

SHELL ECO-MARATHON[®]

EUROPE



EuroSpeedway Lausitz

Germany

May 4-7, 2010

www.shell.com/ecomarathon



Chapter II – European Rules 2010

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Foreword

The full Shell Eco-marathon Europe 2010 rules comprise the [Shell Eco-marathon Official Rules 2010 Chapter I](#) and the European Rules 2010 Chapter II.

Shell Eco-marathon: Challenging hundreds of young people to find innovative solutions to fuel economy and sustainable mobility issues.

This educational project also acts a springboard for energy optimisation and sustainable development by encouraging the use of new fuels (LPG, hydrogen, biofuels, etc.).

Every year Shell¹ organises an energy-economy competition on a real motor circuit known as the Shell Eco-marathon, this competition is governed by the rules and regulations presented herein.

Participating teams can enter

- The following groups:
 - **Prototypes:** Three- or four-wheel vehicles.
 - **UrbanConcept:** Four-wheel vehicles similar in appearance to regular cars and which are fit for on-road use.
- The following categories:
 - **Schools:** Secondary or technical schools preparing pupils for vocational training certificates, professional certificates or official second-level school-leaving examinations.
 - **Universities/Technical Colleges:**
 - Educational establishments preparing students for higher education diplomas (senior technician certificates, university-level technology diploma, etc.).
 - Establishments of higher education awarding university-level degree diplomas, or student associations.

In all cases drivers shall be students/ pupils of the educational institution in question. Proof of enrolment must be provided upon request.

- The following engine types and energy classes:

Engine Types	Energy Classes
Combustion	Unleaded gasoline (petrol) 95 (EN228); diesel fuel (EN590); liquefied petroleum gas (LPG); Shell Gas-to-Liquid (GTL); fatty acid methyl ester (FAME); ethanol E100.
Fuel cell	Hydrogen
Solar	/

¹. In 2010 Shell Deutschland Oil GmbH, Suhrenkamp 71-77, 22284 Hamburg will be the organizer of the event.

1 – GENERAL

In 2010 the Shell Eco-marathon Europe will be held on May 06 and 07 2010 at the EuroSpeedway Lausitz, at Klettwitz in Germany. From May 04 to 07 teams are allowed on site. The rules and regulations apply during the entire duration of teams' presence on site.

Teams will be allowed on site from 08.00 Tuesday, 04 May. Teams need to clear the infield and paddock areas at the latest by 20.00 Friday, 07 May. The camping site will be open to teams from 10.00 on Monday, 03 May and will remain open to Saturday, 08 May to allow for accommodation on Friday night. Vehicle storage on surveyed grounds will also be provided.

By participating in the Shell Eco-marathon project, you recognize that the Event Organiser, Shell Deutschland Oil GmbH, and more generally all Shell Group companies have the right to use your image for advertising, marketing or promotional purposes associated with this event.

Article 81: Entries

For each entry, a team manager, a driver and a reserve driver shall be designated. The team manager shall be responsible for only one vehicle. S/he may be the driver for that vehicle, but for that vehicle alone.

The manager shall be the team's sole official liaison with Event Organisers. All information shall be addressed to him/her. For the purposes of the Event, s/he shall be responsible for and speak on behalf of the team.

Drivers shall be **at least 16 years old** on the day of the competition. The main driver for one vehicle may not be the reserve driver for another. One reserve driver may be assigned to two vehicles. However, once s/he has driven one of those vehicles (in practice or in the competition itself) s/he may no longer drive the other vehicle.

Article 82: Participant Reception opening hours

Tuesday, 04 May – 08h00 to 19h00.

Wednesday, Thursday and Friday, 05 to 07 May – 08h00 to 20h00.

Article 83: Deposit

Upon arrival at the motor circuit, the team manager must present a piece of official identification (national identity card or passport) and a printed copy of the dept order, which had already been completed and agreed during online application process. The organizer will ask for a sign off of this document to charge the amount of €500 in case of damaged or loss of the following items.

- **Transponder**
- **Electrical connections and accessories**
- **Joulemeter (solar vehicles only)**

The team manager will be required to countersign the print of dept order when depositing it (no private cheques will be accepted).

Upon return of the borrowed items intact and undamaged the dept order will be returned or deleted. Failure to return the borrowed items intact and undamaged will result in forfeit of the complete deposit.

Article 84: Ordering Mandatory Equipment

This article applies to teams that do not yet have the required equipment in their possession and that can order it via the e-shop centre.

- Fuel tanks (gasoline or diesel fuel)

Standard fuel tanks shall be obtained from Event Organisers. These tanks are mandatory and shall not be modified.

