

Shell Eco-marathon[®]

Europe



Bringing energy into the future

Nogaro Circuit, France
22-24 May 2008

in partnership with



SKF



technical partner



Special Rules and Regulations - Europe 2008



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Partners



Technical partner



Foreword

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, Shell⁽¹⁾ 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 that are 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, "O", "A" levels or equivalent. Drivers shall be pupils of the school in question (please attach proof of enrolment to the entry form).
- **Universities/Technical Colleges**:
 - Educational establishments preparing students for higher education diplomas (senior technician certificates, university-level technology diploma, etc.). Drivers shall be students of the school in question (please attach proof of enrolment to the entry form).
 - Establishments of higher education awarding university-level diplomas, or student associations. Drivers shall be students of the school/university in question (please attach proof of enrolment to the entry form).

➤ The following engine types and energy classes:

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

1 – GENERAL

In 2008, the European Shell Eco-marathon will be held from **21 to 24 May** at the Nogaro motor circuit in south-west France.

By participating in the Shell Eco-marathon project, you recognize that the Event Organiser, Société des Pétroles Shell, 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 01 : 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. He/she may be the driver for that vehicle, but only for that vehicle.

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, he/she shall be responsible for the team and shall speak on behalf of the team.

Drivers shall be **at least 13 years old** on the day of the competition and shall weigh no less than **50 kg**. The main driver for one vehicle shall not be the reserve driver for another. One reserve driver may be assigned to two vehicles. However, once he/she has driven one of those vehicles (practice or competition), he/she may no longer drive the other vehicle.

Article 02 : Participant Reception opening hours

Tuesday 20/05 - 15h00 to 19h00.

Wednesday, Thursday and Friday - 08h00 to 19h00

Saturday 24/05 - 08h00 to 20h00

Article 03 : Team Sign-In / Administrative Checks

Tuesday 20/05 - 15h00 to 19h00

Wednesday and Thursday - 08h00 to 19h00

Article 04 : Deposit

Upon arrival at the motor circuit, the team manager shall present his/her identification and at least two cheques or money orders to serve as a security deposit:

- **One for € 450 for the transponder,**
- **One for € 150 for the electrical connections and accessories,**
- **One for € 450 for the joulemeter (solar vehicles only).**

Please make cheques or money orders payable to CDP.

Article 05 : 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.

- **Prototype: 30, 100 or 250 cc**
- **UrbanConcept : 30, 100, 250 or 350 cc**

They can be purchased at cost via the Shell Eco-marathon Web site (www.shell.com/eco-marathon), under the e-shop heading. To ensure prompt delivery, orders must be received **before 15 April 2008**. After that date, fuel tanks may be purchased at the motor circuit.

- Horn

- Hydrogen flow meter

Article 06 : Insurance

In conformity with legal requirements applicable to motoring events, Shell France 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 each other.

- An automobile policy covering property damage that competitors may cause during the Shell Eco-marathon and during the practice runs. All collision- and fire-related damage to vehicles shall be covered up to € 2,000, with a € 1,000 deductible.

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 07 : 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.

Upon check-in, a cheque for € 150 shall be left with Organisers as a security deposit. This cheque shall be returned at race's end upon presentation of the electrical circuitry and accessories (see Article 4).

Article 08 : Radio Connections

Radio communication between the vehicle and the pit area shall be permitted, provided that French law is respected and that the Organisers' radio network is not disturbed. Please note the proximity of the Nogaro airport. Only radio equipment that is officially approved by the French Telecom Regulation Authority ([ARCEP](#)) shall be allowed. Shell shall not be held liable for any incidents caused by the use of non-approved radio equipment (see Articles 25 and 33).

2 - SAFETY

PRINCIPLES

Article 09: Safety Rules

As with any activity there should be an understanding that certain inherent risks will be present. Recognising and controlling the risks are vital for the well being of people and local surroundings. Safety is an essential consideration for the event Organisers. These Rules are to protect all individuals and surrounding area and 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 action 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 the safety measures and notify Organisers about any anomalies or incidents; and in the event that dangerous conditions are present leave 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 to ensure safe practices and behaviours.

