Hydrogen Station Cash Flows

Understanding the impact of location
on the bottom line

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Quick Project Background

- EIN Developed the Model that was used to estimate funding needs for CaFCP Roadmap Plan.
  - Collaborated with multiple parties
  - Analysis focused on stations built in 2014-15

Report available here:

http://www.einow.org/resources/reports.html

Today's Focus: Individual Station Economics based on location.

Cluster & Connector Stations face different circumstance

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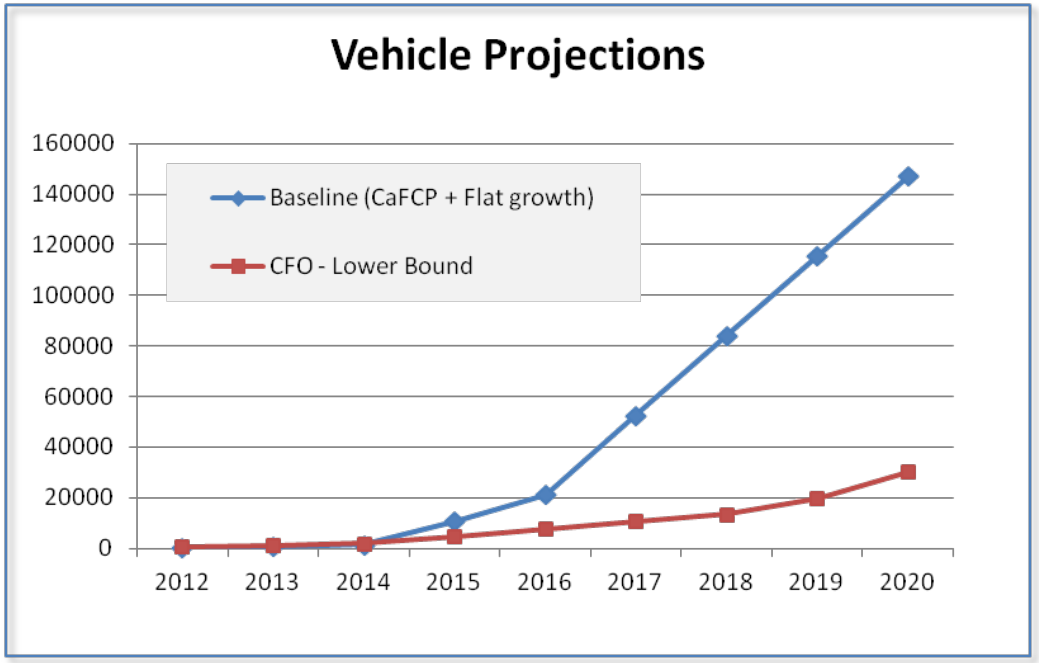
How many FCEVs will be on the Road?



<u>Baseline Growth Assumption</u>

52,000 FCEVs by 2017, then Flat Growth (31,500 FCEVs added/year).

<u>Lower Bound</u>

CFO Regulation Scenarios, Lower Bound. Reaches 52,000 in early 2020's.

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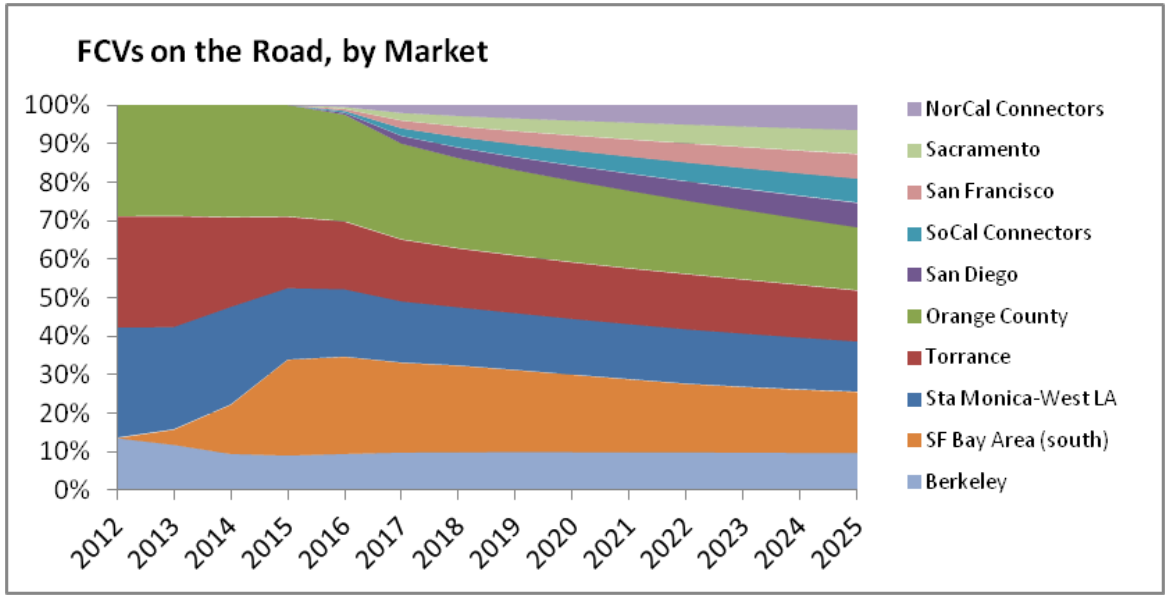
Where will FCEVs fuel?

