

Jon Shaer – New England Convenience Stores and Energy Marketers Association (NECSEMA)

Jon Shaer, Executive Director of NECSEMA, shared the perspective of convenience stores and transportation fuels distributors. Jon complimented the committee and New Hampshire in how they are going about this process with the public participation. He stated that six months ago his members saw this as a threat, but in large part through the relationships he's developed with many in the room they now see this as an evolving opportunity. He stated that there are three questions when looking at potential business ideas:

1. Is there a market and/or is a developing market a certainty?
2. When will it be appropriate to invest into that market?
3. What will be the sustainable economic model justifying said investment

He understands the excitement over electric vehicles and the momentum that excitement is generating, and agrees that they will play a part in sustainable mobility. However, his members have felt left out of discussions among regional and state groups talking about the future of transportation as evidenced by the TCI and NH DES websites omitting their locations as viable site hots.

Jon stated five thoughts on the topic:

1. **The EV market is in its infancy and still a niche market. Public policy is way ahead of demand.**
Supported by the sales data. The number of people and cars is increasing and there is a mosaic of alternative fuels available. EVs and PHEVs are still only 2.2% of all new vehicle sales, .89% of NH sales, 1.3% of MA sales. Tesla represents 53% of EV/PHEV sales. Who are we spending all this infrastructure money on, and what is the rush?
 - a. The future of transportation fuels is still evolving as is population migration
 - i. Estimates show by 2050 (source: Shell Global – Future of Transport)
 1. World population will pass 9 billion people
 2. # of people living in cities will double
 3. # of cars could double from 1 billion today
 - ii. A mosaic of fuels and engines – some suited for short journeys, others for longer
 1. Biofuels, LNG, CNG, Gasoline and Diesel, RON 95, all in addition to electricity
 - b. Total US Light vehicle sales (2018): 16,260,000
 - c. Total US EV and PHEV sales (2018): 360,273... 2.2% of total sales
 - d. 53% of total EV/PHEV sales were Tesla (all models) ... even a higher percentage of pure BEV sales.
 - i. average price of a Tesla: \$75,000
 - e. 73% of Tesla sales were Model 3... average price \$60,000
 - f. Average selling price of a new car in the US: \$34,670
 - g. NH EV and PHEV sales in 2017: (Source: EV Adoption data)
 - i. 788 (increase of 63%)
 - ii. But still only .89% of total sales
 - h. MA EV and PHEV sales (Source: MOR-EV and EV Adoption data)
 - i. 2017: 4,632 (1.35% share of market)

- ii. 2018 (MOR-EV data): 6,100 (about 2% share) - 46% Tesla
 - i. 2018 plug-in EV sales were up 75%, but that still only equates to 360,000 vehicles. People tend to keep vehicles for 11 years on average, which means that even if every new vehicle sold on 1/1/18 were electric, it would take 9 years to get to a 50% market share.
 - j. Estimates show, if nothing changes with subsidies, that by 2035 EVs will make up 43% of the vehicles sold. But even at those rates, it will equate to 10% of vehicle on the road. And 2/3 of them will be hybrids consuming liquid fuels. (Source: Fuels Institute)
 - k. According to AAA, average American, 16+, drives 31 miles per day on average.
 - l. According to the PH&EV Research Center at UC Davis, most EVs can travel at least 100 miles on a full charge. Some as high as 300 miles (Telsa Model S).
 - m. Today 80% of EV owners charge at home or at work.
 - n. If the average person travels 30 miles per day and 80% of EV owners charge at home or at work, then who are we spending millions of dollars building infrastructure for? The small percentage of people who might travel 100 miles per day?
- 2. What happens to the market when the subsidies are reduced or disappear?**
- a. Edmunds has stated that the loss of the federal tax credit will make the electric vehicle market crash.
 - b. According to Joshua Linn, Senior Fellow at *Resources for the Future* (independent non-profit research institution), in March 2018 testimony to Congress on the “Future of Transportation Fuels and Vehicles”
 - i. “Gas powered vehicles are likely to continue dominating the market for some time. Presently subsidies are largely driving the plug-in vehicle market. In the future, declining battery costs and improving vehicle quality will surely boost sales, but it is very difficult to say how much and how quickly.”
 - c. When MA restricted the \$2,500 MOR-EV rebate to vehicles up to \$50,000, the rate of rebates (and related vehicle sales) dropped precipitously:
 - i. January 2017: 104
 - ii. January 2018: 253 (+143%)
 - iii. January 2019: 329 (+30%)
- 3. The technology is evolving rapidly, and auto manufacturers are investing heavily.** At today’s recharge rates, retail gas stations are not the best options for charging infrastructure. However, once those rates approach the time it takes to fill a car with gas, c-stores and gas station sites become the best place to charge as they still hold the best real estate on the highest trafficked roads in the most densely populated areas. Think internet connection... wasn’t that long ago we were all dialing in with AOL. Average download speed 2008: 2.35 megabits per second. 2018: 46.2 megabits per second.
- a. Tritium has a 350 kwh “ultra fast” charging station. Its capacity is higher than any car can currently take. It is also unveiling a 475 kwh.
 - b. Siemens, Porsche, and BMW formed a research group called FastCharge in 2016 with the mission to make EV charging faster. Late last year, a Porsche Taycan test vehicle plugged into this ultra-fast charger and took on enough electricity to drive an extra 62 miles in just 3 minutes. Using the same charger, a BMW i3 was able to get to an 80% state of charge in just 15 minutes

- c. Shell bought NewMotion in 2017, Greenlots and Sonnen, a German home battery storage company, already this year. BP bought Chargemaster (UK) last year.
4. **Today, the business model is uncertain.** Jon added some of his members are investing out of fear the infrastructure will build out around them. There is also a fear of backwards compatibility: will the infrastructure of today be able to charge the cars of tomorrow? Will the infrastructure of tomorrow be able to charge the cars of today?
5. **Retailers seek a level playing field when competing for this market and future customers.** Retailers are concerned too much government investment will adulterate the market in its earliest days.
 - a. Around the country, utilities are using risk-free, rate payer money to build out infrastructure creating a de-facto monopoly in a nascent industry. Will suppress the development of a competitive market.
 - b. Bad example: Legislation introduced in the Virginia General Assembly, which puts the state into the electric vehicle charging business, has passed the House. The bill will allow all state agencies to install electric vehicle charging stations on state-owned property, make them available to the public and allow the public to access the chargers for their personal vehicles at below-cost rates.

Jon concluded that where people go and where they live will not change, and made the following recommendations:

Considering:

1. The EV market will remain small and niche until 2035, at least;
2. The rapid evolution of charging infrastructure, battery technology and related vehicle up-take speeds;
3. The ongoing cost of operation which will demand a viable, profitable business model;
4. The continuing acquisition of EV-related companies by traditional energy companies;
5. And the fact that NECSEMA member sites remain in dense population centers and the most highly trafficked corridors.

Then:

Since the state has 10 years to spend the \$4.6m, we recommend waiting as long as possible before deploying this money. In that time:

- There will be more EVs on the roads offering more data points for where EVSE is needed
- There will be more EVSE, allowing NH to “fill in the gaps” efficiently
- Convenience and gasoline retail locations will likely become the optimal choices for EV infrastructure as charging speeds approach the same time it takes fill with gas
- The cost for fast charging EVSE will come down dramatically
- Business models will evolve where private companies will match at a higher rate stretching the \$4.6m further