Team managers shall be responsible enforcing the following regulation by 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 10: Penalties

Non-compliance with the 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 e.g. in paddocks, village, campsite, etc.
 - 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 11: Noise level

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

Article 12: Barbecue - Cooking area

A dedicated area is designed for all cooking activities requiring naked fires such as barbecue and gas cooking. Therefore the use of such equipments outside of this area is strictly forbidden.

Article 13: Waste management

Each team is responsible for the upkeep of its immediate environment, including waste management. As such, the Organizers 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 your waste and to put it in the appropriate containers and bins.

Article 14: Smoking

Shell draws participants' attention that smoking is extremely harmful for health. In addition, considering the event type (similar to a car-racing competition), which requires the handling and the storage of dangerous components and fluids such as gasoline, hydrogen, and other fuel materials, smoking will be strictly forbidden in the following areas:

- Everywhere after the partner's village when entering into the paddock area. This includes the paddocks, pit lane and the track.
- On the outdoor VIP terrace because of the risk of dropping ashes and lighted cigarette ends on the pit lane below.
- Inside office buildings as required by French law. For further information, visit the French government web site for Prevention against Smoking Addiction <http://www.tabac.gouv.fr/> (French language only)
- In all areas where a "non smoking" sign is displayed.

Nevertheless it is recommended for everybody to limit the use of cigarette within the "Partner's village".

Article 15: Drugs and Narcotics

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

- Prevention against Narcotics and Drug Addiction
 - French: <http://www.drogues.gouv.fr/>
 - English: <http://www.drogues.gouv.fr/rubrique2.html>
- Ministry of Interior http://www.interieur.gouv.fr/sections/a_votre_service/drogue/loi-drogue/drogue-que-dit-loi/view (French only)

Law enforcement officers may intervene anywhere in the circuit premises for narcotic searches. 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 10), even if no prior violation has occurred.

Article 16: Prototypes and Urban Concept moving

- Everywhere else than on the track, all prototypes and Urban Concepts should be moved without the use of the engine. They will be manually pushed or pulled by an accompanying team member. This applies e.g. on the pit lane and the paddocks.
- It is strictly forbidden to run engine powered prototypes and Urban Concepts outside of the track anywhere anytime in the circuit premises, paddocks, campsite and public roads.

TRACK AND PIT LANE SPECIFIC RULES

PROTOTYPES / URBAN CONCEPTS

Article 17: Driver Weight

- Drivers must weigh at least **50 kg** in full driving gear.
- Ballast may 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 to the vehicle absolutely ensuring no danger for the driver in the event of collision or rollover.
- The driver (in full driving gear) may be weighed before and after each official attempt. A **1kg** disparity between these two weights shall be tolerated in order to take into account weight loss by dehydration.

Article 18: Helmets

- For test runs and competition, drivers must wear protective helmets (Motorcycle style is recommended) that comply with national safety standards and their label clearly attached to the exterior of the helmet.
- Helmets worn by both the main and reserve drivers will be subject to Inspector's approval.
- There are several styles of helmets that 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 is highly recommended. If a face shield is not utilised, safety goggles will be required. The helmets must correctly fit the drivers; otherwise they will not be approved for the event.

Article 19: Driver Clothing

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

Article 20: Drivers

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

Article 21: 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 could be questioned into the same manner.

Article 22: Driving under the Influence of Alcohol

- Driving under the influence of alcohol is forbidden.
- Before using the track either for test runs or 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 10 and the following additional penalties:
 - Any alcohol related breach of the regulations will be treated at least as equivalent to 2nd infraction of the team, even if no prior violation has occurred.
 - In addition, the affected driver is immediately banned accessing the track as long as his/her alcohol level is above the stated limit. The 2nd driver may substitute the main pilot if he/she is eligible to drive.
 - Any second alcohol related infraction will lead to the immediate disqualification of the entire team.

