorities.

2.21. Timing

- 2.21.1. The official start time on Day 1 will be 09H00 for all teams.
- 2.21.2. The official start time each day after Day 1 is 08H00. The official finish time each day is 17H00, at this time all solar cars need to be based at the nightly stop.
- 2.21.3. The official finish time on Day 6 will be 16H00 for all teams.
- 2.21.4. A penalty of 1 point deduction will be imposed for each minute taken past the official finish time, up to and including 10 minutes past the official finish time. Beyond 10 minutes, each additional minute will attract a penalty of 2 deduction points. Point penalties incurred in this manner will determine an adjustment of the official start time the following day.

Example: If a team finished 5th on Day 1 and crosses the finish line at 17H07 their score will be calculated according to the following equation: (total accumulated points) - (penalty points) = final total score e.g., 10 points (finish position) - 7 points (late penalty) the final total score after Day 1 = 3 points.

If a team finishes at 17H13 they will be penalised with 16 points ($1 \times 10 + 3 \times 2 = 16$), if the team's total score on Day 4 is 32 points, the final total score after Day 4 will be $32 - 16 = 16$ points.

- 2.21.5. A solar car starting before its official start time will be subject to a penalty of 2 deduction points for each offending minute.

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- 2.21.6. Event timing is managed by the official Event Timekeeper with the assistance of assigned observers.
- 2.21.7. Timing starts when the solar car crosses the start line and is stopped when the solar car crosses the finish line for the day. This is called the period in which the team is "competing". Teams are permitted to charge before crossing the finish line, but the clock will continue to run on.
- 2.21.8. If the Clerk of the Course chooses to apply point deduction penalties in place of or in addition to the finish time of the solar car this will influence the determination of the final total score for the team up until that point in the competition.

2.22. Tracking

- 2.22.1. Each solar car must carry a data logging and tracking device provided by the event organisers. The specifications of the tracking device are described in Technical Regulation 1.9.
- 2.22.2. Information concerning progress and operation of solar cars may be published during the event.
- 2.22.3. Satellite tracking data will not be accepted as basis for inter-team protests.

2.23. Solar Car Drivers and Passengers

- 2.23.1 Only registered solar car drivers may drive the solar car during event hours. Please refer to Sporting Regulations 1.17.1.
- 2.23.2 When driving, ballast must be carried in accordance with the provisions of Sporting Regulation 2.12.8.
- 2.23.3 Each solar car driver must have at least two litres of water whenever they start their stint.
- 2.23.4 Solar car drivers must change every two hours.
- 2.23.5 Solar car drivers who will drive the solar car for more than one hour in a day must not drive a support vehicle within two hours of driving the solar car.

2.24. Driving Conduct

- 2.24.1 Each team must ensure that all vehicles associated with their attendance at the event are driven in a careful and courteous manner always.
- 2.24.2 Overtaking must be done in a safe manner and take in to account prevailing conditions.
A team seeking to overtake another team should communicate with the other team via radio, and both teams should maintain communication throughout the manoeuvre.
- 2.24.3 The organisers reserve the right to determine if any individual is acting de facto as a part of a team.
- 2.24.4 The front and rear escort vehicles must have their amber flashing lights operating whenever they are escorting the solar car. Support vehicles must not have amber flashing lights operating if they are not (directly) escorting the solar car.
- 2.24.5 Except when pushing a disabled solar car to a place of safety, solar cars must not be pushed along the road. Push starting the solar car is not allowed.
- 2.24.6 Whilst travelling on the open road, the front escort vehicle must be within 500 m of the solar car. The solar car must be allowed a safe stopping distance appropriate to the speed and conditions prevailing.



- 2.24.7 Whilst travelling on the open road, the rear escort vehicle must be within 5 seconds of the solar car and must always maintain a safe stopping distance appropriate to the speed and conditions prevailing.
- 2.24.8 Solar cars must not be driven on any public road between sunset and sunrise.
- 2.24.9 Teams must comply with all requirements imposed by road traffic authorities, police, or Event Officials.
- 2.24.10 Solar cars, escort vehicles and other team vehicles may be subject to scrutineering at any time during the event to ensure compliance with the regulations.