Where will FCEVs be sold?

CaFCP Roadmap Early Cluster Communities



Where will FCEVs Fuel?*:

	A vehicle based in:				
Buys its fuel from:	***Santa Monica-West LA***	***Torrance***	***Orange County***	***San Diego***	***So-Cal Connectors***
Santa Monica-West LA	80%	6%	6%	2%	10%
Torrance	6%	80%	6%	3%	10%
Orange County	6%	6%	80%	4%	10%
San Diego	2%	2%	2%	90%	5%
So-Cal Connectors	6%	6%	6%	6%	65%

*Done for Nor. Cal as well

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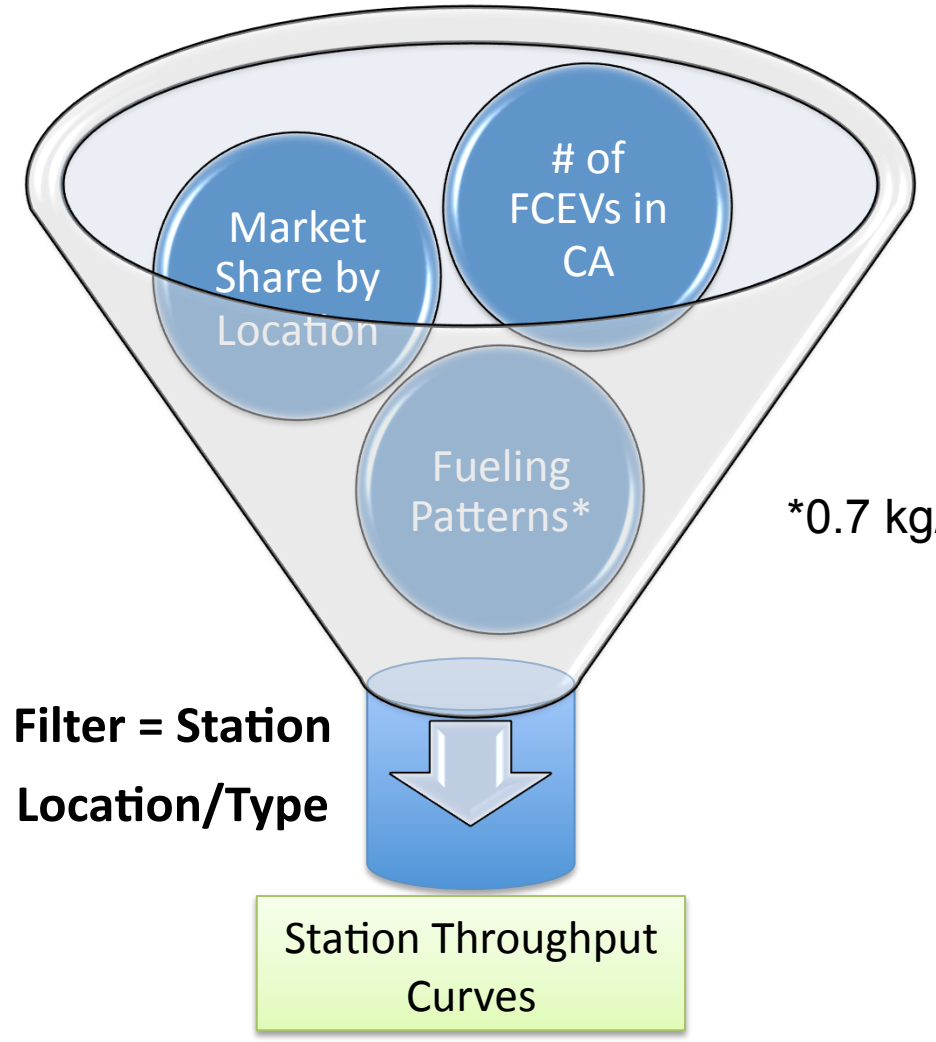
How does this affect my station?



