True Zero A FirstElement Fuel Brand

Learnings from Station Development

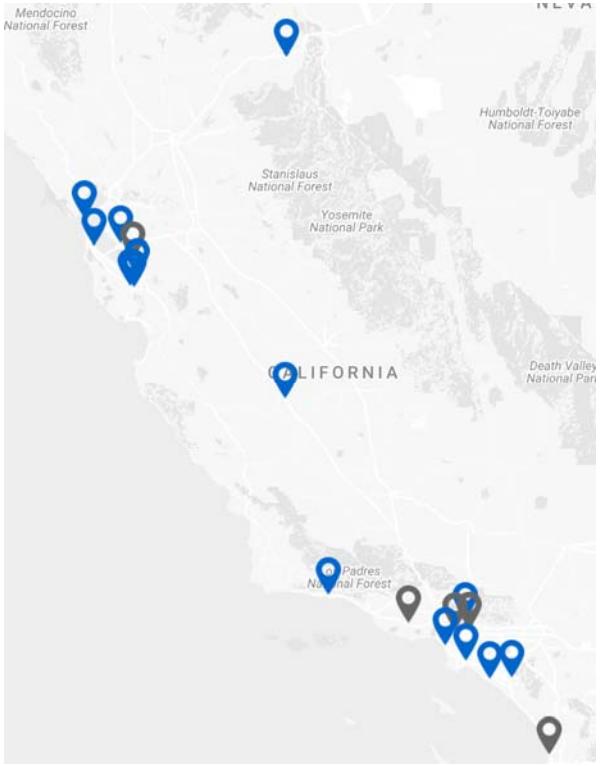
H2@Scale Workshop

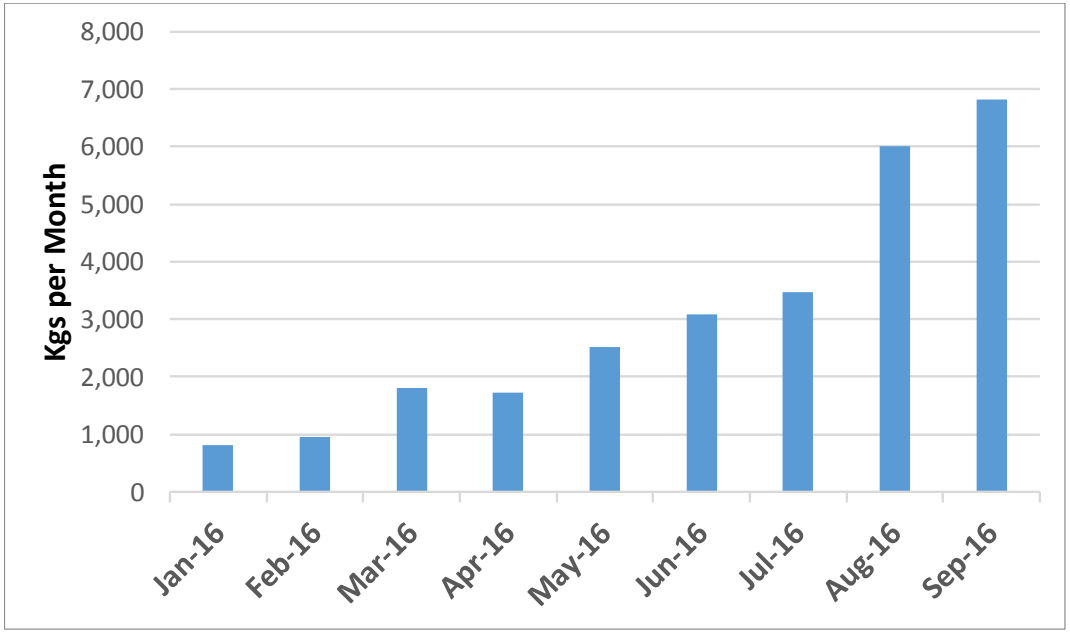
November 16, 2016

Current Status

The True Zero Hydrogen Network has performed over 14,000 fills and dispensed over 40,000 kg of hydrogen (15 Open stations)

- On track for another 2,500 fills and 8,000 kgs in November





What's Next?