- Prototypes: 30, 100 or 250 cc
- UrbanConcepts: 30, 100, 250 or 350 cc

- Hydrogen flow meter

- Horn

The above can be purchased at cost via the Shell Eco-marathon website (www.shell.com/eco-marathon), under the e-shop heading. To ensure prompt delivery, orders must be received **before 1 April 2010**. After that date fuel tanks may be purchased at the motor circuit in the technical area.

Article 85: Insurance

In conformity with legal requirements applicable to motoring events, Shell in Germany has taken out an insurance policy covering the liability of organisers, drivers and teams. The policy covers any physical injury for which the organisers or competitors may be held liable. For insurance purposes, competitors are considered as third parties to one other.

- Other damages are not covered by this insurance policy, notably as concerns theft or other damage occurring to team vehicles, cars and/or equipment in the pits or in other areas of the motor circuit. The insurance policy shall cover only the period of the practice sessions and the competition.
- Shell shall not be held liable in the event of unauthorised use of the track outside the regularly scheduled hours for practice and competition.

Article 86: Damages not Covered by Event Organisers

Any damage caused by competitors to circuit facilities and surroundings and/or to Shell Eco-marathon facilities shall be charged to the teams having caused said damage.

The deposit will be used to cover these damages (Art. 83)

Article 87: Radio Connections

Radio communication between the vehicle and the pit area shall be permitted, provided that German law is respected and that the Organisers' radio network is not disturbed. Only radio equipment and radio frequencies, which are officially approved by the German Telecom Regulation Authority (Bundesnetzagentur: www.bundesnetzagentur.de) shall be allowed. Teams that want to use radio communications are asked to apply directly by Bundesnetzagentur - respective application forms will be provided by Shell when teams receive final selection confirmation. Shell shall not be held liable for any incidents caused by radio equipment (see Articles 106 and 114). Application cost is €130 per frequency.

Bearing in mind Article 106 we suggest teams make use of mobile phone equipped with hands free devices.

2 – SAFETY

PRINCIPLES

Article 88: Safety Rules

As with any Motorsport activity there should be an understanding that certain inherent risks will be present. Recognising and controlling such risks are vital for the wellbeing of people and local surroundings. Safety is an essential consideration for the event Organisers. These Rules are to protect all individuals and surrounding areas and are in no way intended to curtail the spirit of the competition. Any activity deemed unsafe or outside of the spirit of the event will be met with appropriate sanctions by the event Organisers.

Therefore, compliance with safe driving, general behaviour and sporting rules will be mandatory for everyone. All team members should comply with safety measures and notify Organisers about any anomalies or incidents. In the event of dangerous conditions team members are required to leave the affected areas immediately. All the areas covered by the event (Track, Pit Lane, Paddocks, Village, Camp site, etc.) will be monitored by the Organisers to assist teams in ensuring safe practices and behaviour.

Team managers shall be responsible for enforcing the following regulations with their team members, which is in the best interests of all participants and the success of the whole event. Any non-compliance with regulations will lead to the following penalties.

Article 89: Penalties

Non-compliance with the following safety regulations will result in a warning, invalidation of the attempt or disqualification of the team, depending on the severity of the breach.

Event Organisers will exclude, disqualify or otherwise penalise any competitor who, in the judgement of the Site and/or Race Director, will not have respected the safety rules expressed herein.

Except otherwise specified, Organisers will apply the following penalties for the following infractions:

- Non-compliance with on-track safety or driving rules (unsafe or unwise behaviour)
 - Non-compliance with off-track safety rules including but not limited to in the paddocks, village, campsite, and other off-track facilities.
-
- o 1st infraction: Formal warning to the Team Manager - No direct consequences
 - o 2nd infraction: Formal warning to the Team Manager - Best overall attempt invalidated at the end of the competition
 - o 3rd infraction: Formal warning to the Team Manager - Immediate Team disqualification.

WHOLE CIRCUIT PREMISES AND CAMPSITE RULES

Article 90: EuroSpeedway Rules and Regulations

Every participant should comply with the following Rules and Regulations of the EuroSpeedway: Rules and Regulations for Spectators at the EuroSpeedway, the Rules and Regulations for the Driver Camp, the Speedway Camp Rules & Regulations and the Fire Protection Regulation. More stringent rules in the present "Shell Eco-marathon Official Rules 2010" apply as well.

The EuroSpeedway Rules and Regulations will be communicated to teams in early 2010

Article 91: Noise Level

In the interest of neighbourliness and respect for others, noise levels shall be kept to a minimum between 11pm and 7am at the campsite. A team dedicated to safety will have all freedom and power to impose respect of the appropriate noise level during these hours.

Article 92: Barbecue – Cooking

Cooking in the campsite is only allowed if officially licensed cooking equipment is used. Additionally a dedicated area is designed in the campsite for barbecue.

Article 93: Waste Management

Each team is responsible for the upkeep of its immediate environment, including waste management. As such, the Organisers will put in place a sorted waste collection system at the race circuit. To save both energy and natural resources, participants are required to sort waste and to put it in the appropriate containers and bins.