2.25 Stopping

- 2.25.1 No team vehicle may stop on the road except in an emergency or when required by traffic conditions.
Stopping on the road so that you can lift your car off the road is dangerous and will attract a penalty determined by the Clerk of the Course.
- 2.25.2 When stopped adjacent to a road, all wheels of all vehicles must be clear of the road.
- 2.25.3 Whenever possible, vehicles must be parked, and all team activity must occur, at least 1 m from the edge of the road.
- 2.25.4 Where any activity takes place less than 2 m from the road, two team members must be positioned in a place of safety to warn approaching traffic using yellow flags, and to warn the team of approaching traffic using a whistle.
- 2.25.5 If a solar car has suffered damage to any component certified by the team's certifying engineer, other than tyres, then the team may repair their solar car but may not resume driving until:
 - The team's certifying engineer has rectified the repaired car
 - The team has submitted the new certification to the Clerk of the Course
 - The Clerk of the Course has approved the resumption of driving
- 2.25.6 If a solar car rolls onto its side or roof, then the team must withdraw immediately.

2.26 Obstructing Other Road Users

- 2.26.1 Vehicles associated with a team must not obstruct other road users, including other teams. Infringement of this regulation will incur a penalty for each incident.
- 2.26.2 To avoid obstructing other road users, each driver of a team vehicle other than the solar car and front and rear escort vehicles must leave at least 200 metres of space in front of their vehicle so that other road users can overtake and occupy the space in front of them. If it is safe to do so and will help clear traffic building up behind a vehicle, drivers of team support vehicles should pull off the road to allow other road users to pass.

2.27 Control Stops

- 2.27.1 Control stops will be established at intervals along the route. Control stops are typically located halfway along the daily route but may vary at the discretion of the event organisers.
- 2.27.2 Control stops will be opened in time to accommodate the leading solar car and remain open during competition hours. Closing times will be calculated according to the minimum speed required to reach the daily finish line.



- 2.27.3 Any team that has missed a control stop must contact the Clerk of the Course.
- 2.27.4 The Clerk of the Course may direct a team to trailer their solar car to the daily finish line; this will always be done with the team's best interests at heart.
- 2.27.5 Solar cars must stop for 30 minutes at designated control stops along the route. The locations of the control stops will be specified in the official route notes provided by the event organisers. The Clerk of the Course may impose any additional penalties at a control stop.
- 2.27.6 All vehicles must obey control stop speed limits.
- 2.27.7 Teams must obey all directions given by the Control Stop Manager.
- 2.27.8 Teams must park in the spaces designated by Control Stop Officials. Teams may not modify the parking space in any way. Ground sheets may not be used. No team members other than arriving occupants may touch the solar car once it is in the parking space.
- 2.27.9 Occupants must get out of the car without assistance from other team members. Occupants must remove their ballast from their solar car.
- 2.27.10 Occupants must get out of the solar car, the arriving driver, alone, may reconfigure the solar car for charging before control stop timing commences.
- 2.27.11 Control stop timing commences when the arriving driver activates the control stop timing system.
- 2.27.12 No team member may touch the solar car for 25 minutes. The solar car may reconfigure itself.
- 2.27.13 After 25 minutes, the departing driver, alone, may reconfigure the car for driving. The driver may get into the car and prepare for departure. No other team member may touch the solar car.
- 2.27.14 The solar car may depart once 30 minutes has elapsed. The solar car must not depart until ballast and drinking water are in place, seat belts are fastened, helmets are secured, and the solar car is ready for the road.

The Control Stop Manager may reset the remaining time to 30 minutes if team members interfere with the solar car during the 30-minute control stop period.

2.28 Loop Stops

- 2.28.1 Loops stops will be established at intervals along the route. Loop stops are typically located at the same location as the daily control stop but may vary at the discretion of the event organisers.
- 2.28.2 Loop stops will be opened in time to accommodate the leading solar car and remain open during competition hours. Closing times will be calculated according to the minimum speed required to reach the daily finish line.
- 2.28.3 Loop stops are a unique element created by the event organisers to allow teams to rack up additional kilometres in addition to the set daily distances of the route in the form of set loop routes. This will ultimately determine the team with the most kilometres clocked on their solar car for distance based stages.
- 2.28.4 Teams are expected to stop at the loop stop and report their intent to continue on the loop route, or to stop completing loops to proceed to the daily finish line.
- 2.28.5 Solar cars must stop for 5 minutes at designated loop stops between each loop.
- 2.28.6 All vehicles must obey loop stop speed limits.
- 2.28.7 Teams must obey all directions given by the Control Stop Manager.