October 2015 – Only 2 Open retail hydrogen stations

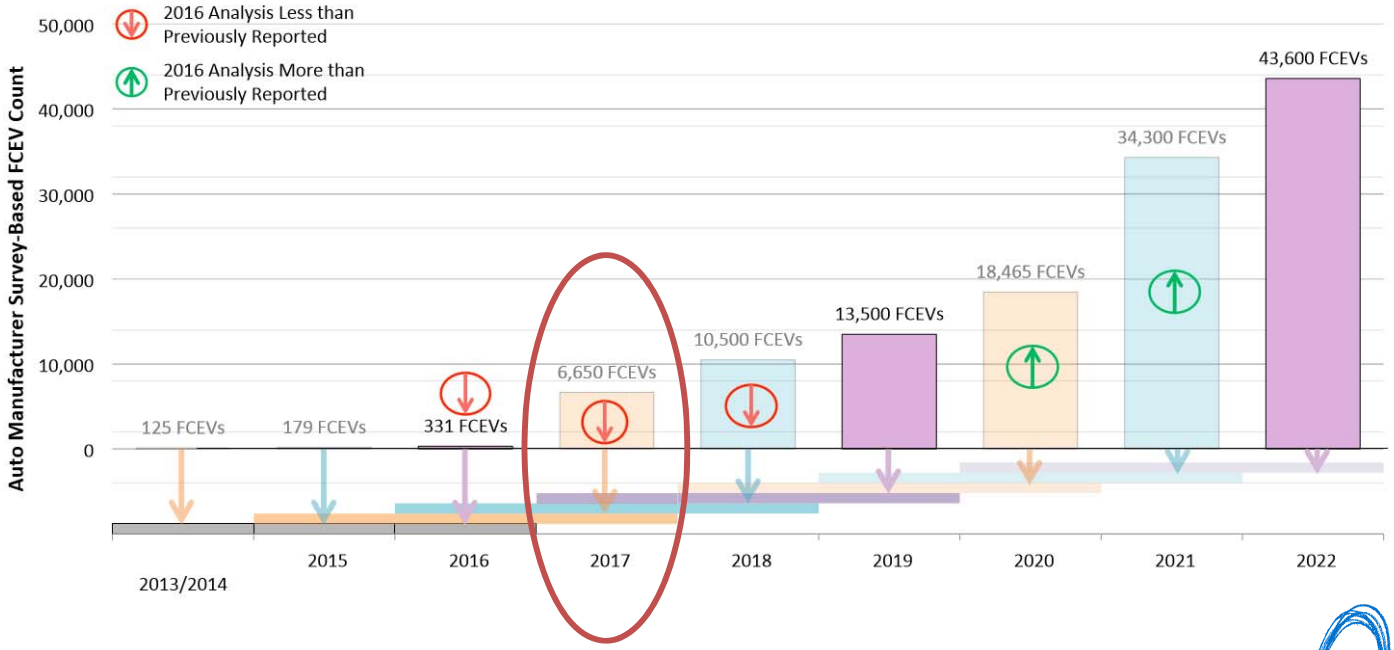
- 0 Toyota Mirai's in California

November 2016 – 23 Open retail hydrogen stations (15 True Zero)

- >900 Toyota Mirai's in California (source: Automotive News)

November 2017 – ?? Open retail hydrogen stations (19 True Zero)

- 5,000-6,000 FCVs in California (source: CARB)



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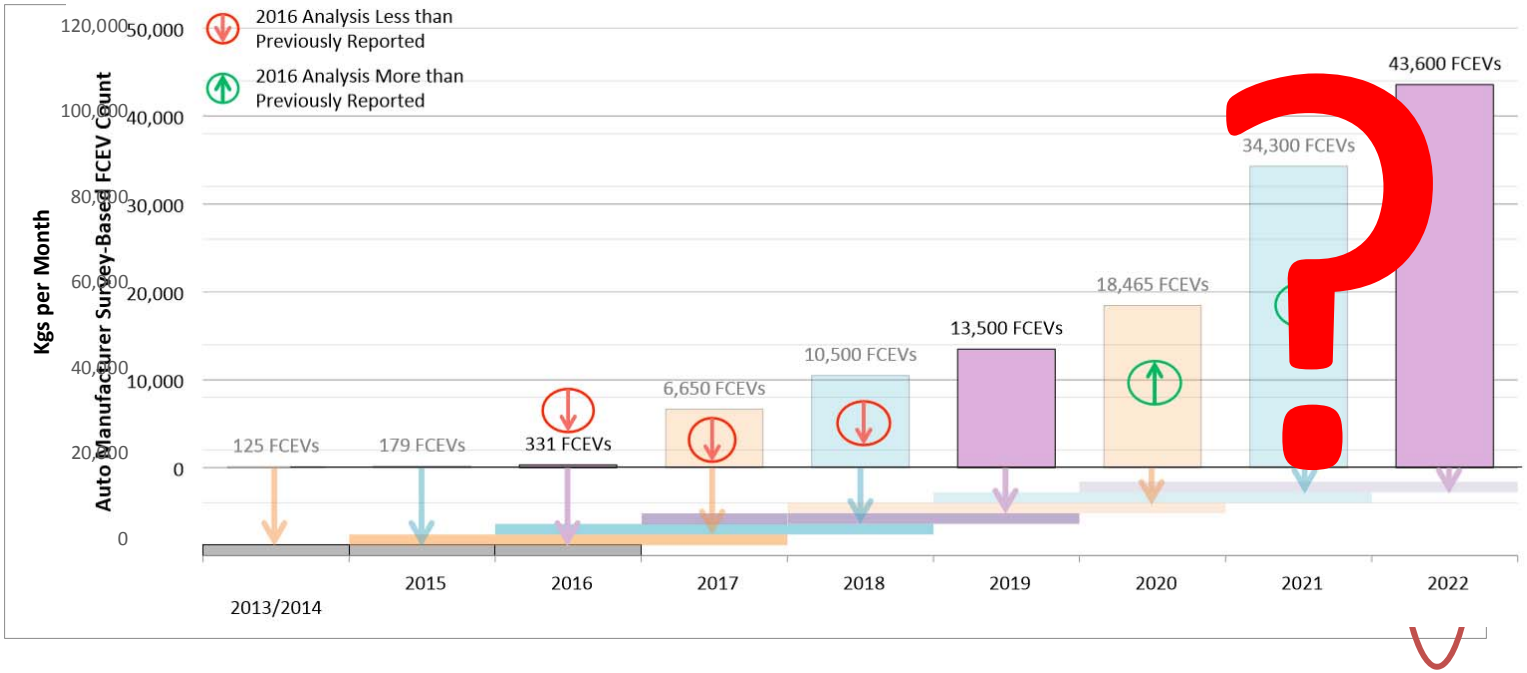
If ARB projections are correct, True Zero will be at capacity by the end of 2017