Article 23: Access to the Track

- Track access is authorized for prototypes and Urban Concepts 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 24: 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 applies as well on the pit lane.
- Breach to this regulation will be treated as equivalent to a 3rd infraction of the team (see article 10) with disqualification of the vehicle and of the team.

Article 25: Radio Connections

The use of hand-held communications is forbidden in all kind of vehicles, however the use of a fully voice operated transmission "hands-free" kit is allowed.

Article 26: 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.

Article 27: Breakdowns and Other Incidents

If a vehicle breaks down or is involved in an accident on the track, the driver will ensure that

the vehicle is removed as quickly as possible to the (preferably inner) shoulder of the track. If the vehicle cannot continue under its own power, the driver will wait for a Track Marshal, who will arrange for assistance. It is forbidden to carry out repairs on the track.

Article 28: 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 time park.
- **On Track:** Intentional stopping on the track is forbidden. However, if a breakdown occurs lasting less than two minutes and performed on the inside shoulder of the track, parking is allowed **during test runs only**. If repairs lasts more than two minutes, the vehicle shall be towed back to the pit area by the safety services.

Article 29: Pedestrians moving

Crossing the track is strictly forbidden to all pedestrians except for the Track Marshals or any other duly authorized by them and under their control.

Pedestrian are invited to use pavements where available and to walk on the left side of roads if no pavement is available

Article 30: Panel information to prototypes and Urban Concepts

Event Organizers recognize to the participants the need to inform prototype drivers with panel boards along the track, especially on the grass area at the bottom of the pit lane. However, panel information should be arranged in order that team members never extend on the track beyond the grassy area.

BICYCLES / CYCLISTS

Only during the test runs, each team may have a single bicycle on the track. The cyclist shall wear a badge bearing the team's number and shall ride in the racing direction, taking care not to disturb any of the other participants. This rule will apply as well on the pit lane. Only bicycles will be permitted. Bikers must wear a helmet at all times.

Article 31: Alcohol policy

Article 22 of the section PROTOTYPES / URBAN CONCEPTS will apply similarly to cyclists.

Article 32: Helmets and clothing

- When driving a bicycle anywhere in or out circuit premises, cyclists must wear a protective helmet complying with European norm EN-1078 and appropriated shoes. A cyclist who would not wear a helmet would expose his team to a formal warning and infraction consequences as expressed in article 10 of this document.
- We strongly advise cyclists against driving bicycles with naked arms and legs

Article 33: On-track cycling

- On the track, cyclists are strictly forbidden to drive their bicycles in the opposite direction to the race.
- The use of hand-held communications is forbidden for cyclists, which should only use fully voice activated transmission "hands-free" kits to communicate with prototypes' and Urban Concepts' drivers.
- In addition to possible penalties mentioned in the article 10, any breach of this rule or unsafe behaviour will lead to seizure of the bicycle until the end of the event.

Article 34: Off track cycling

- On the pit lane, in the paddocks and the partner's village cyclists must not ride their bicycles.
- In other areas and inner and outer roads, cyclists must bear a cautious care to their driving environment and particularly to pedestrians

PADDOCK SPECIFIC RULES

Article 35: 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 material.
- Gloves for fuel or motor oil handling: Chemical resistant.
- Safety glasses for all Team members. (Disposal type 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 platform for vehicle tuning and repairs.
- Operational 6 kg dry-chemical (powder) extinguisher suitable for "ABC" class of fires (European norm EN-3), of which the maintenance date is later than 31/05/2008 (to be placed in the garage).
- Dust masks when required for specific works with composite material, e.g. for grinding

Shell strongly advises participants to undertake works on prototypes and Urban Concepts with appropriate overalls clothing and to ban synthetic underwear or clothing.

Article 36: Alcohol policy

Shell draws participants' attention that alcohol abuse is harmful for health and should be taken in moderation.

