

Dong Energy Solar Challenge

Notice of Race 2012

Version April 28th, 2011

The Notice of Race presented in this document were drawn up to serve as directives for the race. Situations that are not covered by the Rules will be decisively resolved at the sole discretion of the jury.

DONG Energy Solar Challenge 2012, start and finish in Leeuwarden, The Netherlands, from 8 to 14 July 2012

1. Aim and purpose of the 2012 DONG Energy Solar Challenge

- 1.1. The aim of the 2012 DONG Energy Solar Challenge is to organize a Top Solar Boat Event in the province of Fryslân in order to:
- promote sustainable technology amongst the youth and more in particular students at technical universities and professional training colleges, supported by firms in boat technology.
 - stimulate the promotion and development of sustainable boats, in particular with respect to the application of solar energy in the ship- building industry.

2. Organizing authority/race organization

- 2.1. The organizing authority of the DONG Energy Solar Challenge is the Stichting Sinneboatrace Fryslân.
- 2.2. On behalf of the organizing authority the 2012 DONG Energy Solar Challenge is carried out under the management of the project director. The race organization can be contacted throughout the year on the following address:
DONG Energy Solar Challenge, p/a Grote Kerkstraat 20a, 8911 EC Leeuwarden
Postal address: P.O. Box 2567, 8901 AB, Leeuwarden.
Tel. +31 58 213 78 88 Fax +31 58 213 17 23
E-mail: info@dongenergysolarchallenge.nl
- 2.3. The office is open from Monday – Friday from 08.30 – 17.00 hours (Central European Time (CET)).
- 2.4. During the race (8 up to and including 14 July 2012) and the test days preceding the race (from 5 July 2012) a mobile race office will be set up. The telephone and fax numbers of the mobile office will be announced to the competitors in due time.

3. Rules

- 3.1. The race will be conducted subject to the provisions of this Notice of Race (NR), the 2012 DONG Energy Solar Challenge Technical Regulations (TR), the 2012 DONG Energy Solar Challenge Competition Rules (CR) and the Inland Navigation Police Regulations (BPR = Binnenvaart Politie Reglement). Collectively, these documents form the Rules, with possible subsequent additions and/or amendments to be implemented by the race organization.
- 3.2. The organization reserves the right to amend the rules (as incorporated in the NR, TR and CR) at any time. This will be done by

means of publications on the organization's website or in the form of notices during the race itself, which will be done on the official notice board.

- 3.3. All competitors in the race are expected to know and accept the Rules. The jury may penalize competitors who ignore or break the Rules. Penalties may vary from a reprimand to disqualification and exclusion from further participation.
- 3.4. All questions related to the interpretation of the Rules shall be submitted to the organization in writing. Any explanation of the rules, as well as answers to written questions, will be published on the website, (or the official notice board during the race) and be binding for all competitors.
- 3.5. In the case of a discrepancy between languages, English shall prevail.

4. Definitions (see Annex A)

5. Race schedule and events



5.1. Route

The race is sailed in the province of Fryslân. Wherever possible, the route is identical to the route of the Frisian Eleven Cities Ice-skating Race, as determined by the *Vereniging de Friesche Elf Steden*. The precise route description is available on the website.

5.2. Stages

The race consists of five stages. One stage is completed every on each day. The winner of any given class is the team that completes the overall distance in the shortest time. It is possible that there are obstacles in the route, like floodgates, work in progress on bridges and so on. These situations can possibly lead to situations where the boat has to be moved over land (so called kluunplaatsen).

5.3. 2012 DSC racing schedule:

The race schedule is as follows:

Saturday	23 June:	Technical inspections*
Saturday	30 June:	Technical inspections*
Wednesday	4 July:	15.00 hrs Camp site open
Thursday	5 July:	Registration and technical inspections*
Friday	6 July:	Technical inspections*, palaver
Saturday	7 July:	Technical inspections *, sailing tests, swimming tests
Sunday	8 July:	Prologue, 10 km speed trial through and Around Leeuwarden and 70 m sprint test in the Prinsentuin (Noorderstadsgracht)

The 2012 DONG Energy Solar Challenge stages are as follows:

Monday	9 July:	Leeuwarden – Sloten, 49 km (with a restart in Sneek or Woudsend),
Tuesday	10 July:	Balk – Bolsward, 51 km (with a restart in Workum)
Wednesday	11 July:	rest day with activities in Bolsward
Thursday	12 July:	Bolsward – Franeker, 37 km (with restart in Harlingen)
Friday	13 July:	Franeker – Dokkum, 45 km (with restart in Bartlehiem)
Saturday	14 July:	Dokkum – Leeuwarden, 25 km (restart at de Grote Wielen) (25 km) and awards ceremony

* The organization will announce in due time the dates and times on which the competitors shall submit their vessels for inspection.

