

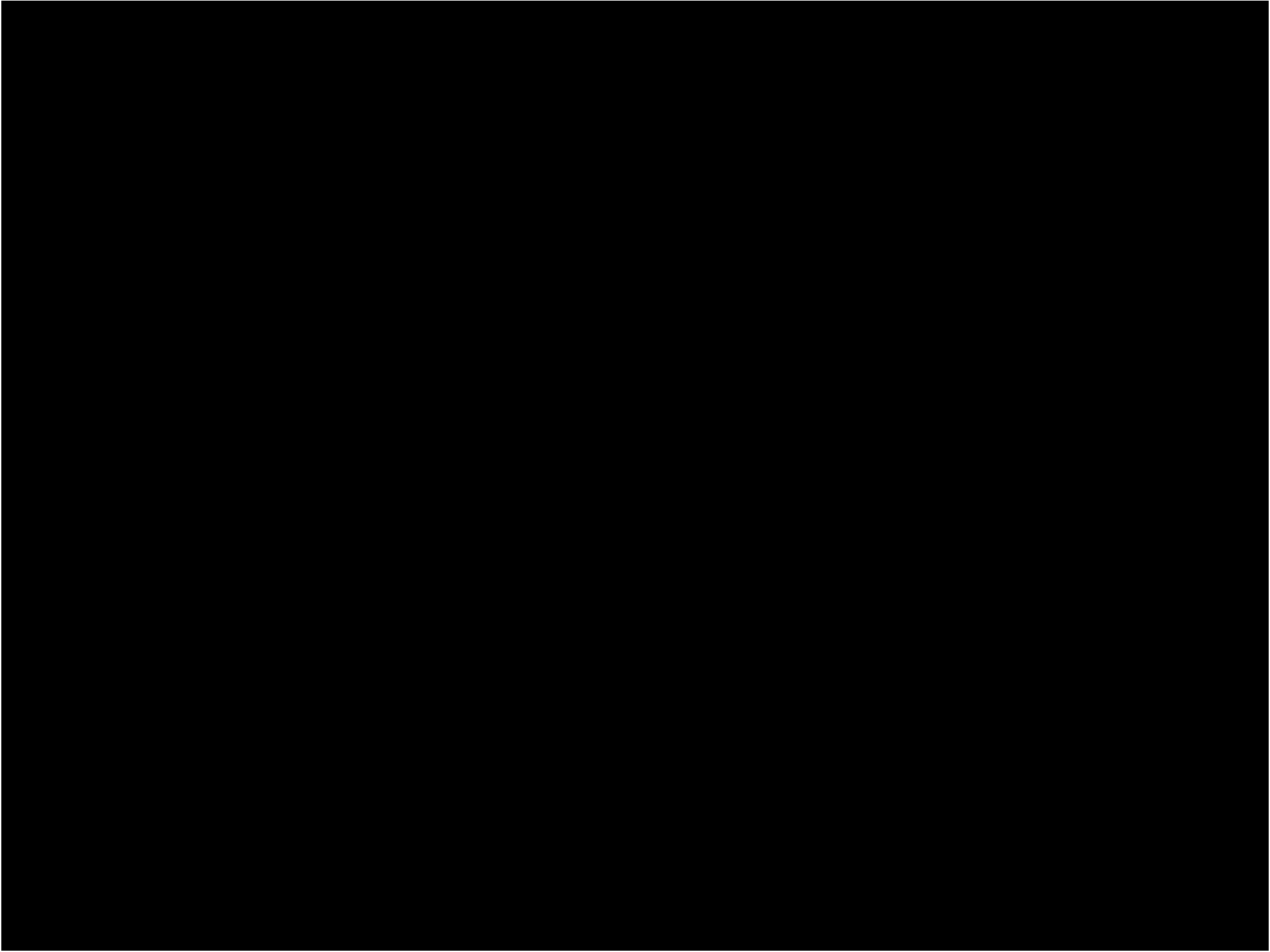
# ACT Expo May 2014 Long Beach, CA

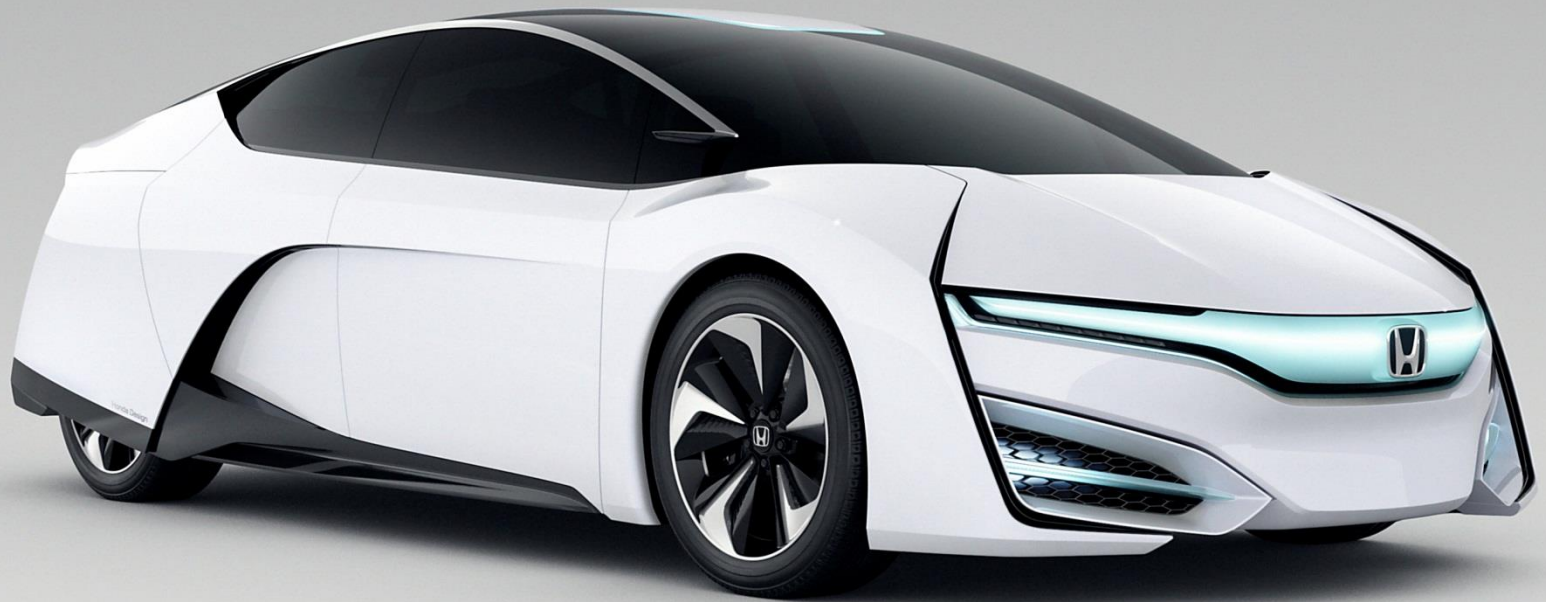
## **Stephen Ellis**

Manager, AFV Sales & Marketing  
Environmental Business Development Office  
American Honda Motor Co, Inc.