Article 94: Smoking

Shell draws participants' attention to the fact that smoking is extremely harmful to health. In addition, considering the event type (similar to a car-racing competition) which requires the

handling and storage of dangerous components and fluids such as gasoline, hydrogen, and other fuel materials, **smoking is only allowed in designated smoking areas.**

Article 95: Drugs and Narcotics

German law strictly forbids the use and distribution of narcotics. For further information, visit the German government web sites:

- Prevention against Narcotics and Drug Addiction
 - www.drugcom.de (in German only)
- Ministry of Health: http://www.bmg.bund.de/cln_110/nn_1195910/DE/Drogen-und-Sucht/drogen-und-sucht_node.html?_nnn=true (in German only)

Law enforcement officers may intervene anywhere within the circuit premises to carry out searches for narcotics. In addition to legal prosecutions from the authorities, any drug and narcotics related breach of the regulations will be treated as equivalent to a 3rd infraction of the team (see Article 89), even if no prior violation has occurred.

Article 96: Alcohol

- Shell draws participants' attention to the fact that the abuse of alcohol is harmful to health.
- We reserve the right to intervene and remove from the site and possibly apply a penalty any person found to be in a drunken state.
- Specific rules apply for pilots (Article 103) and cyclists (Article 112).

Article 97: Prototypes and UrbanConcept moving

- Everywhere else than on the track, all prototypes and UrbanConcepts should be moved without the use of the engine. They will be manually pushed or pulled by an accompanying team member. This applies also on the pit lane and in the paddocks.
- It is strictly forbidden to run engine-powered prototypes and UrbanConcepts outside of the track anywhere or at any time in the circuit premises, paddocks, campsite or on public roads.
- Exception: a dedicated "testing area" area is available for testing purposes only during official opening hours of the main track.

TRACK AND PIT LANE SPECIFIC RULES

For Prototypes / UrbanConcepts

Article 98: Driver Weight

- Drivers of Prototype vehicles must weigh at least 50 kg in full driving gear. Ballast must be fitted to the vehicle in the event the minimum weight requirement is not met. This ballast must be provided by the Team, and must be effectively tied down and secured to the vehicle to ensure no danger for the Driver in the event of collision or roll-over. It must be readily detachable for weighing
- Drivers of UrbanConcept vehicles must weigh at least **70 kg** in full driving gear. Ballast must be fitted in the luggage compartment of the vehicle in the event the minimum weight requirement is not met. This ballast must be provided by the Team, and must be effectively tied down and secured to the vehicle to ensure no danger for the Driver in the event of collision or roll-over. It must be easily detachable for weighing
- The Driver (in full driving gear) and the ballast may be weighed before or after each official attempt.

Notice: A **1kg** disparity between these two weights shall be tolerated in order to take into account weight loss by dehydration.

Article 99: Helmets

- For test runs and competition, drivers must wear protective helmets (motorcycle style that complies with national/European safety standards, ECE 22-05 is recommended). Labels must be clearly attached to the exterior of the helmet.
- Helmets worn by both the main and reserve drivers will be subject to Inspector's approval.
- Several styles of helmets are permitted, for example full-face or three quarter. Generally the full-face and three quarter style helmets can be affixed with face shields and are highly recommended. If a face shield is not utilised, safety goggles are required. Helmets must correctly fit drivers; otherwise they will not be approved for the event.

Article 100: Driver Clothing

- Drivers will not wear any street or casual clothing.
- A flame retardant racing suit is recommended for all drivers. (Norm DIN EN 531 gives appropriated material names).
- Synthetic underwear or clothing are forbidden
- Gloves and shoes are required and must be provided by the team; barefoot or socks-only are prohibited.

Article 101: Drivers

Only the registered driver and the reserve driver will be authorised to drive the vehicle.

Article 102: Driving Knowledge Test

During vehicle inspection drivers may be questioned to test their knowledge of the driving race regulations. Any person having to drive a vehicle on the track may be questioned in the same manner.

Article 103: Driving under the Influence of Alcohol

- Driving under the influence of alcohol is forbidden.
- Before using the track either for test runs or the competition, all registered drivers may be subject to random alcohol level checks. Such checks will be systematically conducted in case of serious incidents or accidents on the track.
- Alcohol levels, measured with a breathalyser, must be below the value of 0.1 milligram of alcohol by litre of exhaled air (mg/l).
- Any breach of the limit stated above will be penalized in line with Article 89 and subject to the following additional penalties:
 - Any alcohol related breach of the regulations will be treated at least as equivalent to a 2nd infraction of the team; even if no prior violation has occurred.
 - In addition, the affected driver is immediately banned from accessing the track as long as his/her alcohol level is above the stated limit. The 2nd driver may substitute the main pilot if s/he is eligible to drive.
 - Any second alcohol-related infraction will lead to the immediate disqualification of the entire team.