- 2.28.8 Teams must park in the spaces designated by Loop Stop Officials. Teams may not modify the parking space in any way. Ground sheets may not be used. No team members other than arriving occupants may touch the solar car once it is in the parking space.
- 2.28.9 Occupants must get out of the car without assistance from other team members. Occupants must remove their ballast from their solar car.
- 2.28.10 Occupants must get out of the solar car, the arriving driver, alone, may reconfigure the solar car for charging before loop stop timing commences.
- 2.28.11 Loop stop timing commences when the arriving driver activates the control stop timing system.
- 2.28.12 No team member may touch the solar car for 5 minutes. The solar car may reconfigure itself.
- 2.28.13 After 5 minutes, the departing driver, alone, may reconfigure the car for driving. The driver may get into the car and prepare for departure. No other team member may touch the solar car.
- 2.28.14 The solar car may depart once 5 minutes has elapsed. The solar car must not depart until ballast and drinking water are in place, seat belts are fastened, helmets are secured, and the solar car is ready for the road.

The Control Stop Manager may reset the remaining time to 5 minutes if team members interfere with the solar car during the 5-minute loop stop period.

At loop stops all control stop rules apply as mentioned in Sporting Regulation 2.27 with the exception of regulations presented in Sporting Regulation 2.28.

Teams may choose when they want to complete their 30 minute compulsory control stop e.g., if a team arrives at the control stop and indicates to the Control Stop Manager that they will be performing their 5 minute loop stop followed by a loop they may proceed to do so. If the team completes an additional 3 loops with their compulsory 5 minute loop stops before each and only thereafter complete their compulsory 30 minute control stop, they may proceed to do so. As long as the team takes into consideration the fact that the solar car needs to cross the daily finish line at 17H00 as explained in Sporting Regulation 2.29.1.

2.29 Daily Finish Lines

- 2.29.1 Daily finish lines are determined by the event organisers, the schedule at each daily finish line is as follows:
 - Solar cars to arrive by 17H00.
 - At 17H00 parc fermé closes until further notice by the Clerk of the Course.
 - Park fermé will open once final results for the day have been published (subject to change at the discretion of the Clerk of the Course).
 - Depending on the facilities at the daily finish lines, participants may be required to attend organized activities arranged by the event organisers between 17H00 and 19H30. These activities may include dinner.
 - Teams are obligated to honour all daily finish line activity commitments as set out in this regulation.
- 2.29.2 Team Manager's briefings will take place after parc fermé has opened where final start times will be presented for the following morning's start, including point deduction penalties.
- 2.29.3 There are no restrictions on the number of team members used to reconfigure the solar collector for charging at the daily finish line before crossing the finish line.



- 2.29.4 The solar car must be driven, pushed by hand, or carried by hand between crossing the finish line and the parc fermé area.
- 2.29.5 The energy storage packs of Challenger Class solar cars will be disconnected and sealed as soon as the solar car is secured in parc fermé.
- 2.29.6 Energy storage packs will be unsealed 15 minutes before sunrise.

2.30. Solar Array Charging

- 2.30.1 Solar Charging is only allowed during the morning from sunrise, and while competing (when the competition time is running).
- 2.30.2 Once crossing the finish line and the competition time has stopped, the team will be allowed reasonable time (no more than 10 minutes), to demonstrate that the solar array is disconnected when secured in parc fermé.
- 2.30.3 Teams who opt to charge before crossing the finish line are still considered to be competing and must adhere to all event and safety regulations. Once charging is complete, the team must still officially cross the finish line for the competition time to be stopped.
- 2.30.4 There are no restrictions on the number of team members used to reconfigure the solar collector for charging at the daily finish line before crossing the finish line.