5.4. Competitors have access to an overview of the obstacles in the route through the interactive route map that can be found on the web site.

All movable bridges open at the standard times and for the normal rates, unless specified otherwise. Timely passage under the bridges forms one of the strategy components to be developed by each competing team.

6. Vessel categories

- 6.1. The race is open to three categories of vessels:
- * Challenge A-class: Vessels with 4 standard solar panels and a single crew member
 - * Challenge B-class: Vessels with 5 standard solar panels and two crew members
- The panels for the Challenge A and Challenge B classes are given on loan by sponsor The Sun Factory. The technical specifications of these panels are available on the website of the Dong Energy Solar Challenge.
- Top class: Vessels in the open class. No specific regulations apply to the number of crew members and the installed power of the solar panels in this Class, but the maximum capacity to be installed is limited to 1750W.
- 6.2. In the two-person vessels, both crew members shall be on board while racing.

7. Racing numbers and publicity

- 7.1. Competitors shall install the racing number provided by the organization as specified in the TR.
- 7.2. Both the race organization and the competitors may be sponsored provided this is not in conflict with the moral standards and interests of the organization, at the discretion of the organizers.
- 7.3. By entering the event competitors accept that they may be photographed and/or videotaped participating in the race and/or using the Championship facilities and they consent to the taking of such images and to the use, reuse, publication and republication of such images in any media, in conjunction with the competitors name or not, without compensation and without the competitors approval of such images or any use there of.
- 7.4. It is not permitted to apply the logo of the organization and / or being used by a third party, without a written consent from the Stichting Sinneboatrace.

8. Participation and registration

- 8.1. The 2012 DONG Energy Solar Challenge is open to anyone with a solar-powered vessel that complies with the provisions of the Rules, provided that they have paid the entry fee, and that the skipper is not younger than 16 years of age provided that the boat is unable to sail faster than 20km/hr.
- 8.2. Teams of the A- class and the Top-class may not consist of more than 6 persons. Teams of the B-class may not consist of more than 8 persons. All team members may act as crew members

- and/or support crews.
- 8.3. Team members may only be replaced during the race where this is deemed justifiable by the race jury. The number of team members may not be changed.
- 8.4. Entry fees:
 Challenge A class: € 1.000
 Challenge B class: € 1.500
 Top class: € 2.500 (All amounts are excl. VAT)
 Entry fees are payable within two months after the entry form has been submitted and on 1 January 2012 at the latest.
 The registration-fee needs to be received on the bank account of the Stichting Sinneboatrace, by no later than Friday the 6th of July 2012. If this is not the case, the team has no right to start.
- 8.5. To qualify for participation in the race, each team must have completed steps 1 up to and including step 9. After entry (step 1) all further steps will be assessed by independent experts in the organization. The Technical Committee assesses steps 2 through 6, while the Race Committee assesses steps 7 through 9. Each step requires approval. Teams cannot qualify for the next step until approval for the current step has been acquired.

Step 1:	Registration and payment with the organizers	Deadline 1 January 2012
Step 2:	Conceptual design, specifying at least the hull shape, the propulsion system and the attachment of the solar panels; all shown in the form of design sketches	Deadline 15 January 2012
Step 3:	Modification of the concept and detailing of the technical construction. The design must at least show clearly the attachment location and system of the battery container, the seat(s), the solar panels and the motor. The attachment of the motor, the solar panels and the battery container must be supported by either a structural calculation or a load test. The Top class must also include a precise drawing of the layout of the solar panel and a calculation of maximum power output.	Deadline 15 March 2012
Step 4:	Design of the electrical system, from solar panel to the motor. This includes both an electrical circuit diagram and the physical design. Those teams that are planning to use a non-PV solar panels must show a design of the power system.	Deadline 15 May 2012

Step 5:	Feedback and approval of the total integral design. Final moment of major modifications. Progress reports on building process. The hull, the supporting construction of the panels and the propulsion system must be complete, as demonstrated by a photograph of the specified components.	Deadline 1 June 2012
Step 6:	Approval of the vessel. Approval will be based on a physical inspection of the vessel and safety devices. The inspection will be conducted under the supervision of the Technical Committee. The participants will be assigned an inspection schedule that will start a few weeks prior to the start of the race. Non-Dutch participants will be given an inspection shortly before the start of the race, if they so wish, but not later than 6 July. Starting from 23 June 2012 technical inspections will start. Participants will be informed about <u>their inspection slots</u> .	From 23 June 2012
Step 7	Sailing tests	7 July 2012
Step 8:	Swimming test for all potential skippers, and for other Challenge B class crew members.	7 July 2012
Step 9:	Prologue: Speed trial (approximately 10 km) and sprint. The sprint result only determines the starting order of the first stage. The times of the sprint and the prologue do not count for the overall classification.	8 July 2012