Article 104: Access to the Track

- Track access is authorized for prototypes and UrbanConcepts only during official opening hours
- Vehicles must pass safety inspection prior to accessing the track for test runs. A safety sticker will be clearly affixed once the vehicle has passed the inspection. For test runs, only vehicles with a safety sticker will be allowed on the track. For the competition, only vehicles with safety and technical inspection stickers will be allowed to compete.

Article 105: Racing Direction

- Drivers are strictly forbidden to drive their car in the opposite direction to the race unless this is absolutely necessary in order to move the car from a dangerous position. This also applies to the pit lane.
- Breach of this regulation will be treated as equivalent to a 3rd infraction of the team (see article 10) leading to the automatic and immediate disqualification of the vehicle and team.

Article 106: Radio Connections

The use of hand-held communications devices is forbidden in all vehicles. However the use of fully voice-activated "hands-free" kits are allowed.

Article 107: Overtaking

- Drivers are required to give clear passage for other competitors wishing to overtake.
- The driver in the overtaking vehicle must sound its horn and overtake with caution.
- **Attention:** The driver of the overtaking vehicle is responsible for the safety of the manoeuvre.
- The driver of the vehicle being overtaken will use his/her rear- and side-view mirrors and must not change course suddenly.

Reminder: On the track, overtaking is authorised on both the right and the left, as long as the above-mentioned safety rules are followed. It is forbidden to overtake in the pit lane or cross over areas or when the yellow flag is waved.

Article 108: Breakdowns and other Incidents

Intentional stopping on the track is forbidden unless it is required by the competition, e.g. for UrbanConcept vehicles.

If a vehicle breaks down or is involved in a disabling accident on the track, the Driver must immediately make every attempt to drive the vehicle to the shoulder of the track.

The Driver is allowed 30 seconds to attempt to re-start the vehicle from within its driving position.

If unsuccessful, the Driver must get out of the car and wait in a safe place off the track for the Track Marshals to arrive and recover him/her and the vehicle.

It is forbidden to carry out repairs on the track. In the event of a flat tyre, even when near the starting line, a new start will not be granted for the attempt in question.

Article 109: Parking

- **Off Track:** All vehicles must be parked inside the pit area, outside of the pit lane, for a temporary period or brought back to the paddocks for long-term parking.
- **On Track:** Intentional stopping on the track is forbidden. However, **during test runs only** if a breakdown occurs resulting in a vehicle stopping for less than two minutes parking is allowed only on the inside shoulder of the track. If repairs require more than two minutes, the vehicle shall be towed back to the pit area by the safety services.

Article 110: Pedestrians

With the exception of the Track Marshals or any other person duly authorized by them and under their control, no pedestrian is allowed either on the track or on the track perimeter.

Track reconnaissance on foot is forbidden. However, the Organisers understand the need for teams to recognise the track. Only during test run days will pedestrians be allowed free access to the track, and this shall be for a maximum for one hour in the morning before the opening of the track for practice. (The same applies to bicycle access of the track).

Pedestrians are advised that their reconnaissance timing is shared with that for bicycles and should take all precautionary measures to avoid any accidents or collisions.

In public areas and on public roads pedestrians are invited to use pavements wherever available and to walk on the left side of roads if no pavement is available.

Article 111: Panel information to Prototypes and UrbanConcepts

The event Organisers recognise participants' need to communicate with drivers by the use of panel boards along the track. A dedicated panelling area is designed for these operations. Only two team members shall be allowed in said panelling area at any time. Panelling outside this area is strictly forbidden.

BICYCLES / CYCLISTS

Article 112: Bicycles / Cyclists

No bicycle will be allowed on the track during test runs. However, the Organisers understand the need for team reconnaissance of the track. Only during the test run days bicycles will have free access to the track, for one hour in the morning before the opening of the track for practice. Each team may have a single bicycle on the track. The cyclist shall wear a badge bearing the team's number, a cycling helmet and appropriate footwear, i.e. no sandals, flip-flops, etc. Only bicycles will be permitted and no electric or motorised two-wheel vehicles will be allowed. Cyclists are advised that their reconnaissance timing is shared with that of pedestrians and should take all precautionary measures to avoid any accidents or collisions. Cyclists should particularly avoid cycling close to the inner shoulder of the track where pedestrians can walk.

Article 113: Alcohol Policy

Article 103 of the section PROTOTYPES / URBANCONCEPTS will apply similarly to cyclists.

Article 114: Helmets and Clothing

- When cycling a bicycle anywhere inside or outside the circuit premises, cyclists must wear a protective helmet complying with European norm DIN EN-1078 and appropriate footwear. Any cyclist who does not comply with this regulation exposes his/her team to a formal warning and sanction as stated in Article 89 of this document.
- We strongly advise cyclists against cycling bicycles with naked arms and legs

Article 115: On-track Cycling

On track, cyclists are strictly forbidden to cycle in the opposite direction to the traffic flow.