2.31. Trailering

The term "trailering" applies to all means of transport used to carry the solar car.

- 2.31.1 Teams unable to maintain a minimum speed of 60km/h on the open road, or unable to drive to the next control stop before it closes, or unable to drive to reach the daily finish line by 17H00 must stop and transport their solar car forward to the daily finish line.
- 2.31.2 The solar car must be in safe state always while being transported.
- 2.31.3 If a solar car is being trailered all event regulations still apply, including finish line closing times and observer protocols.

2.32. Withdrawal

- 2.32.1 A team may withdraw by forwarding a completed withdrawal form (available from the observer) to the Clerk of the Course. The solar car may be transported to Yas Marina Circuit to take part in the post event activities and awards ceremony.

2.33. Penalties

- 2.33.1 The Clerk of the Course may impose penalties on any team that breaches a regulation and may deputise any other Event Official to serve the notice to the entrant. Penalties will be published and may be used to determine overall event standings when all other determining factors are equal.
- 2.33.2 All regulation infringements are subject the scale of seriousness of the infringement.
- 2.33.3 Once a team has infringed a regulation a decision on the severity of the infringement will be taken by the Event Director, the Clerk of the Course, and an independent adjudicator within 12 to 24 hours of its occurrence.
- 2.33.4 The Team Director may submit a written or verbal testimony regarding the infringement to the panel to be assessed when contemplating the severity of the penalty to be issued.



2.33.5 Decisions regarding the severity of the penalty to be issued must be unanimous. All infringements are subject to the following criteria:

2.33.6 Minor infringements: 5 point deduction penalty and/or time penalties

This is when a team has committed a minor transgression which is not justifiable or relevant to any of the transgressions or penalties depicted in Sporting Regulations 2.33.7, 2.33.8 and/or 2.33.9.

2.33.7 Unintentional and non-beneficial: 8 point deduction penalty

This is when team A's actions unintentionally affect team B's position/opportunity to gain points/km. If team A's infringement did not benefit them in any way, they could potentially face an 8 point deduction penalty.

2.33.8 Unintentional but beneficial: 12 point deduction penalty

This is when team A's actions unintentionally affect team B's position/opportunity to gain points/km. If team A's infringement benefitted them in any way, they could potentially face a 12 point deduction penalty.

2.33.9 Intentional infringement: 18 point deduction penalty or disqualification/exclusion from the event.

This is when team A's actions intentionally affect team B's position/opportunity to gain points/km. If team A's infringement is declared intentional, they could potentially face a penalty of an 18 point deduction penalty or disqualification/exclusion from the event.

If a team is disqualified, they will be classified as a non-finisher.

2.33.10 Under normal circumstances penalties imposed are based on point deductions, however when time penalties are imposed, they shall be served on the day of issue, usually at the control stop (or the following morning) and prior to crossing the finish line or departing from the start line.

The Clerk of the Course reserves the right to impose penalties (point deductions or time penalties) after a solar car has crossed the finish line, even if such actions change the final position of the team.

2.33.11 A team accruing three or more transgressions will be excluded from the remainder of the event.

2.33.12 The Clerk of the Course may impose operation restrictions (such as speed restrictions) on any team.

2.33.13 At any time during the event, the Clerk of the Course may issue a point deduction penalty in response to any of the following behaviours noted by an observer or reported by an Event Official:

- Obstructing other road users
- Stopping on the road (other than when required by traffic conditions)
- Poor safety protocols (e.g., safety flags, whistles etc.)
- Driving without both front and rear escort vehicles
- Escort vehicles driving without visible flashing lights
- Driving without effective rear vision
- Slip streaming, pressure wave pushing or hand pushing
- Failure to follow the route instructions
- Failure to observe a request by police or Event Officials
- Wilful damage or interference to property

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- Failure to stop at a designated control stop
- Exceeding any posted speed limit
- Driving at less than 50 km/h in areas with a speed limit of 100 km/h or greater, when not constrained by traffic
- Driving without adequate visibility, due to smoke, dust, or rain
- Starting prior to the due time of departure
- Failure to comply with any provision of any event regulations

The Clerk of the Course may impose other arrangements appropriate to circumstances. Point deduction penalties for cell or module replacement shall be calculated at the daily finish line following the replacement. This will have an impact on the final total score of the team.