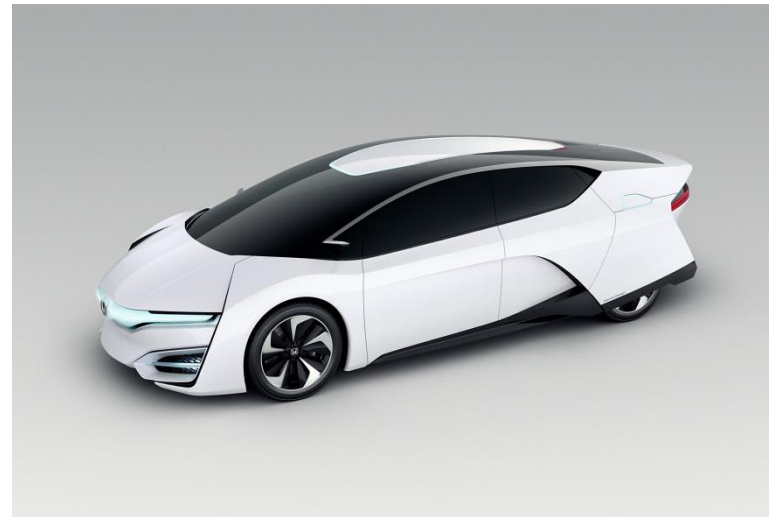
BLUE SKIES FOR  
OUR CHILDREN





# Honda FCEV Concept - Announcement

- World Debut at LAAS, 2013
- Entirely new platform
  - Style concept hints at the next generation Honda FCEV
  - 5 passenger dedicated-platform sedan
- Significant Advances
  - Cost Reduction
  - Performance
  - Driving Range (over 300 mile)
  - Packaging (Manufacturability)
- 33% reduction in FC Stack size
- 60% increase in energy density
- Introduction in 2015