Hydrogen Supply

U.S. hydrogen production capacity currently 30,000,000 kg/day

- 68% associated with petroleum refining
- 21% used for ammonia production

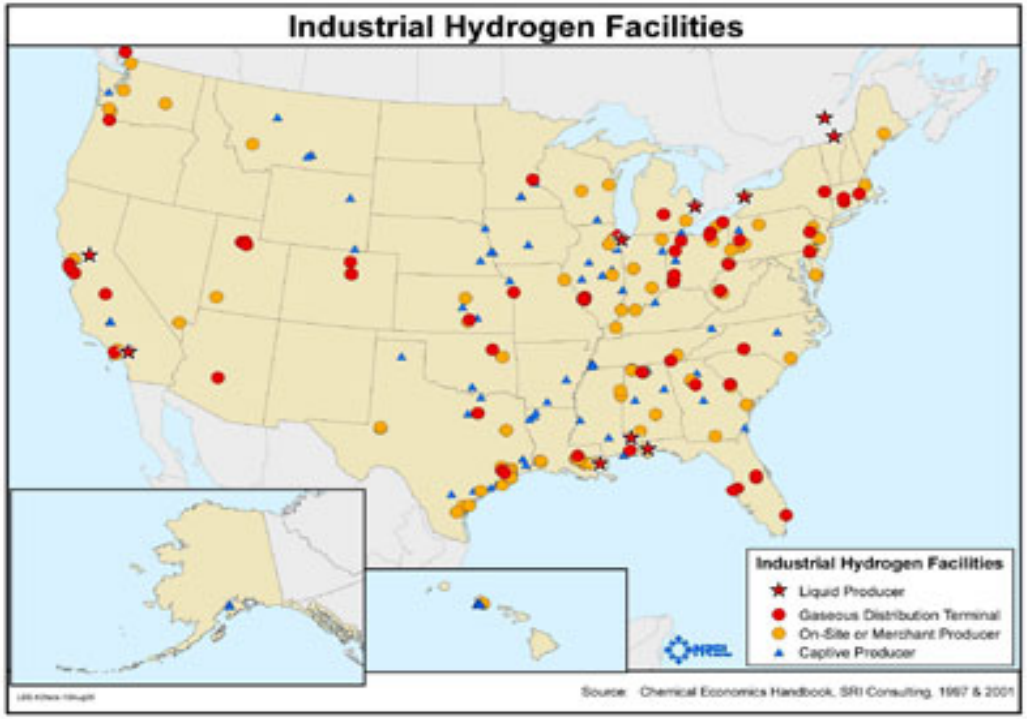
For example, there are approximately 450,000 kgs/day capacity in SoCal

- But, how much is not already dedicated to existing customers?
- Assuming 5% excess capacity (22,500 kgs/day)
  - **Supply will be exhausted by 2022**

Key questions:

1) Where will the additional gas come from?
2) How much excess supply is in NorCal?

Figure C.1. Map of United States Industrial Hydrogen Production Facilities



Source: National Renewable Energy Laboratory (2006).

TRUE ZERO

Conclusions

1. **California needs large stations for FCV projections to stay on track**
2. **California needs dedicated hydrogen fuel supply for FCV projections to stay on track**


La Cañada Flintridge


Santa Barbara


Costa Mesa


Hayward


Harris Ranch


San Jose


Lake Forest


S. San Francisco
H2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