2.33.14 The Clerk of the Course may exclude any team from the event for wilful disregard of any regulation or of the spirit of the event. These offences include but are not limited to:

- Misrepresentation
- Wilful obstruction, or aggressive or unsafe driving
- Replacement of energy storage cells
- Charging of the energy storage system from any unapproved source
- Driving the solar car without a rear escort vehicle
- Removing the battery back from the observer's control without permissible grounds
- Unauthorised drivers operating the solar car during competition times
- Failing the stability test
- Inability to maintain minimum speed
- Carrying or towing a competing vehicle without the assigned observer present
- Attempting more than a single segment per day excluding loops
- Breach of any UAE/Abu Dhabi road regulations
- Repeated failure to adhere to instructions from Event Officials
- Accumulation of three or more infringements

Teams who have been excluded for the inability to maintain minimum speed may trailer their solar car to the finish line at Yas Marina Circuit and take part in all post event activities such as the awards ceremony etc.

If the problem experienced can be addressed after the daily finish line, the team may attempt to prove that their solar car is roadworthy and functional to the Clerk of the Course the following morning after all other teams have departed.

The panel of stewards, in consultation with the event organisers, will determine whether an excluded team will be given credit for their activities up to the point of their exclusion, and if they may participate in the post event activities, irrespective of this decision, the team will be termed a non-finisher.

2.34 Protests and Appeals

2.34.1 Protesting against the preliminary results of each daily stage must be lodged in writing by the Team Manager to the Clerk of the Course within 30 minutes of publication on the official notice board.



- 2.34.2 Upon the expiration of the 30 minute time period the preliminary results of the corresponding daily stage become final.
- 2.34.3 The Clerk of the Course may convene a tribunal to consider any protest or appeal requiring final resolution. The tribunal may take advice from any party about the incident giving rise to the decision being appealed. The decision of the tribunal is final and binding.
- 2.34.4 Where an unfounded protest has resulted in time/points loss for competition against whom the protest was lodged, the panel of stewards has the right to both penalise the claimant and find an acceptable means to credit the team that was disadvantaged.

The panel of stewards or event stewards will consider all protests at the earliest opportunity.

3. Achievement and Celebration

3.2 Completing the Course

- 3.2.1 To complete the course, the solar car must reach the finish line by the designated route, in accordance with the regulations.
- 3.2.2 For a team to be classified as a finisher a solar car must have completed at least 1000 km within the time parameters allowed.
- 3.2.3 A marshalling point will be established a few kilometres before the official finish line. The finish line time for the challenge will be determined at the marshalling point.
- 3.2.4 The solar car must drive to the official finish line escorted by vehicles provided by the organisers. Other team vehicles will be directed to pre-arranged parking at Yas Marina Circuit.

3.1 Event Results

- 3.1.1 Results published throughout the duration of the event are final.
- 3.1.2 Overall results will be determined at the conclusion of the event by consolidating all daily stage results of each team.

3.3 Challenger Class

- 3.3.1 The goal for the Challenger Class is to have driven the furthest distance during the distance based stages and to have driven the fastest stage time during the time based stages that will be converted into a points system, in accordance with the route and the regulations.
- 3.3.2 Parc fermé will be established close to the official finish line at Yas Marina Circuit. The location will be published in the official route notes. All teams must pass the marshalling point for their time to be stopped and continue to parc fermé to prepare for the official finish line proceedings.
- 3.3.3 Once all teams have convened at parc fermé the organisers will coordinate the official finish line proceedings by organising solar cars according to final competition standings. Solar cars will be placed from 1st place in a descending order.
- 3.3.4 The Challenger Cup will be awarded to the Challenger Class team that completes the route with the most points (including distance, time, and penalties).
- 3.3.5 Challenger Class teams that complete the route will be ranked by the team with the most points accumulated during the event.