- 8.6. Prospective competitors may enter the race by completing and returning a signed entry form, by post or by fax, to the DONG Energy Solar Challenge.
By post: P.O. Box 2567, 8901 AB Leeuwarden, The Netherlands.
By fax: (+)31 58 2131723.
The entry form can be downloaded from the website.
- 8.7. Competitors under the age of 18 years shall send to the organization a completed parent/guardian consent form before 1st July 2012. This consent form will be made available through the event website.
- 8.8. Skippers of the competing vessels that are capable of a speed of more than 20 km/h must have a "Klein Vaarbewijs 1" [Dutch powerboat license] or ICC or comparable license from their own country. This implicates that the minimum age of the drivers of these boats must be 18 year or older.
- 8.9. Each team must have at least two skippers that have passed the swimming test.
- 8.10. All competitors are expected to participate in the race unless they decide to withdraw officially. Competitors who decide to withdraw from the race must notify the organizers in writing as soon as possible prior to the start of the race. If a competitor withdraws from the race prior to 1 January 2012 a maximum of 50% (Challenge classes) or 75% (Top class) of the entry fee already paid will be refunded. After 1 January 2012 no entry fees will be refunded.

- 8.11. The Board and the race committee reserve the right to refuse the right to entry where this is deemed necessary for organizational reasons.
- 8.12. The maximum number of entries is 60 in total. After the entry closes due to reaching this maximum number of allowed entries, the organizers will provide a waiting list for competitors and competitors will be advised that they are on the waiting list.

9. Liability and Insurance

- 9.1. The Organizing Authority and any other party involved in the organization of the 2012 DONG Energy Solar Challenge will accept no liability whatsoever for any personal or material damage (including but not limited to death, injury, consequential damages, etc.) sustained prior to, during or after the race.
- 9.2. All owners must lodge a copy in the English or Dutch language of a valid third-party liability insurance cover document for the vessel entered with a minimum cover of € 1.500.000,- (one and a half million euro) or the equivalent in the currency of the country of registration of the vessel, effective for the duration of the DONG Energy Solar Challenge, with their Entry Form.

10. Prizes

- 10.1. The following prizes will be awarded to vessels in Challenge A class, Challenge B class and in the Top class:
 - First prize (the team that completes the full distance in the shortest time)
 - Second prize
 - Third prize
- 10.2. In addition the following prizes will also be awarded:
 - The Innovation Prize for the most progressive design. This prize will be awarded based on a jury report evaluating the following aspects: durability, inventiveness and originality.
 - Incentive Prize for the team that deserves the most support for participation in the next edition of the race.
 - Bad Luck Prize for the team that was affected by the worst luck during the race.
 - The Fair Play Prize for the team that has attracted the most attention with respect to 'fair play'.
- 10.3. The winners of each stage and the overall leaders of each class will be honored at the end of each day.
- 10.4. All participants will receive a certificate of proof of participation.
- 10.5. The prize giving ceremony will take place on Saturday afternoon, 14 July 2012, i.e., the last day of the race.

11. Additional information

- 11.1. Competitors are required to report to the organizers with their vessels on Thursday 5 July 2012. The DONG Energy Solar Challenge prologue and sprint will take place on Sunday 8 July 2012. The race itself starts in Leeuwarden on Monday 9 July 2012.
- 11.2. Foreign competitors must present their vessels for a technical inspection on Friday 6 July. Dutch competitors must have their vessels inspected on 23 or 30 June 2012 or Thursday 5 July 2012 at one of the times and dates set by the organizers.
All (potential) crew members will do a swimming test and sailing test in Leeuwarden on Saturday 7 July 2012.
The organizers will announce all locations and times directly to the competitors at a later stage.
- 11.3. Each team is responsible for its own transport arrangements, as well as for the transport of its vessels and all auxiliary materials. The vessels and the auxiliary materials must be capable of being transported via the public road in accordance with the rules of the 'Wegenverkeerswet' by the teams themselves. The organizers will provide locations where the teams will be able to pitch tents in the vicinity of the stage locations.
- 11.4. Meals will be provided for team members and officials from Thursday 1 July up to and including Sunday morning 11 July 2010. Further details about accommodation and meals will be communicated directly to competitors in due time.
- 11.5. Each team will be responsible for adequate communication with the organization. Each team will be required to appoint at least one contact person for the organizers to get in touch with. Competitors are free to choose the means of communication between this contact person and the sailing team members.
- 11.6. Prior to the start of the race communication takes place only through the race organizers. This also applies to any technical communications. The race organizers can be reached at info@dongenergysolarchallenge.nl. A number of Frequently Asked Questions (FAQ) can be found on the website www.dongenergysolarchallenge.nl.