The use of hand-held communications devices is forbidden in all vehicles. However the use of fully voice-activated "hands-free" kits are allowed.

- In addition to possible penalties mentioned in the Article 89, any breach of this rule or unsafe behaviour will lead to seizure of the bicycle until the end of the event.

Article 116: Off-track Cycling

- Bicycles or any other rolling device including but not limited to skateboards, roller-skates, rollerblades or scooters may not be used in the pit lane, the paddocks or the partner's village.
- In other areas and on inner and outer roads cyclists must pay particular attention to their driving environment, other traffic and particularly pedestrians
- In addition to possible penalties mentioned in Article 89 any breach of this rule or unsafe behaviour will lead to seizure of the bicycle until the end of the event.

PADDOCK-SPECIFIC RULES

Article 117: Protective Equipment and Materials

Teams will share responsibility for safety matters and are required to provide the following for use at the event:

- Gloves for general work: leather or canvas.
- Gloves for handling fuel or motor oil: Chemical resistant (nitrile gloves are recommended).
- Safety glasses for all Team members (disposable types are permitted).
- Hearing protection for all Team members (approved Ear plugs or muffs).
- Duct tape to secure any cords or cables lying on the pit floor.
- Lift stands or appropriate raised platforms for vehicle tuning and repairs.
- Operational 6kg dry-chemical (powder) extinguisher suitable for "ABC" class fires (European norm DIN EN-3), of which the maintenance date is later than 31/5/2010 (to be placed in the garage).
- Dust masks when required for specific work involving composite material, e.g. for grinding.
- Shell strongly advises participants to undertake works on prototypes and UrbanConcepts with appropriate overalls clothing and to ban synthetic underwear or clothing.

Article 118: Emergency Exits

Fire and emergency exits duly signaled must be kept clear from any obstructing equipment or vehicles.

Article 119: Whole Paddocks Area Housekeeping

Shell requires participants to exercise care in their stands especially regarding:

- Stand cleanliness
- Electrical connections (e.g. cabling on ground to be duct taped or appropriately secured)
- Display of regulatory stickers and posters e.g. the “no-smoking” and safety posters that will be supplied by the Event Organizer to each team upon their arrival.

NB: to develop best practice sharing in safety, all teams are encouraged to display specific safety pictures or posters in their stands.

- Clear separation between food and toxically/noxious products
- Proper tidying of fuels and other flammable products
- Respect of “now to work with hot sources” rule on hydrogen stands
- Extreme caution with heat sources: A dedicated area will be made available for cooking and barbecues. Therefore, naked fires will be strictly forbidden in the whole paddock area except those absolutely necessary to undertake mechanical works on prototypes and UrbanConcepts. **It is mandatory to contact safety staff to obtain a special fire permit before welding.**
- Wearing of personal protection equipment
- Proper use of portable electric equipment and its protection

Any infringement to the paddock area housekeeping rules will expose the offending team to a formal warning and sanctions as stated in Article 89 of this document.

Article 120: Material Safety Data Sheets (MSDS)

Except for approved race fuels or energy sources, upon request by the Event Organisers all teams should be able to provide the MSDS of any products they use in their stands e.g. solvents, cleaning agents, chemicals, etc.

Article 121: Safety Walks

Structured safety walks will be run during the whole event, day and night, to ensure that safety rules are complied with.

3 - COMPETITION

Article 122: Track Access Conditions

During both the practice runs and the race, all vehicles shall comply with technical and safety rules and regulations. Whenever they enter the race track, the vehicle body shall be in place and shall bear all the race numbers, partner streamers and Shell logos required by regulations. These numbers and logos will be supplied by the Event Organisers.

Article 123: Practice Runs and Competition

During practice runs and **competition**, prototypes and UrbanConcepts will have access to the track at the same time; only the section in front of the pit lane will be common, the rest of the track being separated for each vehicle category. Teams will receive a safety briefing to manage driving on the common section, and more specifically in the area where the two separate tracks join together. In case of problems or misconduct on the track, the Organisers reserve the right to split the practice runs and **competition** and thereby reduce the time on track for each category.

Article 124: Compliance

Only those vehicles that comply with the present Official rules (SEM Official Rules 2010) are allowed to participate. No vehicle will be allowed on the track for practice or competition until it will have been approved by the Organisers. The decisions of Organisers are final in all matters concerning the compliance of vehicle design and construction with the present Official rules

(Chapter I and Chapter II).

The Organisers reserve the right to rescind vehicle approval upon further or more detailed checks. The Organisers must be notified of any modifications to the vehicle after inspection. Non-compliance with this rule will lead to immediate vehicle disqualification.

