Available H2 vehicles
for delivery in 2007-2009

To build a hydrogen infrastructure for the transportation sector is a major but necessary step towards a clean and renewable transportation sector. This is a long term goal but we need to take action now in order to combat climate change.

As many hydrogen infrastructure projects have experienced the most limiting factor for employing hydrogen are actually the availability of road legal hydrogen vehicles and their high cost. But cost can greatly be reduced by increasing the volume and by cost sharing.

To overcome this barrier the Norwegian HyNor project and the Icelandic company VistOrka have made a joint effort to present available hydrogen vehicles to selected hydrogen infrastructure projects and potential users. The goal is a joint purchase of a larger number of vehicles. We believe this will be to the benefit for all parties and is needed for a continued and iterative effort to develop a hydrogen infrastructure.

In the following we will present information of some relevant vehicles and an indicative price which is based on a minimum order. All information in this brochure is for limited distribution only and is indicative. Based on interest for the specific models we will look into road legislations issues for the specific model.

If this is of interest for you please take contact with Vistorka or HyNor and not directly to the manufacturer for a further dialogue.




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Toyota Prius ICE-H2 retrofit from Quantum

Key features:
5 passengers
1.5L I4
4 Speed Automatic, 2 wheel drive
EPA class: Passenger Car
Power locks and windows, power steering
Front and rear disk brakes
Dual airbags also with side impact airbags
Turbocharged and Intercooled engine
Hybrid Synergy Drive system for the most efficient transportation

H2 storage:
2,4 kg @ 350 bar nominal in 3 tanks (34L, Type IV, Quantum tanks)

Economy:
FTP75 (city driving); 80 km/kg H2
HWYFET (highway): 67 km/kg H2

Range:
City; 192 km, Highway; 161 km

Emissions:
CO & CO2 – immeasurable
NOx – FTP75 = 0,04 g/mile

Vehicle cost:
Conversion rate to H2: $95,000 U.S. (See warranty information below)
Base vehicle has to be provided to Quantum

Warranty and service:
Delivery lead time: Approx 6-8 months after signed contract
Warranty: To be discussed at time of order
Service manual: Supplemental Service manual from Quantum included
Training of staff: Training to take place in country of delivery, included in price

Chevrolet Silverado (GM-Sierra) Pick Up (Retrofit)

Key features:
5 passengers
6,0L V8
4 Speed Automatic
2 wheel drive
EPA class: Light duty truck
Power locks and windows
Front and rear disk brakes
Power steering
Dual airbags
Supercharged and Intercooled engine

H2 storage:
10,5 kg at 350 bar nominal in 3 tanks (150-liter, Type 3, Dynatek tanks)

Economy:
FTP75 (city driving); 23 km/kg H2 / (4,44 kg/100 km)
HWYFET (highway); 32 km/kg H2 / (3,12 kg/100 km)

Range:
City; 236 km
Highway; 338 km

Emissions:
CO – unmeasurable
CO2 – unmeasurable
Nox – FTP75 = 0,06 g/mile (1,6 km); HWYFET 0,027 g/mile

Vehicle cost:
Conversion rate to H2, 120.000 US$
Base vehicle has to be provided

Warranty and service:
Delivery lead time estimated to be 6 months
2 year standard warranty on all H2 components
Service manual available – including all diagnostics for the vehicle operation
Training of staff (in US and country of delivery)

FORD Escape H2 Hybrid retrofitted ICE from Quantum

Key features:
5 passengers
2.3 L 4 cylinder, turbocharged and Intercooled engine
4 Speed Automatic
2 wheel drive
EPA class: Light Duty SUV
Power locks and windows
Front and rear disk brakes
Power steering
Dual airbags also with side impact airbags
Hybrid Synergy Drive system for the most efficient transportation

H2 storage:
Approx 4 kg @ 350 bar nominal (System layout TBD)

Economy:
FTP75 (city driving); 58 km/kg H2
HWYFET (highway): 52 km/kg H2

Range:
City; Approx 225 km
Highway; Approx 200 km

Emissions:
CO – immeasurable
CO2 – immeasurable
NOx – FTP75 = Under 0,02 g/mile (CA SULEV standard)

Vehicle cost:
Conversion rate to H2: $110,000 U.S. (See warranty information below)
Base vehicle has to be provided

Warranty and service:
Delivery lead time: Initial deliveries not before Q2 2008
Warranty: To be discussed at time of order
Service manual: Supplemental Service manual from Quantum included
Training of staff: Training to take place in country of delivery, included in price

THINK – plug-in hydrogen hybrid

Key features:
1 passengers
Onboard charger for 240 VAC
14 inch steel wheels
Regenerative braking
Pre-wired for audio
Direction selector with park interlock; and economy mode
Drive enabled / Charging indicators
Cluster with speedometer, state-of-charge and economy gauges
Power mirrors, Power windows, Power door locks
12V power output
Electric cabin heating system

H2 storage:
1,5 kg at 700 bar nominal

Economy:
Average: see range below
Acceleration 0-50 km in 6,5 sec., 0-80 km in 16 sec.
Top speed: 100 km/h

Range:
The on-board battery can be charged with a charging cable and carries 17,6 kWh, giving the car a range of 125 km (FUDS) on "just" battery
The on board hydrogen tank stores approx 1,5 kg gaseous hydrogen @ 700 bars with a resulting "hydrogen only" range of 135 km.
With charged battery and full tank of hydrogen, the car's operating range is approx 260 km

Emissions:
Zero Emission Vehicle

Vehicle cost:

Year:	Volume:	Budget Cost:
2008	5-30	65 000 GBP
2009	5-30	53 000 GBP

Warranty and service:
See vehicle cost (above)
Operating life; battery 160.000 km (ZEBRA battery), FC come from Ballard and are expected to have a 3 year warranty