# Honda Portfolio of Alternative Fuel Vehicles

**BENEFITS TO SOCIETY**

**Clean Gasoline**



Accord

**Gasoline-Electric Hybrids**



Insight

**Plug-in Hybrid Electric Vehicles**



Accord Plug-in

**Natural Gas Vehicles**



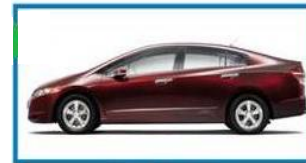
Civic Natural Gas

**Battery Electric Vehicles**



Fit EV

**Hydrogen Fuel Cell Electric Vehicles**

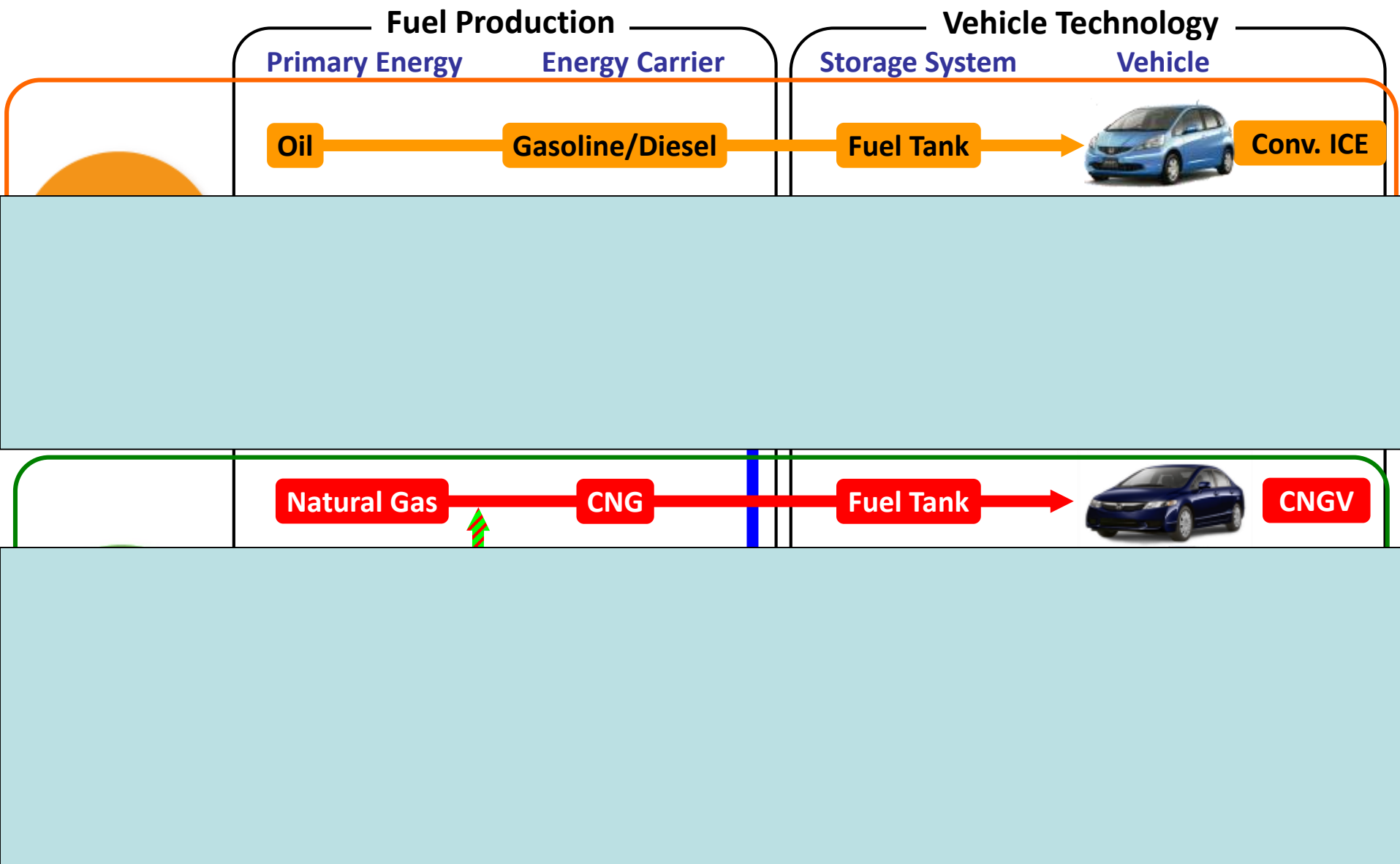


FCX Clarity

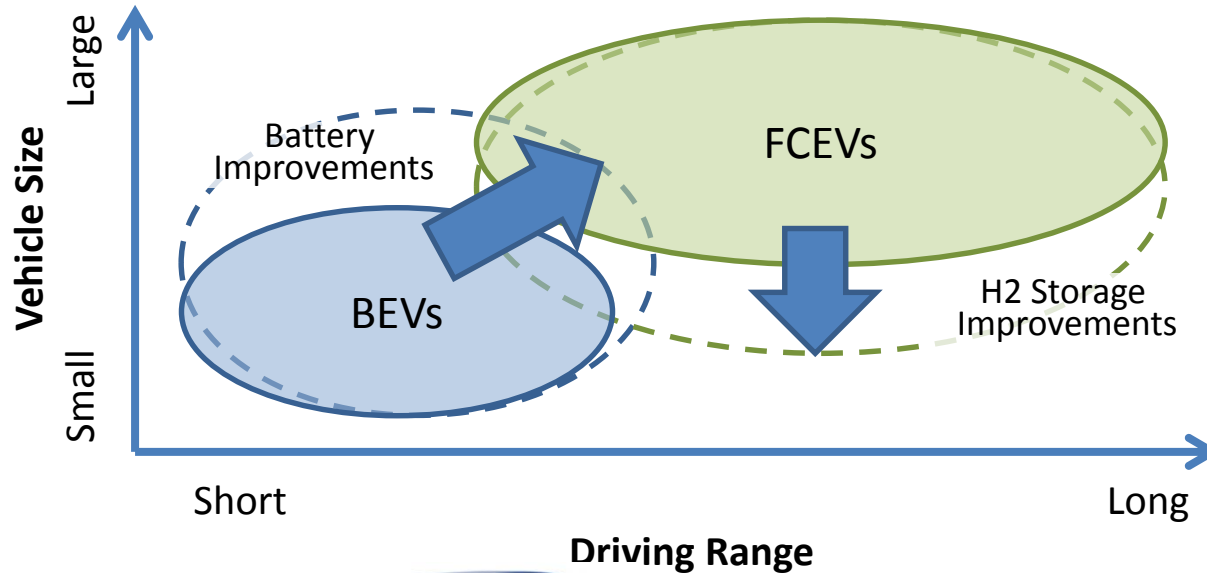


BLUE SKIES FOR  
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# Fuel & Vehicle Technology Pathways



# The Role of ZEV Technologies



City Commute



Interstate Travel



HONDA

# Honda Fuel Cell Electric Vehicle

**FCX  
CLARITY**



## Shell Newport Beach H2 Station



- **Zero Emissions, 240 mile range, < 5 min refueling**
- V Flow Fuel Cell Stack
- Power output 100kW
- Lithium-ion battery
- 134 hp rated electric motor providing 100kW power output
- **60 / 60 / 60** (City/Hwy/Combined) miles-per-kilogram
- 3.9 kg @ 5000psi, H2 fuel tank
- Front, Front-side, and side-curtain airbags
- Vehicle Stability Assist (VSA®)
- Anti-lock braking system (ABS) with brake assist
- Honda satellite-linked navigation system with voice recognition and rearview camera
- Bluetooth® HandsFreeLink®
- Remote Keyless entry
- Tilt-and-telescope steering column
- Power windows
- AM/FM/CD audio system with XM® radio
- Leasing in Southern California (Torrance, Irvine and Santa Monica) – based on current infrastructure
- **Lease Price - \$600 per month** (includes collision coverage and maintenance)