Article 37: Emergency exits

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

Article 38: Whole Paddock area housekeeping

Shell requires strongly participants to exert a cautious care in their stands especially:

- 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 the 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 "no work with hot sources" rule on hydrogen stand
- 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 Urban Concepts
- Wearing of personal protection equipments
- Proper use of portable electric equipment and its protection

Any infringement to the paddock area housekeeping rules would expose the team to a formal warning and infraction consequences as expressed in article 11 of this document.

Article 39: Material Safety Data Sheets (MSDS)

Except for approved race fuels or energy sources, upon request by the Event Organizers 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 40: Safety walks

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

Article 41: Bicycles, rollerblades, skateboard, etc.

- They must not be used in crowded environment such as paddocks.
- In other areas and inner and outer roads, "drivers" must bear a cautious care to their environment and particularly to pedestrians

3 - COMPETITION

Article 42 : 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 shall be supplied by Event Organisers upon entry confirmation.

Article 43 : Compliance

Only those vehicles that comply with the present regulations shall be allowed to participate. No vehicle shall be allowed on the track for practice or competition until it has been approved by the Inspectors. The decisions of Inspectors shall be final in all matters concerning the compliance of vehicle design and construction with the present regulations, namely with regard to the brake system, the power train and the fuel system. Their decisions shall be final.

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

Article 44 : Timekeeping

All vehicles shall 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 (cheque or money order) shall be required for this transponder. The security deposit shall be returned upon presentation of the transponder at race's end.

Article 45 : Fuel Consumption Checks

• Before the start

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 shall be filled by a Technical Inspector, and then the system, the fuel tank and the injector shall 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 shall 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 said flow meter to zero.

• At the finish line

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

A maximum of two persons per team (with ID badges) may be present at the finish line for the measurements.

For vehicles using a fuel that it is in the liquid state at atmospheric pressure (petrol, diesel fuel, fatty acid methyl ester-type biofuel, ethanol, etc.), 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 shall be present during disassembly of the fuel system and during its transport to the weighing room, where he/she 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 Head Inspector 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 shall be removed and weighed by an Inspector. In the case of fuel cell-powered vehicles using a flow meter to measure consumption, an Inspector shall read the value displayed on the meter.

Article 46 : Results

A list showing the best valid performance of each team will be posted at the end of each competition day* at Competitor Reception. The best result for the two days will be retained for the final ranking. Results will be expressed in kilometres per litre (i.e. theoretical distance covered) corrected to a temperature of 15°C.

* Intermediate results shall not be considered official.

PROTOTYPE GROUP

Participants shall complete seven (7) laps of the Nogaro motor circuit in the normal racing direction.

Minimum speed: For their attempt to be validated, teams shall complete the seven laps at a minimum average speed of 30 km/h. The maximum time allowed shall be 50 minutes 34 seconds to complete the 25.272-km course (7 laps of 3.636 km minus the distance between the start and finish lines).

Article 47 : Start of Race for Prototypes

- The first start shall occur at 8:30 a.m. on both Friday and Saturday.
- Drivers shall wait until the starting line is clear before starting their attempt. They shall wait for a signal from the flag bearer (green flag) before entering the track.
- At the starting line, two or more vehicles may start simultaneously. Vehicles shall be at a full stop and shall receive no outside assistance during starting. Any pushing of the vehicle is prohibited.
- 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 shall leave the starting area with their equipment.

URBANCONCEPT GROUP

Article 48 : Principle

The UrbanConcept competition is held on a 1,620km section of Nogaro motor circuit starting at the new pit area, heading towards the Caupenne turns and the final stretch in front of the aerodrome.

Owing to the large number of Urban Concept vehicles that are entered in 2008, teams will be divided into two groups of equal size: Group 1 and Group 2. These two groups will compete one right after the other.

The vehicles in each UrbanConcept group will compete in three legs as follows:

o Each leg will be started with the vehicles in a starting grid.

o Each leg will consist of 14 laps around the 1,620km track, i.e. 22,680km, at a minimum average speed of 25 km/hour. The maximum time to complete the leg shall be 54 minutes 25 seconds.

o During each leg, vehicles shall make three pit stops for a duration of 10 seconds each. The locations for these pit stops shall be indicated by Event Organisers on the track just in front of the pit area. A walk-through will be conducted during the first briefing on Wednesday 21 May at around 4 p.m. During the pit stops, drivers shall use their stop lights and their turn signals. Any teams failing to comply with this regulation shall be subject to penalties.

