

# Toyota Mirai Fuel Cell Sedan Global Media Preview - Chris Hostetter

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*As prepared for:*

**Toyota Mirai LLPP**  
**Newport Beach, CA**  
**Monday, November 17, 2014**  
**Chris Hostetter, Group Vice President – Strategic Planning, Toyota Motor Sales**

Thanks John,

Good morning and thank you all for joining us here today.

All morning, you have heard about our vision for a Hydrogen Society; how we have spent the last 20 years developing a practical and affordable— and exciting —hydrogen fuel-cell vehicle, and how we plan to bring that car to market in a very special way.

In each case, we have left the discussion of what is seen as the greatest remaining challenge...for the finale.

I consider this the long straw, not the short one.

Because at Toyota, the Hydrogen refueling infrastructure story is a good one; It's not an easy one, but it's a good one.

This issue has been seen... for a long time...as a cliché; the Catch-22... the chicken or the egg... and the cart before the horse...that would make Hydrogen... the “technology of the future”... forever.

The Mirai and the Prius—Industry changing vehicles, *both*— high-risk gambles, *both*— were developed at huge expense and fully in house, not just because we could do it... but because we should do it.

The same must be said about our commitment to do everything possible to *kick-start* the development of hydrogen re-fueling infrastructure.

*Kick-start*, by the way, is the key verb.

Very simply, we cannot have the car without the stations.

In both cases, we knew we would need to start from square-one.

One of the things that we have learned about Hydrogen is that, long term, it offers many cost and convenience opportunities, especially in refueling stations where we see a clear business case...worthy of investment.

This is the Arroyo Seco Canyon in Pasadena.

From the ledge of the canyon, the UCLA Bruin football fans can see the Rose Bowl in the distance and they very much want to see their Bruins play the game.

But the Bruins won't play well unless the fans are there to support them.

Toyota is helping to build a bridge over the Arroyo...to get the fans to the game.

Then... and most importantly, step back... and let the games begin.

At square one, in the short-term the games will need a lot fans and a lot of bridge-builders from different walks

of life.

And I must say, that we at Toyota are inspired by the level of commitment being offered right now, and in such creative and collaborative ways.

If you are an automotive engineer, or CEO, or Sales VP, or a government regulator, an NGO or academic...when the light bulb goes off... and it will...you cannot help but be overwhelmed by the beauty and simplicity... and significance of this technology.

On a Global basis, the word is spreading that automakers are serious about this Hydrogen thing.

**Germany** has committed to going from 15 to 50 stations in 2015 and 1,000 by 2020

**Japan** is targeting an increase from 17 stations to more than 100 by 2016, with major government support.

**Korea** has a goal of more than 160 stations by 2020.

**The UK** will have 15 stations by 2015, with a target of 65 by 2020.

**Denmark** is committed to 15 new stations by 2020 as part of a national renewable network program.

Which brings us to the US, and most specifically, California, which is starting to look ... alot-like the global epicenter... for the Hydrogen movement.

Not that long ago, Governor Schwarzenegger, promised a hydrogen highway of fueling stations... running the length of California.

The bad news is that currently, there are only about 10 active hydrogen fuel cell “demonstration stations” in California.

Three of them are within 20 minutes of this hotel.

But there’s more good news than bad.

In September of 2013, the state of California approved assembly Bill 8... setting aside more than \$200 million in funding through the California Energy Commission, the CEC for as many as 100 new stations; 20 by the end of 2015, And 40 by 2016.

Those numbers might sound small, but one thing we have come to believe is that the issue of infrastructure is not so much about how many: But rather it’s all about... location.

That’s why Toyota... and the University of California Irvine’s *Advanced Power and Energy Program*...”APEP” collaborated to develop a spatial model... called STREET...that maps-out a specific distribution of fueling stations.

The locations consider a variety of data including R.L Polk ownership of hybrids and electrics, traffic patterns, population density, and so on.

The model was designed... based on the assumption that owners would want to reach a refueling station within

6-minutes.

What the model produced was an initial cluster map that identified only... 68 station sites, in the San Francisco Bay area, Silicon Valley, LA, Orange and San Diego counties.

If implemented, the system could handle a fuel cell population conservatively estimated at about 10,000 vehicles.

The study goes further.

By using the model, and if every vehicle in California ran on Hydrogen... we could meet refueling logistics with only 15 percent of the nearly 10,000 gasoline stations currently operating in the state.

It's not about how many. It's about location.

This model is being used by the California Energy Commission, the Governors Zero Emission Vehicle Initiative the California Air Resources Board, and the California Fuel Cell Partnership.

Here is where it gets even better.

Last summer this commitment by the state was verified when the California Energy Commission awarded more than \$50 million for 28 stations to be built in locations designated by the STREET model.

19 of these stations will be built by energy provider FirstElement featuring an additional financial infusion from Toyota to help support operations and maintenance.

All OEMs that are bringing fuel cell vehicles to market over the next few years are strongly supporting this CEC funding program.

However, Toyota is the only OEM that has walked the walk... with additional working capital... on two-thirds of the stations earmarked for construction.

We invite other OEMs to follow our lead, step-up and contribute... and lend a financial hand to a program that will benefit all customers that purchase a fuel cell vehicle, no matter the brand name on the hood.

I never thought I would ever be paraphrasing Horace Greely, but as you heard from Jim Lentz last night, we are going *east* young man... going east.

To support our trailblazing Mirai rollout in 2016, TOYOTA will partner with Air Liquide—one of the world's most experienced hydrogen suppliers—to develop and supply a phased network... of 12 state-of-the-art hydrogen stations... in New York, New Jersey, Massachusetts, Connecticut, and Rhode Island.

These states and locations have been strategically selected to support the greater New York and Boston areas, as well as provide the backbone of a hydrogen highway for the Northeast corridor.

This plan, like the California model, could not have been accomplished without the enthusiastic support and collaborative effort of regional state governments.

We're very excited about this unprecedented endeavor, and look forward to sharing more details with you over

the coming year.

The California model and the Northeast model show that there is no one plan that will work everywhere.

There are many routes that can be taken to get to your destination.

Tomorrow during your drive, your route will stop at two re-fueling stations that vividly demonstrate how Hydrogen might be made, stored and distributed as the Hydrogen Society begins to take shape.

One is a southern California design-landmark Shell station with a dedicated and fully integrated hydrogen fueling island with both 10-thousand PSI and 5-thousand PSI pumps.

It is one of the original “Demonstration” stations established by the California Air Resources Board and makes its own hydrogen on premises via natural gas reformation.

Also on the route is a station at the massive Orange County Water District.

That station has been pumping hydrogen created by an innovative tri-generation process, a collaborative project between the water district, UC Irvine and Toyota.

The process turns raw sewage into electricity, heat and hydrogen before it sends the cleaned water on its way to the Pacific Ocean off of Brookhurst St. Beach...less than 5 miles from here.

I am told the surf at Brookhurst is running 3-5 feet today, with mild rips and an off-shore breeze of 10 miles per hour, if anyone is interested.

I hope you enjoy your drive tomorrow.

I think beyond the fun you will have driving this amazing vehicle, it will give you a perspective on how do-able it is to integrate hydrogen into our automotive culture...and our future Hydrogen Society.