*0.7 kg/day/vehicle assumed

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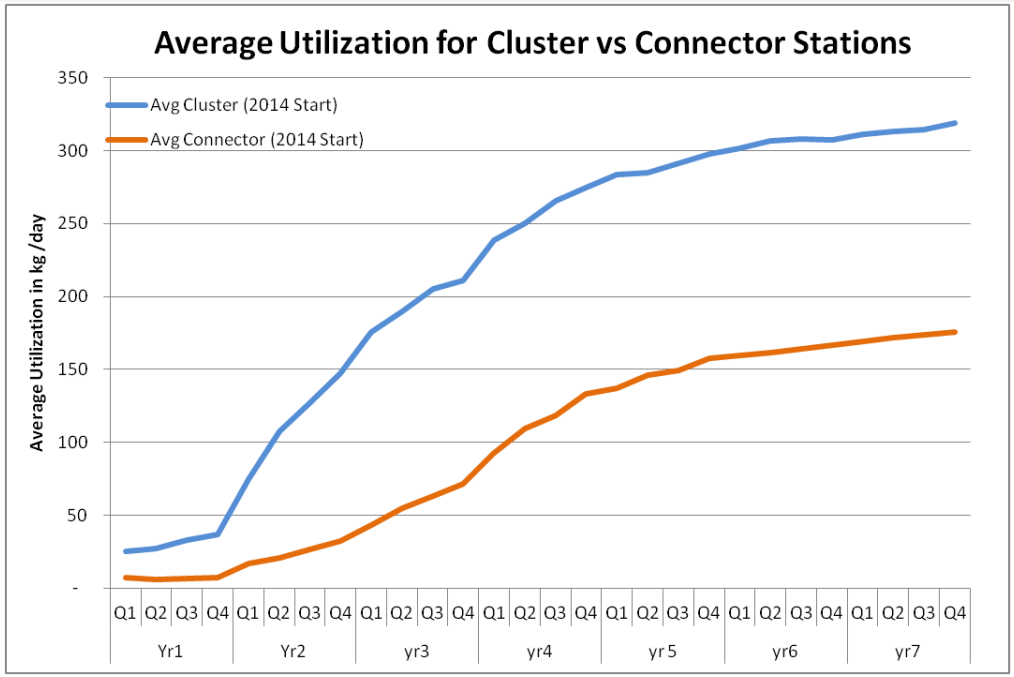
Average Station Demand Curves



Average **Cluster** Station:

- 500 kg/day capacity example
- Baseline Growth Scenario
- Construct in 2013, Open in 2014
- **150kg/d by end of year 2**

Average **Connector** Station:

- 250 kg/day capacity example
- Baseline Growth Scenario
- Construct in 2013, Open in 2014
- **150 kg/day by end of year 5**

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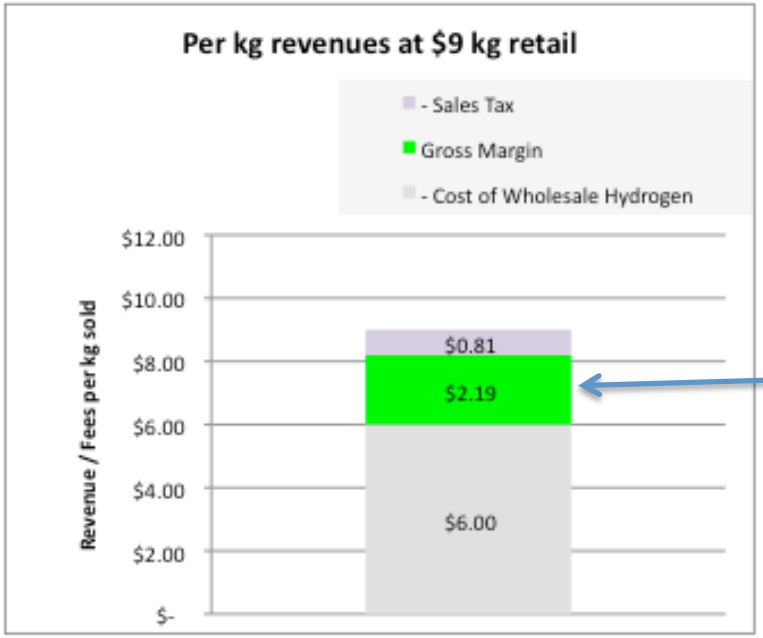
What are the Financial Implications of this Demand?