# FCX Clarity in California

## First Customers

- First deliveries in July, 2008
- Customers include: High School Principal, District Attorney, Actress, etc.
- Selection process: geography, driving patterns, access to infrastructure



## First Fuel Cell Vehicle Dealership Network

- Official Clarity/FCX dealerships
- Clarity dealership responsibilities:
  - Sales, Service, Parts, Customer Relations



## Fuel Cell Production

- Dedicated FC Production: Exclusive Clarity factory
- Dedicated FC stack production, with Honda-unique manufacturing equipment



# A Call for H2 stations: Back in 2007

11-30-07



The New York Times

Date: Sunday, December 09, 2007  
Location: NEW YORK, NY  
Circulation (DMA): 1,607,062 (1)  
Type (Frequency): Newspaper (5)  
Page: V1, V18  
Keyword: Honda

## GREENTECH

### Hydrogen Car Is Here, A Bit Ahead of Its Time

By NORMAN MAYERSOHN

SANTA MONICA, Calif. OFTEN, it is the smallest of gestures that deliver the most powerful messages. I was reminded of this last month when I settled into the driver's seat of the FCX Clarity, a sedan powered by fuel cells that Honda will begin leasing to a handful of private customers next summer. Fresh from a briefing that detailed the car's NASA-grade complexity, I wondered what procedures might be required to start the reaction of hydrogen and oxygen and bring the power supply to life.

In fact, it took nothing more than inserting an entirely conventional metal key into a normal-looking switch and pushing a power button much like the one that starts the Honda S2000 sports car. The familiarity of the steps — deliberate gestures, I think, to convince drivers that the cars of our future aren't so frightening after all — reinforced the message of the meeting I had just left: the FCX Clarity is ready now.

Scanning the dashboard for unmarked switches, mysterious buttons and puzzling controls, I looked for the inevitable loose ends of an engineering

about the way this car drove, at least.

That theme was repeated by another, less apparent gesture: no engineer or technician from Honda came along on my test drive, both a sign of confidence in the car's road-readiness and an indication of how normal it is.

Normalcy is a recurring, and intentional, theme of the FCX Clarity. It is refueled using a high-pressure connector tucked behind a typical gas-cap door on the rear fender. It has a handsome exterior, a nice audio system and plenty of knee room for passengers in the back. Anyone who has driven a Toyota Prius will feel at home with the dash-mounted gear selector and the park button.

Honda has not announced who will get the FCX Clarities or how many will be available in Southern California, where the program begins. Households will be selected, in part, for their ready access to hydrogen stations. Honda is realistic about the slow growth of a hydrogen infrastructure as well as the viewpoint that fuel cells may not seem to make much sense using current methods of hydrogen production.

But there are practical matters to

## FCX Clarity: Bring on the hydrogen stations

Updated 11/30/2007 9:28 AM | Comments 36 | Recommend 15

E-mail | Save | Print | RSS



### Test Drive

James R. Healey

SANTA MONICA, Calif. — Wind-flicked waves slap the beach. Cloud-dulled sun warms the Pacific air to 69 degrees. Honda FCX Clarity fuel-cell car scampers along disturbing nothing but the air around it.

Hydrogen, not petroleum, fills its tank. Electricity, not internal combustion, slings it forward.

PHOTOS/AUDIO: FCX Clarity with Healey's comments

MORE TEST DRIVE: [Archive of Healey's columns](#)  
SIDE BY SIDE: [Compare this vehicle to others](#)



Enlarge

Honda

This much is clear about Honda's FCX Clarity: There should be a lot more of them on the market, and the sooner the better.

individuals.

FIND MORE STORIES IN: [Washington](#) | [California](#) | [Pacific](#) | [Qatar](#) | [Honda](#) | [Chevrolet Equinox](#) | [Freeport McMoran](#)

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- Digg
- Newsvine
- Reddit
- Facebook

What's this?

