

# IF WE BUILD IT WILL THEY COME?

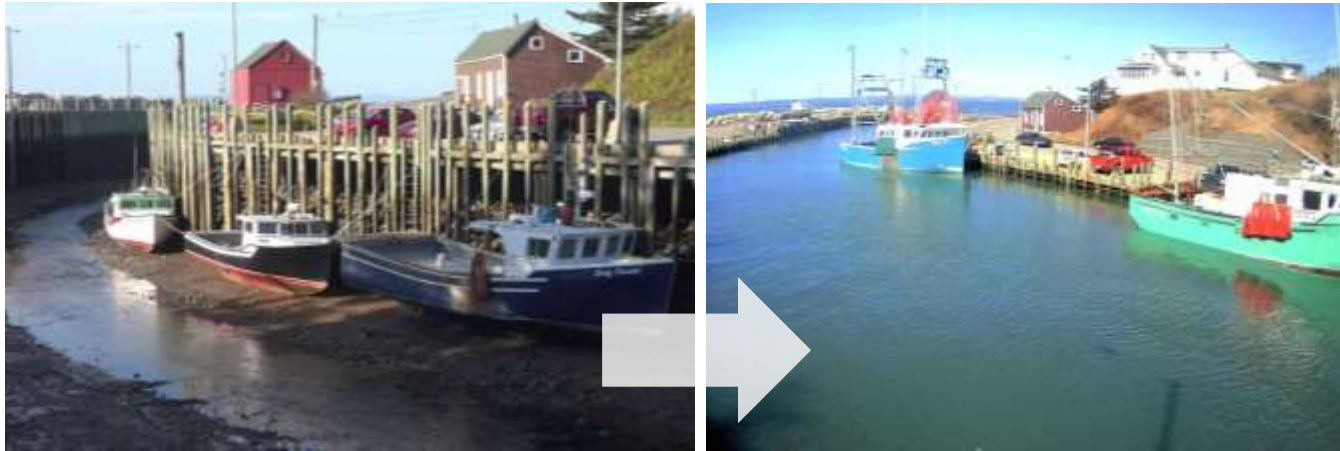
**Pete Westlake**

Manager, New Products and Services  
Orlando Utilities Commission



# Electrification is NOT Competitive

- With the possible exception of Oil & Gas



*As they say on my own Cape Cod, a rising tide lifts all the boats. And partnership, by definition, serves both partners, without domination or unfair advantage. Together, we have been partners in adversity, let us also be partners in prosperity. – John F. Kennedy*

# Residential light duty

- Do not present an issue to the grid
  - 85% charging happens at home/work
  - Charging happens overnight or morning not coincidental peak
  - Typically lower KW so limited stress
- Why will EV's overtake ICE?
  - Price parity expected by 2022
  - \$25,000 long range sedan predicted 2023
  - 500 new models expected by 2025, including trucks, vans and SUVs
  - Battery innovation, Tesla mapped a plan to produce 20 Terra Watts in storage per year by 2030

# Think it won't? History Repeats?

- ICE invented in 1885
- 1906 only 1 car on the top picture
- 1913 only 1 horse and buggy on bottom picture
- Did anyone in 1905 predict this?
- Required the genius of Henry Ford to invent the assembly line and layaway plan, making vehicles available to most.
- Fast forward 2020 – Tesla mapped out an approach for mass producing a cost effective EV.

5<sup>th</sup> Avenue, NYC  
See any *automobiles*?



Park Avenue, NYC  
See any *horses*?



# What is needed?

- Utility
  - Up to date DMV data with addresses
  - L2 Charging installs at home and work
  - Higher insight into OEM products
- Customer
  - Location for public charging
  - Easy access to charging at home and at work
  - High speed charging hubs providing 150+ KW
    - 8 + ports that are well maintained, clean status
    - Every 20 minute in the city
    - Every 50 miles on the highway
    - Serves MUD dwellers, Travelers

# Fleet adoption should be concerning

- Conversion may be quick in 2 or 3 stages, pilot, scale, conversion
  - Adoption requires convincing 1 fleet manager regarding economics
  - Decision is about economics and process not style and preference
- There is no guarantee that fleets can be served with existing grid, changes take time
  - LYNX has decided to complete ½ fleet within 7-10 years or 150 full sized buses
  - At 150 buses =substation = 5years
  - Do we start now? Or do we wait till the order?
- The fleet fueling cannot be subject to issue – it must be resilient
  - Fueling delays means impact to operational dollars
- When the kinks are worked out of heavy duty freight, it will transition fast
  - Industry week predicts that 50% of US bus fleet will be electric by 2025.
  - In the case of large duty fleet we are talking about GW chargers
  - Tesla predicts 50,000 sales for transport by 2025
  - Savings will be compounded through piggy back technology where 1 driver will essentially drive a lead vehicle with two autonomous trucks following – 66% reduction in salary
- Fleets will self perform if they have to
  - 30% of fleets converting will install local storage and generation
- Do you know what fleets are considering Electrification?

# What are the needs?

- **Utility**
  - Identification of fleets that are considering conversion
  - Complete market analysis for potential conversions with locations
  - Grid assessment against large scale distribution needs
- **Customer**
  - Responsive, resilient charging stations located at their fleet pool
  - Clear understanding of rates and demand implications
  - Managed charging solutions to insure they are not penalized for demand charges
  - Reasonable rates reflecting charging on off peak times
  - Ability to obtain opportunity charging, home based charging
  - Highway infrastructure for high speed freight recharging
  - Electric vehicle repair locations