Electric Vehicle Battery Pack Leasing: The Merits of a Battery Pack Leasing Company

Primary and Secondary Market Opportunities

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The Challenge of Commercial EVs

- Barriers to commercial electric vehicle investments include
  - *It’s the MSRP, stupid!*
    - Typical medium duty conventional fuel truck ~$45,000 *versus*
    - Medium-duty EV with battery back ~$140,000
      - Battery pack alone can cost upwards of $55k
  - Rapid technological change and concerns about dynamism of battery market
The Opportunity

• Create a “LeaseCo” to separate the battery from the vehicle and lease the battery separately
  ▫ Fleet owner owns or leases the truck and leases the battery

• Battery leasing reduces the MSRP of a medium duty EV by 30 – 50%
  ▫ Brings cost of vehicle in line with traditional vehicles
  ▫ Monthly lease payment plus electricity costs in line with monthly fuel costs for comparable ICE vehicle
The Opportunity con’t.

• A fixed monthly lease payment, when combined with electricity costs, is **lower and less volatile** than fuel costs for a comparable vehicle
  ▫ Current fuel costs for a typical medium duty ICE truck in major urban markets are approximately $1,000/ month* and are likely to increase (see next slide)

  * Based on 70 miles/day and $4 per gallon for fuel
The Context

- Four OEMs have entered the US commercial EV market
- Two of four entrants source battery packs from one manufacturer
  - A third entrant is in discussions with this manufacturer
- Separating the battery from the truck lowers the MSRP of a medium-duty EV to a price point that is 5% - 30% higher than that of an internal combustion engine vehicle
  - This represents a much smaller "green premium" for a fleet operator
- Secondary market partners report 500 mW pipeline for Li ion packs and high comfort level deploying depreciated traction batteries
The LeaseCo Model

- LeaseCo provides an EV battery to one fleet customer for a 3-4 year period and then to a secondary market user for a second 7-8 year period.
- Projected monthly lease payments are $150 lower than typical monthly fueling costs for same ICE vehicle.
- LeaseCo will leverage pre-existing dealer networks for service, battery swap-outs, and temporary warehousing.
  - LeaseCo will also operate warehouse space and facilitate battery transfers between primary and secondary users.
- Five year battery pack warranty will be honored by manufacturer in secondary market deployment.
The LeaseCo Model cont.

- **Commercial EV purchased with leased battery in vehicle**
- **Leased battery transferred to secondary customer**
- **Battery transferred to recycling facility**

- **Years 1 - 3**
- **Years 4 - 10**
- **Year 10**
Contours of Joint Venture

- LeaseCo structured as joint venture between grid services company and equipment leasing entity
- LeaseCo will enter into supplier agreements with makers of commercial EVs
- Battery maker will enter into a preferential purchasing agreement with LeaseCo
- Grid services company will act as the secondary lessee and take possession of depreciated battery packs at the end of primary user’s lease term (3 or 4 years)
- NYS pilot will target 250 battery pack leases in Year 1
LeaseCo Financial Fundamentals

- The projections for a LeaseCo business are highly profitable
  - Beginning with 250 batteries year 1 and growing at reasonable annual rates (10%–25% per year)
- Initial start-up capital of $1.25 mm required
  - Covers LeaseCo operations in year 1
- Bank loan to finance batteries upfront required
- **Return on investment (ROI) ranges from 9% - 30% annually**
  - Includes initial capital repayment after 3 – 5 years