Only the notable whine from an air compressor disturbs the picture, changing pitch intrusively as the motor changes speed. Honda pledges to reduce that before putting Clarity sedans into users' hands in the Los Angeles area next summer. General Motors (GM) has done a better job quieting the compressor on its Chevrolet Equinox SUVs modified to run on fuel cells (Test Drive, Nov. 9).

That compressor whine and slightly skittish steering are the only things worth a general gripe about Clarity, the first regular-production fuel-cell car aimed at individuals. Previous FCX cars have been intended for fleet users. Only two are driven by

The New York Times

# We Know How Stations Should Work...





May 2014


# Northern CA Hydrogen Stations

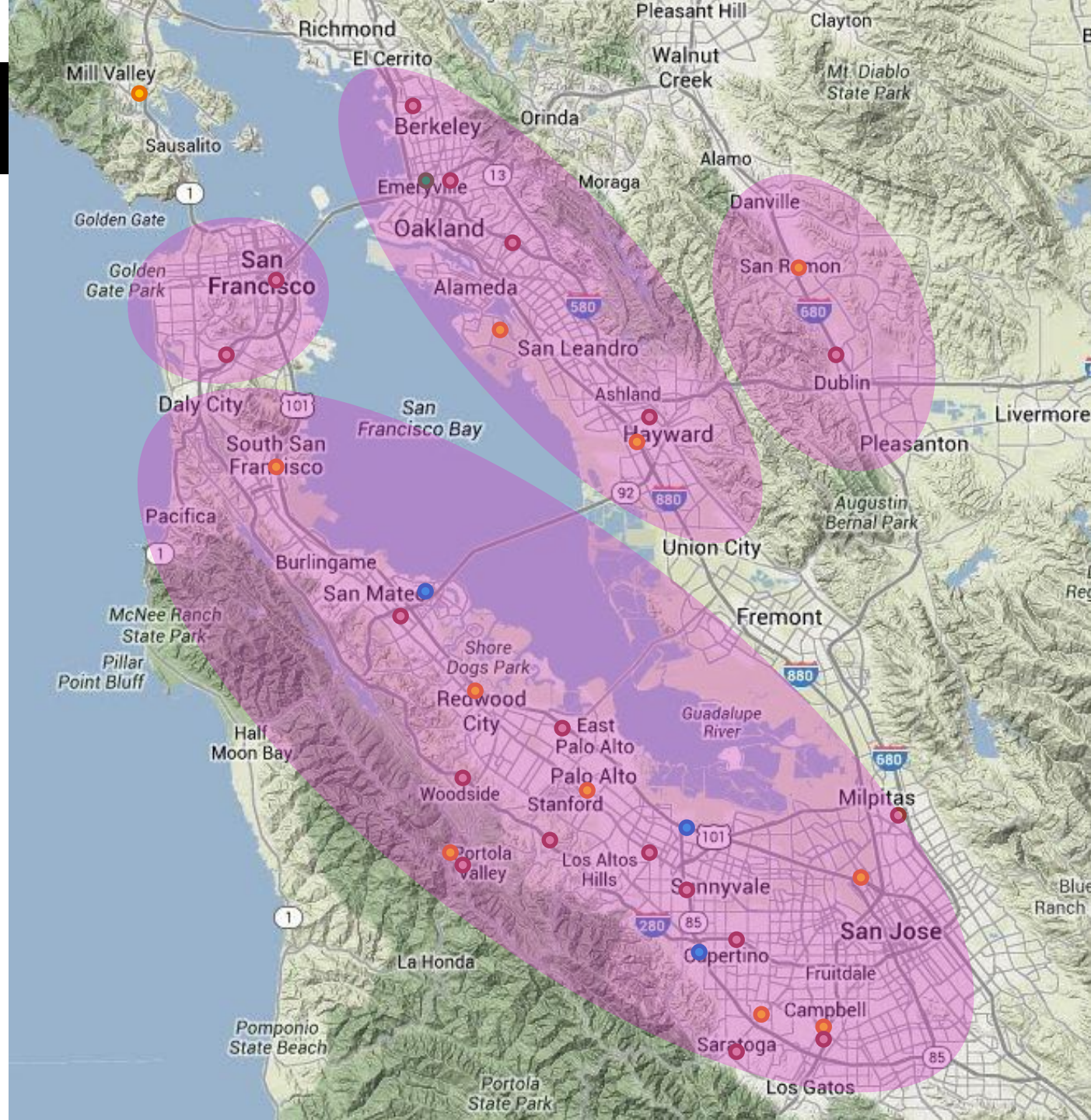
 **Open**  
Emeryville – AC Transit

 **In Development**  
Cupertino  
Foster City  
Mountain View  
\*West Sacramento

 **NOPA**  
Campbell  
Hayward  
Mill Valley  
Oakland  
Palo Alto  
Redwood City  
\*Rohnert Park  
San Jose  
San Ramon  
Saratoga  
South San Francisco  
Truckee  
Woodside

*\*Not shown on map*

 **Target areas for future funding**



# Southern CA Public Hydrogen Stations

- **Open**
- Burbank