Article 125: Timekeeping

All vehicles will be equipped with an extra-flat electromagnetic transponder that will be fitted after vehicle inspection using adhesive tape or nuts, inside or outside the vehicle according to the vehicle's characteristics. A security deposit will be required for this transponder (see Article 83). The security deposit shall be returned upon presentation of the transponder at race's end.

Article 126: Fuel Consumption Checks

- **Before the start**

In addition of the driver, a maximum of two persons per team (with ID badges) can be present at the filling point and the starting line with the vehicle.

Competitors shall proceed to the starting line with the fuel system completely drained.

Inspectors shall fill the fuel tank in the starting area. In the case of **LPG-powered vehicles**, an LPG cartridge shall be fitted on the vehicle after weighing.

In the case of the top-ranked **gasoline-powered vehicles**, fuel consumption shall be measured with a precision balance. The fuel system will be filled by a Technical Inspector, and then the system, the fuel tank and the injector will be weighed on the precision balance.

The fuel system (tank, hose and injector) shall be compact and easily dismantled in order to facilitate weighing. Before approving reinstallation of the duly weighed fuel system, Technical Inspectors will verify that the engine is the one that was inspected and validated by the Head Inspector. They shall also ensure that gasoline is not present in the air intake.

In the case of **fuel cell-powered, vehicles** using a flow meter to measure consumption, a Technical Inspector shall reset the flow meter to zero.

In the case of solar vehicles, a Technical Inspector will reset the two Joulemeters to zero.

- **At the finish line**

Competitors must refrain from any work on their vehicles prior to inspection of the vehicle by Inspectors. Inspectors/marshals are the only people authorised to fill or top up the tank.

In addition to the driver, a maximum of two people per team (with ID badges) may be present at the finish line for measurements.

For vehicles using a fuel that it is in a liquid state at atmospheric pressure (petrol, diesel fuel, GTL, fatty acid methyl ester-type, ethanol), the quantity of fuel needed to refill the fuel tank shall be the basis for calculating fuel consumption. This volume shall be corrected for temperature variations. The volume consumed shall be measured at the reference temperature of 15°C.

For top-ranked gasoline vehicles, a Technical Inspector must be present during disassembly of the fuel system and during its transport to the weighing room, where s/he shall perform the weighing. After reinstallation of the duly weighed fuel system, the starter shall be verified by the Technical Inspector to ensure that the clutch setting has not been tampered with since the technical inspection. The Organisers may also request that the vehicle be brought to an enclosed area so that further inspection can be conducted prior to posting of the results.

For LPG-powered vehicles, the cartridge must be removed and weighed by an Inspector.

In the case of fuel cell-powered vehicles using a flow meter to measure consumption, an Inspector must read the value displayed on the meter.

In the case of solar vehicles, a Technical Inspector will register the values displayed on the two Joulemeters.

Article 127: Results

A list showing the best valid performance of each team will be posted at the end of each competition day* at Competitor Reception (close to Race Control). The best result for the two days will be retained for the final ranking.

* Intermediate results shall not be considered official.

Internal Combustion Engines and Fuel Cell powered Vehicles

Results will be expressed in kilometres per litre (i.e. theoretical distance covered using energy of Shell Unleaded 95) corrected to a temperature of 15 °C.

Solar vehicles

Results will be expressed in kilometres per kWh (i.e. theoretical distance covered using energy of 1 kWh).

DEFINITION OF COMPETITION

- PROTOTYPES

Participants in the Prototype category must complete eight (8) laps of the circuit in the normal racing direction.

Minimum speed: For their attempt to be validated, teams must complete the eight laps in a maximum time of 51 minutes with an average speed of approximately 30 km/h. The total distance to cover is 25.485 km (8 laps of 3.200 km minus the distance between the start and finish lines).

Each team will be limited to four official attempts: The best result will be retained for the final classification.

- URBANCONCEPTS

Participants in the UrbanConcept category must complete seven (7) laps of the circuit in the normal racing direction.

Minimum speed: For their attempt to be validated, teams must complete the seven laps in a maximum time of 53 minutes with an average speed of approximately 25 km/h. The total distance to cover is 22.096 km (7 laps of 3.173 km minus the distance between the start and finish lines).

On the part of the track dedicated to the UrbanConcept the driver must make one STOP at each lap. The point where to stop will be specified by a panel under control of a Track Marshall.

Each team will be limited to four official attempts.