- o The first pit stop shall be taken between the 2nd and 4th laps, the second between the 6th and 8th laps and the third between the 10th and 12th laps. Within these intervals, the team manager shall be free to decide when exactly to make each stop.
- o After each leg, fuel consumption shall be measured using the same method as for the Prototype group of the 2008 Shell Eco-marathon (see Article 4 "Energies" in Chapter I of the 2008 General Rules & Regulations).
- o The final ranking for the UrbanConcept group shall be determined using each team's best performance from the three legs. Rankings for the two groups shall be combined for each fuel class.

Article 49 : Starting Grid for the First Leg (for each group)

The starting grid for the first leg shall be determined as a function of fuel/energy type, in light of specific safety considerations related to starting ability.

- o The first spots on the grid shall be reserved for internal combustion vehicles in the diesel and alternative diesel categories. These spots will be assigned by a random drawing.
- o The next spots will be for internal combustion vehicles in the gasoline and alternative gasoline categories. These spots will be assigned by a random drawing.
- o Finally, the last spots will be reserved for fuel cell and solar-powered vehicles. These spots will be assigned by a random drawing.
- o The track will be cleared 1 minute prior to the start.
- o Drivers will be instructed to start their engines 5 seconds prior to the start.

Each leg will be started by the waving of the start flag.

No handicaps for distance or time shall be granted on the basis of starting order.

Schedule - Test Runs and Competition - May 2008

		Technical Inspections	Prototype Competition	1 st UrbanConcept Group	2 nd UrbanConcept Group	
WEDNESDAY 21	09h00	Technical Inspections				
	11h00		Prototype test runs			
	16h30		Track closes			
	17h00			UrbanConcept test runs		
	19h00			Track closes		
THURSDAY 22	08h00	Technical Inspections				
	08h30		Prototype test runs			
	11h30		Track closes			
	12h00			UrbanConcept test runs		
	14h10			Track closes		
	14h45	Prototype test runs				
	16h45	End of inspections		Fuel tanks filled		
	17h00		Track closes			
	17h15			Starting grid		
	17h30			Start of race		
	18h15				Fuel tanks filled	
	18h30			End of race		
	18h45				Starting grid	
	19h00				Start of race	
20h00				End of race		
FRIDAY 23	08h30		Start of race			
	11h05		Last vehicle starts			
	11h30			Fuel tanks filled		
	12h00		Track closes			
	12h15			Starting grid		
	12h45			Start of race		
	13h15				Fuel tanks filled	
	13h30				Starting grid	
	14h30				Start of race	
	14h45				End of race	
	14h45		End of race			
18h10		Last vehicle starts				
19h00		Track closes				
SATURDAY 24	08h30		Start of race			
	12h40		Last vehicle starts			
	13h00			Fuel tanks filled		
	13h30		Track closes			
	13h45			Starting grid		
	14h15			Start of race		
	14h45				Fuel tanks filled	
	14h45			End of race		
	15h00				Starting grid	
16h00				Start of race		
				End of race		

Wednesday 21/05

- 09h00 – 19h00 : Technical inspections
- 11h00 – 16h30 : Prototype practice runs
- 16h30 : Track closes
- 17h00 – 19h00 : UrbanConcept practice runs (Groups 1 and 2)
- 19h00 : Track closes

Thursday 22/05

- 08h00 – 16h45 : Technical inspections
- 16h45 : End of technical inspections
- 08h30 – 11h30 : Prototype practice runs
- 11h30 : Track closes
- 12h00 – 14h10 : UrbanConcept practice runs (Groups 1 and 2)
- 14h10 : Track closes
- 14h45 – 17h00 : Prototype practice runs
- 17h00 : Track closes
- 16h45 – 17h15 : Tanks filled for UC Group 1
- 17h15 – 17h30 : Starting grid for UC Group 1
- 17h30 – 18h30 : Race for UC Group 1
- 18h15 – 18h45 : Tanks filled for UC Group 2
- 18h45 – 19h00 : Starting grid for UC Group 2
- 19h00 – 20h00 : Race for UC Group 2