- Fountain Valley - OCSD
- Harbor City - Mebtahi SS
- Irvine - UCI
- Los Angeles - Cal State LA
- Newport Beach - Shell
- Thousand Palms - SunLine
- Torrance - Shell
- West LA - Shell

- **In Development**
- Anaheim
- Beverly Hills
- Chino (upgrade)
- Diamond Bar (upgrade)
- Hermosa Beach
- Irvine - UCI (upgrade)
- Irvine North
- Lawndale
- Mission Viejo
- San Juan Capistrano
- Santa Monica
- West LA
- Westwood - UCLA
- Woodland Hills

- **Target areas for future funding**



California Fuel Cell Partnership  
[www.ca-fcp.org/stationmap](http://www.ca-fcp.org/stationmap)

# Southern CA Hydrogen Stations

## Open

- Burbank
- Fountain Valley – OCSD
- Irvine – UC Irvine
- Los Angeles - Harbor City
- Los Angeles - West LA 1
- Newport Beach – Shell
- \*Thousand Palms – SunLine Transit
- Torrance – Shell

## In Development

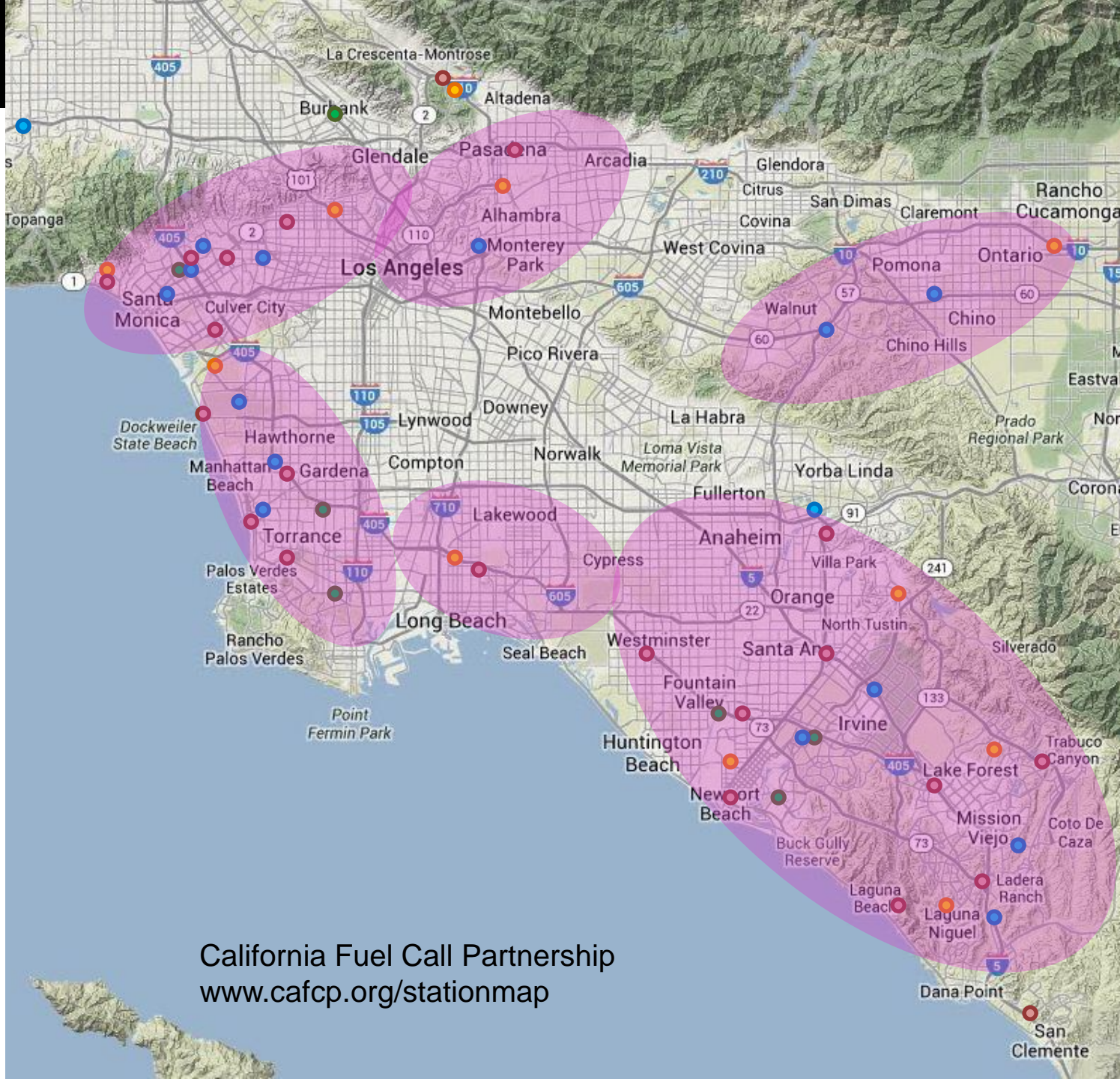
- Anaheim
- Chino (upgrade)
- Diamond Bar (upgrade)
- Irvine - UC Irvine (upgrade)
- Irvine - Walnut Ave.
- Lawndale
- Los Angeles - LAX
- Los Angeles - West LA 2
- Los Angeles – Westwood
- Los Angeles - Woodland Hills
- Los Angeles – Cal State LA
- Los Angeles - Beverly Blvd.
- Mission Viejo
- Redondo Beach
- San Juan Capistrano
- Santa Monica 1