- 3.3.6 Challenger Class teams that do not complete the route will be ranked behind Challenger Class team that complete the route. They will be ranked by the number of points accumulated during the challenge.
- 3.3.7 Details regarding the Oasis Solar Challenge points system will be released soon via a Team Notice or other means deemed appropriate by the event organisers.

3.6 Awards

- 3.6.1 An awards ceremony will be held at a Yas Marina Circuit venue during the evening of Saturday, 12th February 2022 (exact date, time and location will be confirmed).
- 3.6.2 Entry to the awards ceremony is by ticket only.
Tickets for up to 25 registered team members and 5 guests are included in the team entry. Additional tickets (subject to the capacity of the venue, and approval from the event organisers) for friends, family, sponsors, and public may be purchased. Further detail will be provided in the Team Manager's Guide and/or via Team Notice.
- 3.6.3 The winner of the Challenger Class will receive the Challenger Cup.
- 3.6.4 Additional awards may be presented.
- 3.6.5 The event organisers reserve the right not to present an award in any given category.
- 3.6.6 Each team will receive a participation award.
- 3.6.7 All winning teams must make themselves available for an official media call if required.

3.7 Pack-down facilities

- 3.7.1 Open air facilities will be made available for repacking solar cars for shipment at Yas Marina Circuit. All vehicles, containers and equipment must be removed from the pits by close of business, 12th February 2022.
- 3.7.2 All vehicles, containers and equipment must be removed from the Yas Marina Circuit premises by close of business, 13th February 2022. Any remaining items will be removed for storage at the entrant's expense.



Glossary

Battery	Electrochemical cells wired in series or parallel and housed in a single container
CB	Citizen's Band radio
Certifying Engineer	A professional engineer engaged by a team to report on compliance with regulations and roadworthiness requirements. The certifying engineer must be qualified to certify vehicles for operation on public roads.
Clerk of the Course	The person responsible for coordinating Dynamic scrutineering and the on-road segment of the event
DOT	U.S. Department of Transport
RTA	Road Traffic Authority Dubai
ITC	Integrated Transport Centre Abu Dhabi
Energy Storage Pack	A self-contained box containing components of the energy storage system, such as electrochemical cells and a battery management system
Entrant	The legal entity that completes the Participant Agreement and requests a place in the event for one or more teams. An entrant is typically a registered institution, organisation, or commercial entity.
Event Name	The official name of the event is the "Oasis Solar Challenge"
BWSC	Bridgestone World Solar Challenge
EVSE	Electric Vehicle Supply Equipment
FMVSS	United States Federal Motor Vehicle Safety Standards
High Voltage	More than 60 V dc or more than 30 V rms ac
FIA	Federation Internationale de'Automotive
ISF	International Solar Car Federation
Judge of Fact	A person recognised by the organiser as able to determine whether an event occurred (e.g., whether a team obstructed traffic)
Juror	A person appointed by the event to resolve disputes
Challenge Control Centre	The event organisers' operations centre
Participant	A person who has registered to participate in the event as a member of a team
PV	Photovoltaic
Regulations	2022 Oasis Solar Challenge Sporting Regulations, Technical Regulations and Team Manager's Guide
Road-ready	Ready to drive on public roads



Official Website	https://www.oasicchallenge.com
Official Instagram	https://www.instagram.com/oasissolarchallenge/
Official Facebook	https://web.facebook.com/OasisSolarChallenge
Official Twitter	https://twitter.com/challenge_oasis
Official Time	Gulf Standard Time GTM + 04:00
Scrutineering	The process of checking the solar car and other team vehicles for compliance with the regulations
Solar Collector	The solar car subsystem used to collect solar energy. It is typically an array of photovoltaic cells, with or without concentrators or reflectors, but other types of solar collectors are possible
Special Stage	Organisers implement special stages to the route to test participating teams' strategy skills and teamwork
Steward	An event official responsible for ensuring regulations are applied correctly and fairly
Team	A group of people registered by the entrant to participate in the event. An entrant may have more than one team participating in the event.
Team Manager	The person in charge of, and responsible for, the actions of a team
UHF	Ultra-High Frequency. Commonly refers to a two-way radio.
UNECE	United Nations Economic Commission for Europe, responsible for regulations for motor vehicles
VIN	Vehicle Identification Number