Friday 23/05

- 08h30 – 12h00 : Race for Prototypes / 11h05 : Last Prototype starts
- 12h00 : Track closes for Prototypes
- 11h30 – 12h00 : Tanks filled for UC Group 1
- 12h00 – 12h15 : Starting grid for UC Group 1
- 12h15 – 13h15 : Race for UC Group 1
- 12h45 – 13h15 : Tanks filled for UC Group 2
- 13h15 – 13h30 : Starting grid for UC Group 2
- 13h30 – 14h30 : Race for UC Group 2
- 14h45 – 19h00 : Race for Prototypes / 18h10 : Last Prototype starts
- 19h00 : Track closes

Saturday 24/05

- 08h30 – 13h30 : Race for Prototypes / 12h40 : Last Prototype starts
- 13h30 : Track closes for Prototypes
- 13h00 – 13h30 : Tanks filled for UC Group 1
- 13h30 – 13h45 : Starting grid for UC Group 1
- 13h45 – 14h45 : Race for UC Group 1
- 14h15 – 14h45 : Tanks filled for UC Group 2
- 14h45 – 15h00 : Starting grid for UC Group 2
- 15h00 – 16h00 : Race for UC Group 2

4 - TROPHIES, PRIZES AND AWARDS

Article 50 : Award Presentation

The trophies shall be presented to the winning teams after the competition. Prize money shall be paid by cheque and shall be sent by mail during the month following the competition. The following prizes shall be awarded:

Article 51 : Grand Prizes and Other Awards

	Prototypes		UrbanConcept (UC)	
By engine type				
Combustion ⁽¹⁾	Shell Eco-marathon Grand Prize	1 st prize : €1500 2 nd prize : € 1000 3 rd prize : € 800	Michelin Grand Prize	€ 1500
Fuel cells ⁽²⁾	Shell Hydrogen Grand Prize	1 st prize : €1500 2 nd prize : € 1000 3 rd prize : € 800	Shell Hydrogen Grand Prize	€1500
Solar	Solar Power Award	€800	Solar Power Award	€800
Equation: Climate ⁽³⁾	Grand Prize	€800	Grand Prize	€800
By energy class				
	Gasoline Prize	€800	UC Gasoline Prize	€800
	Diesel Prize	€800	UC Diesel Prize	€800
	Alternative Gasoline Prize	€800	UC Alternative Gasoline Prize	€800
	Alternative Diesel Prize	€800	UC Alternative Diesel Prize	€800
By educational level ⁽⁴⁾	Schools: €800			
	Universities: €800			

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

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 – Prototypes

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) “Equation: Climate” Grand Prize

This award recognises the team that creates the lowest level of CO₂ emissions “from the well to the wheel”, i.e. the sum of emissions “from the well to the fuel tank” and “from the fuel tank to the wheel”. Solar-powered vehicles are not eligible for this award.

The minimum greenhouse gas emission prize will be awarded to the team with the lowest level of CO₂ emissions “from the well to the wheel”, i.e. the sum of emissions “from the well to the fuel tank” and “from the fuel tank to the wheel”.

The CO₂ emissions “from the well to the fuel tank” will be calculated by using international studies, such as [Concawe/Eucar/JRC WTW 2007](#), as references.

These CO₂ emissions take into account the production, transport and distribution of the different energy sources used.

The CO₂ emissions “from the fuel tank to the wheel” will be calculated from the energy consumption measured at the end of each valid race attempt, corrected to 15°C.

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 included in the special awards’ entry packets that will be made available in early February 2008 on the Web site www.shell.com/eco-marathon. Please note that it is imperative to fill in and return this questionnaire in order to validate your entry.