Annex A. Definitions

Rules: The provisions of the Notice of Race, the Technical Regulations of the 2012 Dong Energy Solar Challenge, the Rules of the 2012 DONG Energy Solar Challenge and the Inland Navigation Police Regulations (BPR for Binnenvaart Politie Reglement) together constitute the Rules, as well as any subsequent additions and / or amendments implemented by the race organizers.

Organization: The 2012 DONG Energy Solar Challenge takes place under responsibility of the organizing foundation: 'Stichting Sinneboatrace Fryslân'.

Officials: Members of the race committee, the technical committee, the race jury and the organizers, all personnel that can be recognized as such and whose instructions competitors shall promptly follow during the course of the race.

Guests: Persons who have been invited by the organizers to the locations specified as guest areas at specific times and locations, as indicated by the organizers.

Team: The group of persons registered with the organizers who as competitors enter the race with a vessel.

Solar boat: A vessel that is exclusively powered by solar energy derived from solar panels mounted on board the vessel.

Solar panel: Energy source for the propulsion of the solar boat.

Vessel: A solar boat that complies with the rules and participates in the race.

Fully loaded: The condition of the vessel in which all systems have been mounted, all systems have been installed and all systems are operational, all the necessary ballast has been installed and the crew member(s) on board is/are equipped with the prescribed safety devices.

Skipper: The team member who has qualified in accordance with the rules to pilot the vessel during the race.

Crew member: A team member in Challenge B class who accompanies the skipper in the race.

Steward's vessel: A vessel that is marked as such by means of a flag and that is used for the race-technical and safety supervision of the 2012 Dong Energy Solar Challenge.

Paddock: An area allocated by the organizers where the vessels shall be kept during the 2012 Dong Energy Solar Challenge from the moment of the technical inspection and at the times when they are not actually competing in the qualifications and the race itself.

“Kluunplaats” (lugging location): Obstacle in the route where the solar boat must be lifted from the water in accordance with the rules and relaunched to continue racing after passing the obstacle.

Safety gate: Deviation from the shortest possible route that may be introduced by the race organizers for safety reasons. The safety gate consists of 2 round, red buoys that the vessels shall pass in between from the direction of the last start or last control point.

Outside help: All assistance possible provided to any crew member or the vessel. Support by team members will not be considered outside help.

Maximum voltage: The maximum voltage, measured in Volts, which is measured with a voltmeter set between any two different points in the electrical system.

Nominal battery voltage: The nominal value of the voltage of the battery.

Dead man’s switch: A device that is designed to cut the power supply to the engine as soon as the skipper loses control of the boat or when the skipper leaves the vessel, whether voluntarily or involuntarily.

Battery: The device that is used to store the electrical energy. The following types of batteries for the storage of electrical energy are distinguished in the framework of the race: Lead-acid, Lead-gel, Nickel-Cadmium, Nickel-metal hydride, Nickel-Zinc, Silver-zinc, Nickel-Iron Lithium-ion, Lithium-Iron-Phosphate and Lithium-polymer.

Fully loaded: The condition of the vessel in which all systems have been mounted, all systems have been installed and all systems are operational, all the necessary ballast has been installed and the crew member(s) on board have been issued with the prescribed safety devices.

Freeboard: distance between the waterline in fully loaded condition and an imaginary parallel line tangent to the lowest edge of the deck or a line that connects openings in the side of the vessel, if applicable. The smallest distance is governing.

Openings: feed throughs in the main deck or the side of the vessel such as, bilge pump outlets, feed throughs of overboard tubing, feed throughs of cables, etc.

Means of energy storage: Any means, other than batteries, to store energy (e.g. super capacitors, flywheels, heated water, etc.)

Standard solar panel: a solar panel as constructed and delivered by the organisation. This includes all factory supplied wiring and housing (like aluminium frames around the panels)

Added Buoyancy: closed volume above the loaded waterline, which can take up loads on top of the static loading of the vessel.