Station Timing and Size	Capital Cost	Annual Operating & Business Expenses	
Station Built in 2014		No Load	Max load
100-170 kg/day	$0.9M	$57k	$82k
250 kg/day	$1.4M	$62k	$99k
Stations Built 2015-2017			
250 kg/day	$0.9M	$57k	$94k
400-500 kg/day	$1.5M-$2.0M	$68k	$149k

Includes:

- $12K/yr baseline maintenance, plus
- 6% increase in maintenance for every 25 kg/day increase in daily load
- Electricity: $1,200/year + $0.30/kg
- Property tax: 1% of capital cost
- Rent: $1,000/month
- Permit fees: $3,680



Gross margin must cover O&M, other business expenses, credit card fees and and financing costs

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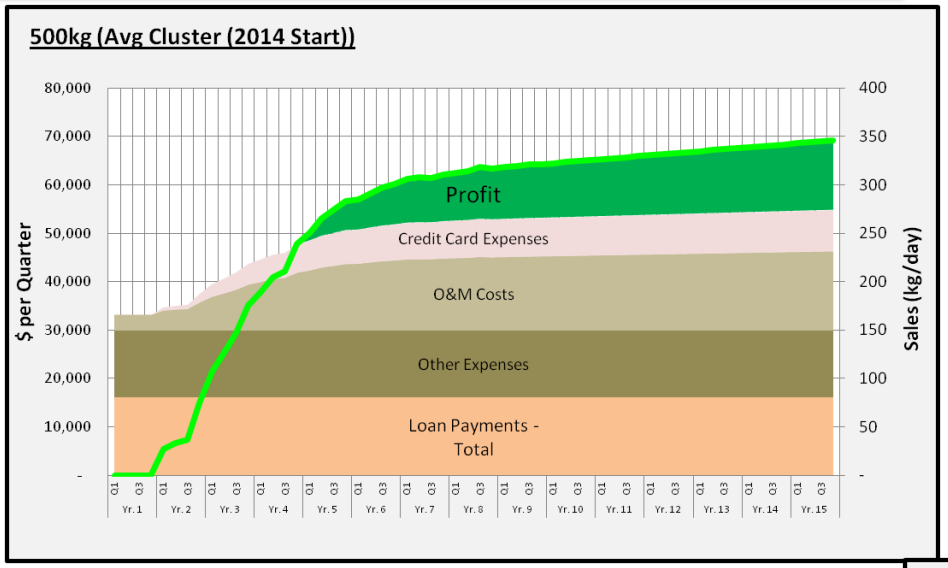
A Cluster Station Has Early Potential

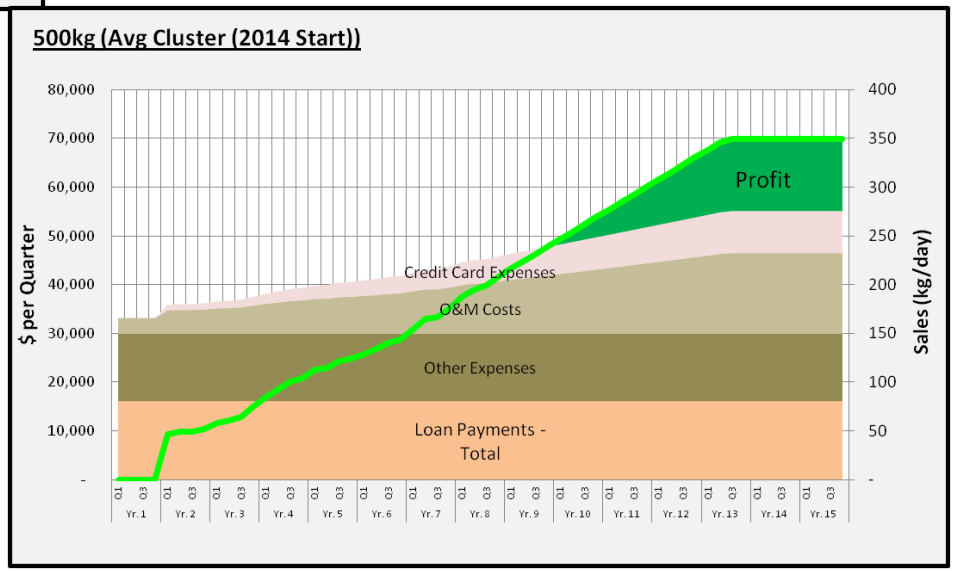
Baseline FCEV Growth (CaFCP + Flat Growth)



Both assume:

- *-$2m Capex*
- *- 70% capital cost share*
- *-15yr, 5.5% loan for remainder*
- *-Capped at 70% capacity utilization*

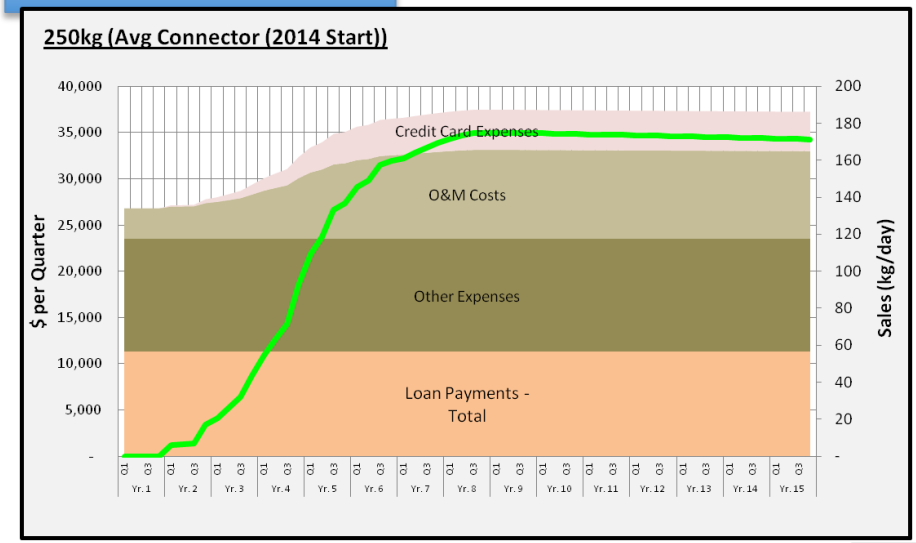
CFO Lower Bound Growth



If cars come slower, profits delayed, but still achievable.

A Connector Station has bigger challenge

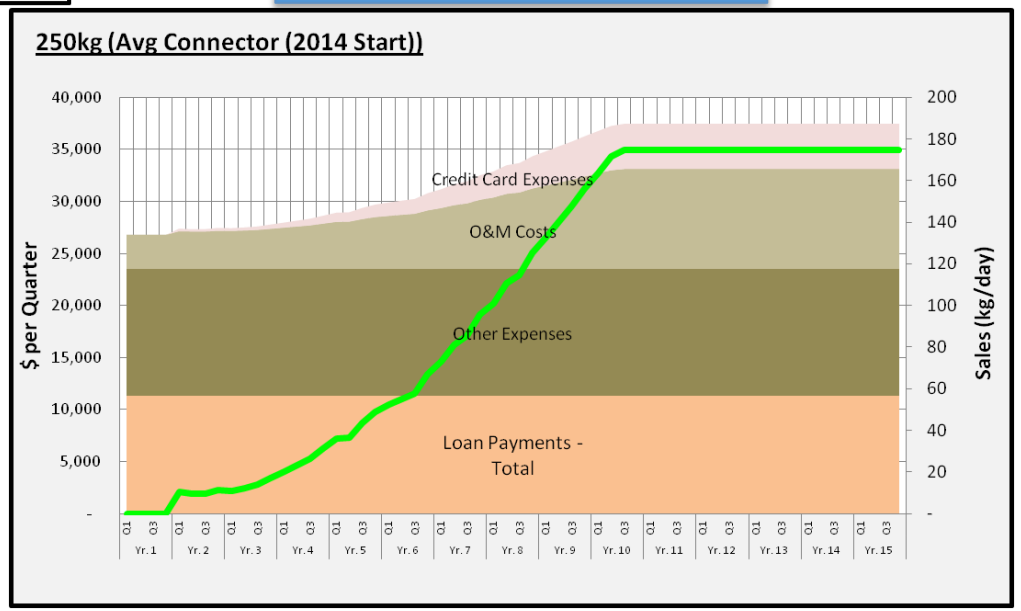
Baseline Growth



Both assume:

- *-$1.4m Capex*
- *- 70% capital cost share*
- *-15yr, 5.5% loan for remainder*
- *-Capped at 70% capacity utilization*

CFO Lower Growth



Given the cost of the station, at $9/kg it is difficult to make money under either deployment scenario.

Take Aways

- Connector and Cluster stations face very different scenarios. We need to plan accordingly.

- A different incentive structure may be required to motivate investors in connector locations
  - EIN is analyzing potential strategies
  - We want to work with CEC on this issue.

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Discussion/Questions

Thank You.

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