(4) AWARDS BY EDUCATIONAL LEVEL:

These awards recognise the first-place team from each educational level, regardless of vehicle group or energy class.

Article 52 : SPECIAL AWARDS

Participating teams may also elect to compete for one or more special awards: Eco-Design (1), Safety (2), Technical Innovation (3), Design (4), Communications (5) and Social/Hospitality (6).

Registration for special awards shall correspond to a specific project in a chosen area, and as such the special award questionnaires 1, 2, 3, 4, 5 and 6 will be made available to teams in early February 2008 via the Web site www.shell.com/eco-marathon.

*Teams may register for the special awards by completing and returning the corresponding questionnaires (available in early February 2008) as well as a complete dossier for the Communications, Design, Eco-Design, Technical Innovation and Safety awards, before **31 March 2008**.*

➤ **Eco-Design Award**

A special Eco-Design Award is proposed to entrants. This trophy will recognise the team that has designed and built its vehicle in the most environmentally friendly manner, through its choice of materials, their recyclability, waste management, etc.

€ 800 and a trophy

The duly completed questionnaire and dossier must be returned before **31 March 2008**.

➤ **Safety Award**

First Prize :	€ 800	}	
Second Prize :	€ 400	}	and a trophy
Third Prize :	€ 250	}	

Awarded by a panel of specialists and professionals from the AUTOSUR automobile inspection network, this prize recognises the three teams having made the most extensive efforts to comply with the safety regulations set forth in the present document.

The questionnaire and dossier explaining how the team has integrated safety concerns into vehicle design and construction must be submitted before **31 March 2008**. The judges will meet in April in order to make a preliminary selection of teams. 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 afternoon to Saturday at noon.

➤ **Technical Innovation Award**

First Prize :	€ 800	}	
Second Prize :	€ 400	}	and a trophy
Third Prize :	€ 250	}	

This award is presented by a panel of professionals to the top three teams demonstrating outstanding initiative and technical ingenuity along with optimal use of new materials in the drive train, chassis, instrumentation and tyres.

The questionnaire and dossier explaining the innovation concept, the team's approach, etc. must be submitted before **31 March 2008**. The judges will meet in April in order to make a preliminary selection of teams. 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 afternoon to Saturday at noon.

➤ **Design Award**

First Prize :	€ 800	}	
Second Prize :	€ 400	}	and a trophy
Third Prize :	€ 250	}	

Awarded by a panel of professionals, this category recognises 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.

The questionnaire and dossier explaining the team's design approach, the basis for their research and photos of the vehicle (front, rear and side views) must be submitted before **31 March 2008**. The judges will meet in April in order to make a preliminary selection of teams. 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 afternoon to Saturday at noon.

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.

➤ **Communications Award**

First Prize :	€ 800	}	
Second Prize :	€ 400	}	and a trophy
Third Prize :	€ 250	}	

Awarded by a panel of professionals, this category recognises three teams who have 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 Web site 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.

The questionnaire and dossier presenting all of the team's communications actions and their results must be submitted before **31 March 2008**. The judges will meet in April in order to make a preliminary selection of teams. 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 afternoon to Saturday at noon.

➤ **Social/Hospitality Award**

First Prize :	€ 500	}	
Second Prize :	€ 200	}	and a trophy
Third Prize :	€ 100	}	

This prize shall be awarded by Race Organisers to the team that organises the best social/hospitality activities at the Nogaro circuit. A well-documented and well-illustrated entry dossier must be submitted by **30 April 2008**.

➤ **French Education Ministry Award** (for French schools/universities only)

800 € and a trophy for each category

This award recognises the work of teachers/professors and the important role the Shell Eco-marathon can play in the curriculum.

A panel of judges from the Education Ministry will award this prize in each of four categories : middle schools, secondary schools, post-secondary technical schools and universities/engineering schools. Participating teams are requested to have a team member present in the pit area at all times from Thursday afternoon to Saturday noon for the judges' visit.

The duly completed questionnaire must be returned before **31 March 2008**.

➤ **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 France). Participating teams shall be notified accordingly.