Article 128: Start of Race for Prototype and UrbanConcept Cars

- Only vehicles in full working order, e.g. complete chassis and body together, will be allowed in the queue to access the filling point 1 and starting line.
- Drivers must wait until the starting line is clear before starting their attempt. They must wait for a signal from the flag bearer (green flag) before starting and will carefully enter the track at the merging point on the track / pit lane.
- At the starting line, vehicles will start one by one. Vehicles must be at a full stop and are not allowed any outside assistance during starting. Any pushing of the vehicle is prohibited.
- For vehicles using electrical starter:
The starter, and hence the red light, must be extinguished by the time the rear wheel of the vehicle crosses the start line. Failing to comply will invalidate the run, which will nevertheless count within the maximum allowed number of attempts.
- The vehicle may be accompanied by a maximum of two persons with ID badges (not including the driver). Once the vehicle has left the starting line, all team members have to leave the starting area with their equipment.

Tentative Time Schedule Shell Eco-marathon 2010

The Final Schedule will be confirmed every morning for the day at the mandatory morning team briefing. The Organisers reserve the right to change this schedule at any time in case of poor weather conditions or any other unpredictable event.

From	To	Time Schedule Shell Eco-marathon 2010
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Monday, 03 May 2010		
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10:00		Camping site open for participants
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Tuesday, 4 May 2010		
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08:00	19:00	Reception open
09:00	11:00	Track Reconnaissance Laps (by foot or bicycle)
13:00	19:00	Technical Inspections
15:00	18:00	Practice runs Prototype and UrbanConcept Cars

Wednesday, 5 May 2010		
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06:30	23:30	Infield open for Participants
08:00	20:00	Reception open
08:00	18:00	Technical Inspections
09:00	18:00	Practice runs Prototype and UrbanConcept Cars
19:00		Track closes
23:30		Infield closes for Participants (can stay inside but not get in anymore after this time)

Thursday, 6 May 2010		
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06:30	23:30	Infield open for Participants
08:00	20:00	Reception open
08:00	11:00	Technical Inspections
08:30	10:00	Practice Runs for Prototype and UrbanConcept Cars
11:10	11:14	Official Opening Ceremony (at pit lane)
11:14	11:15	Waving the Flag (at starting line)
11:15	19:00	Race for Prototype and UrbanConcept Cars
19:00		Track closes
23:30		Infield closes for Participants (can stay inside but not get in anymore after this time)

Friday, 7 May 2010		
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06:30	00:00	Infield open for Participants
08:00	20:00	Reception open
08:30	15:30	Race for Prototype and UrbanConcept Cars
14:35		Last Starts
16:00	16:45	Special Award Ceremony
16:45	17:00	Awards Ceremony: Prototype and UrbanConcept Cars
17:00	17:15	Award Ceremony: Grand Prizes
18:30	20:00	Dismantling of the Participants Paddock and Partner Village

4 - TROPHIES, PRIZES AND AWARDS

Article 129: Award Presentation

Trophies shall be presented to winning teams after the competition. Prize money shall be paid during the month following the competition. The following prizes shall be awarded:

Article 130: Grand Prizes and other Awards

	Prototype		Urban Concept	
Combustion Grand Prize ⁽¹⁾	Winner	1 000 €	Winner	1 000 €
	2nd place	800 €	2nd place	800 €
	3rd place	500 €	3rd place	500 €
Fuel Cell Grand Prize ⁽²⁾	Winner	1 000 €	Winner	1 000 €
	2nd place	800 €	2nd place	800 €
Solar Grand Prize	Winner	1 000 €	Winner	1 000 €
CO2 Award ⁽³⁾	Winner	1 000 €	Winner	1 000 €
Gasoline Fuel Award	Winner	800 €	Winner	800 €
Diesel Fuel Award	Winner	800 €	Winner	800 €
Alternative Gasoline Fuel Award ⁽⁴⁾	Winner	800 €	Winner	800 €
Alternative Diesel Fuel Award ⁽⁵⁾	Winner	800 €	Winner	800 €
Best School (common to P + UC) ⁽⁶⁾	Winner 800€			

The recipients of all of the above awards shall also receive a trophy.

(1) Shell Eco-marathon Grand Prize – Combustion Engines

This Grand Prize will be awarded to the “Internal Combustion” vehicle that posts the best fuel economy figure, regardless of the energy source used.

(2) Shell Eco-marathon Grand Prize –Fuel Cells

This Grand Prize will be awarded to the “Fuel Cell” vehicle that posts the best fuel economy figure, regardless of the energy source used.

(3) CO₂ Award

This award recognises the team that generates the lowest level of CO₂ emissions “from the well to the wheel”, i.e. the sum of emissions calculated in the fuel’s complete life cycle, from source production to the fuel’s use in the vehicle on site. These CO₂ emissions take into account the production, transport and distribution of the different energy sources used and will be calculated using international studies such as Concawe/Eucar/JRC WTW 2007, as references. CO₂ emissions will be calculated based upon the energy consumption measured at the end of each valid race attempt, corrected to 15°C.

Solar-powered vehicles are not eligible for this award.