## NOPA

- \*Coalinga
- \*Costa Mesa
- La Canada Flintridge
- Laguna Niguel
- Lake Forest
- Long Beach
- Los Angeles - 9
- Los Angeles -10
- Ontario
- Orange
- Pacific Palisades
- \*Riverside
- \*San Diego
- \*Santa Barbara
- South Pasadena

\*Not shown on map

## Target areas for future funding



California Fuel Cell Partnership  
[www.cafcp.org/stationmap](http://www.cafcp.org/stationmap)

## H2 USA Mission / Goals

- Mission Statement
  - The mission of H2 USA is to promote the commercial introduction and widespread adoption of FCEV's across America through creation of a public-private partnership to overcome the hurdle of establishing hydrogen infrastructure
- Goals
  - Successful progress of H2 USA will contribute to:
    - Establishing necessary hydrogen infrastructure and leveraging multiple energy source, including natural gas and renewables
    - Deploying FCEV's across America
    - Improving America's energy and economic security
      - Significantly reducing greenhouse gas emissions
      - Developing domestic sources of clean energy and creating jobs in the United States
      - Validating new technologies and creating a strong domestic supply base in the energy sector



# Summary for today...

- A Portfolio of vehicle technologies is necessary to give consumers choice:
  - Oil displacement, Smog emissions, CO2 reduction
  - Fuel cost savings, Convenience!
- Early and SUSTAINED State and Federal eco transportation policy pays off
- Valuable **ongoing** lessons from fleets, retail customers & dealerships
- Valuable lessons from market forces
  - Economic swings
  - Oil / Gasoline price swings
  - Public sentiment toward “green” or “energy”
  - Newfound energy supplies
- Alternatives to oil are not “if” but “when”
  - Need long-term policy signals from government
  - However, not a time to “pick winners”, Electric Drive Synergies
  - Accelerated infrastructure deployment is needed
- Consensus: Stay on course
  - No single technology – FCEV’s are necessary *and desirable*



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OUR CHILDREN



 **HONDA**