Table of **Total Greenhouse Gas Emissions** from Well to Wheel:

Total quantity of greenhouse gas emissions (or gram-equivalents of CO₂) from the combustion of 1 MJ of fuel

	Total GHG g-CO₂ / MJ	Source
Shell ULG 95	85.9	Average for European refineries
Shell Diesel	87.5	Average for European refineries
Gepel-Butagaz LPG	73.6	Average of Imports to Europe from Remote Gas Fields
Compressed hydrogen	104.7	Average of Natural Gas Reforming EU-Mix
Ethanol E100	59.2	Average from European Wheat Conversion
Gas to Liquid	95.8	Average of Imports to Europe
Fatty acid methyl ester (FAME)	47.3	Average for European Rape Seed Oil, Glycerine as Chemical feedstock

A questionnaire about CO₂ emissions will be available on the online registration system in February 2010. Please note that it is imperative to submit your questionnaire by 31 March 2010 in order for your entry to be validated.

(4) Alternative Gasoline Fuel Award

This prize will be awarded to the ethanol or LPG vehicle that posts the best fuel economy figure.

(5) Alternative Diesel Fuel Award

This prize will be awarded to the FAME or GTL vehicle that posts the best fuel economy figure.

(6) Best School Award

These awards recognise the first-place team from secondary or middle school regardless of vehicle or energy class.

Article 131: OFF-TRACK AWARDS

Participating teams may also choose to compete for one or more off-track awards: Safety, Technical Innovation, Eco-friendly, Design, Communication and Marketing and Best team spirit.

Registration for off-track awards shall correspond to a specific project in a chosen area, and as such the special award questionnaires will be made available to teams in February 2009 via the on-line registration system for teams.

*Teams may register for the off-track awards by completing and submitting the corresponding questionnaires (available in February 2010) as well as a complete dossier for the Safety, Design, Eco-Design, Technical Innovation and Safety awards, before **31 March 2010**.*

The judges will make a preliminary selection of teams in April. Only the selected teams will receive a visit from the judges in the pit area. Those teams are requested to have a team member present in the pit area at all times from Thursday, 6 May to Friday, 7 May.

Self nomination and a successful run is required to be eligible for the off-track awards, with the exemption for "Perseverance in the Face of Adversity" Award which does not require self nomination nor a successful run. More information about the awards will be communicated to teams in February.

>Safety Award

- First Prize: € 800 & Trophy
- Second Prize: € 500 & Trophy
- Third Prize: € 300 & Trophy

Awarded to the team with the best approach to safety for the entire team, vehicle design and general rules of the Shell Eco-marathon.

>Technical Innovation Award

- Winner € 800 & Trophy
- Highly recommended- UrbanConcept Certificate
- Highly recommended- Prototype Certificate

Awarded to the team, which achieves the most significant technical advancement, which can be a planned, original technical solution or use of new materials

>Eco-friendly Award

- Winner € 800 &Trophy
- Highly recommended- UrbanConcept Certificate
- Highly recommended- Prototype Certificate

Awarded to the team that creates a design which contributes to the fuel efficiency of the vehicle and incorporates recycled and/or eco-friendly materials into the vehicle and production process

➤ Design Award

- Winner UrbanConcept € 800 &Trophy
- Winner Prototype € 800 &Trophy
- Highly recommended- UrbanConcept Certificate
- Highly recommended- Prototype Certificate

Awarded to teams with innovative design research in terms of ergonomics, aesthetics, choice of materials and technical feasibility. The originality and overall coherence of the design are also taken into account. The term "design" includes: vehicle structure, driving position, the engine, steering, suspension, braking, etc.

Attention:

Vehicles that have already won Design prizes in previous years are no longer eligible for the Design Award, except if significant modifications have been made to the construction of the vehicle and its body.

> Communication and Marketing Award

- Winner € 800 &Trophy

Awarded to the team that has made outstanding communications efforts concerning the Shell Eco-Marathon. All actions throughout the year are taken into account: participation at trade shows, creation of a website and all other activities that successfully promote the competition, its name, its founding principle, its educational aspects, etc. in the team's country of origin.

> Best team spirit

- Winner € 800 &Trophy

Awarded to the team, which fostered cooperation and collaboration among team members and between them and others at the competition; demonstrated initiative to learn more about other teams and their vehicle; and contributed to the morale of team members and/or other teams at the competition.

>Perseverance in the Face of Adversity

- Winner € 800 & Trophy

Awarded to the team that overcomes the greatest obstacles/challenges in order to make it to the Shell Eco-marathon Europe or while participating at the Shell Eco-marathon Europe and demonstrated a can-do positive attitude. Please note that teams cannot self-nominate for this award.

➤ Other Awards

Shell reserves the right to create new awards that are either open to all competitors or restricted to those from a certain country (i.e. Education Award in Germany). Participating teams shall be notified accordingly.

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