



TxETRA

Texas Electric Transportation  
Resources Alliance

Supported by Public Citizen's  
Texas Office

Creating the policies that pave the way for the  
Electrification of transportation in Texas and  
advocate for implementation



# Our goals

To develop policies to integrate and accelerate electrification of transportation in Texas

To develop policies to help assure equitable access to electrified transportation

# How Fast- How Many?

## Are we at the tipping point?

- Electric vehicles (EVs) will cost less than internal combustion engines (ICEs) between 2022 and 2025.
- The majority of vehicles sold in the U.S. by 2029-2040 will be electric vehicles (EVs).
- This will affect electric demand, create unique challenges of meeting mobile load and offer interesting opportunities for using vehicle batteries for storage.
- Value streams for energy stored in vehicle batteries may include demand reduction, peak load reduction, energy arbitrage, price responsive opportunities, voltage support, and congestion management

***Based on the data described below, we suggest ERCOT's Future Case should assume that between 2.5 and 12.6 million electric vehicles will be on the road in Texas in 2033***

***While these numbers seem large:***

- ***In 2016 there were 24 million vehicles for 28 million people or 1.8 vehicles per driver.***
- ***It is estimated there will be 37 million Texans by 2035, 21 million drivers and there could be as many 38 million vehicles***

# UPS to build Electric Vans because they are cheaper

- ▶ **UPS** announced that it would be building its own electric delivery trucks from scratch. It will partner with truck maker **Workhorse Group Inc** to build the first 50 vans that could eventually replace the delivery giant's fleet of fossil fuel-burning vehicles.
- ▶ The Workhorse-built trucks would cost about the same as UPS's conventional vehicles but would have a **lower cost of ownership** because they are cheaper on a per-mile basis.



# How fast?

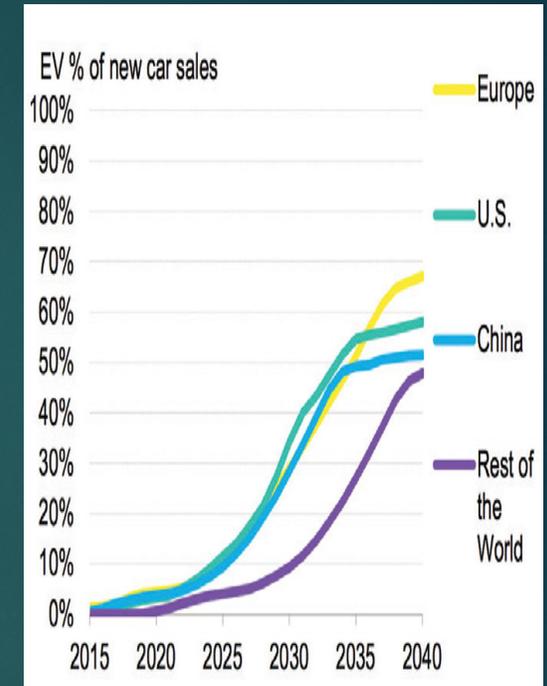
- More than 90 per cent of all passenger vehicles in the U.S., Canada, Europe and other rich countries could be electric by 2040. Electric Cars May Rule the World's Roads by 2040 National Geographic September 2017
- Rethink X, an independent think tank, is even more bullish, saying **most U.S. vehicles will be electric by 2030, just 13 years from now.**
- **A November 2017 study by the Boston Consulting Group predicted Electrified Vehicles to Take Half of Global Auto Market by 2030**

After 2025, **falling battery prices and rising consumer demand** based on TCO will drive rapidly increasing sales of all electrified vehicles, and especially BEVs. The adoption of electrified vehicles for shared mobility will accelerate because their higher mileage will result in more rapid payback of the investment.

**Bloomberg New Energy Finance (BNEF) recently bumped up its estimate of the EV market share in 2040 from 35% of all new car sales to 54%:**

- *The EV revolution is going to hit the car market even harder and faster than BNEF predicted a year ago. EVs are on track to accelerate to 54% of new car sales by 2040. **Tumbling battery prices mean that EVs will have lower lifetime costs, and will be cheaper to buy than internal combustion engine (ICE) cars in most countries by 2025-29.***
- *The real take-off for EVs will happen in the second half of the 2020's due to **plunging lithium-ion battery prices, which are set to fall by more than 70% by 2030.***

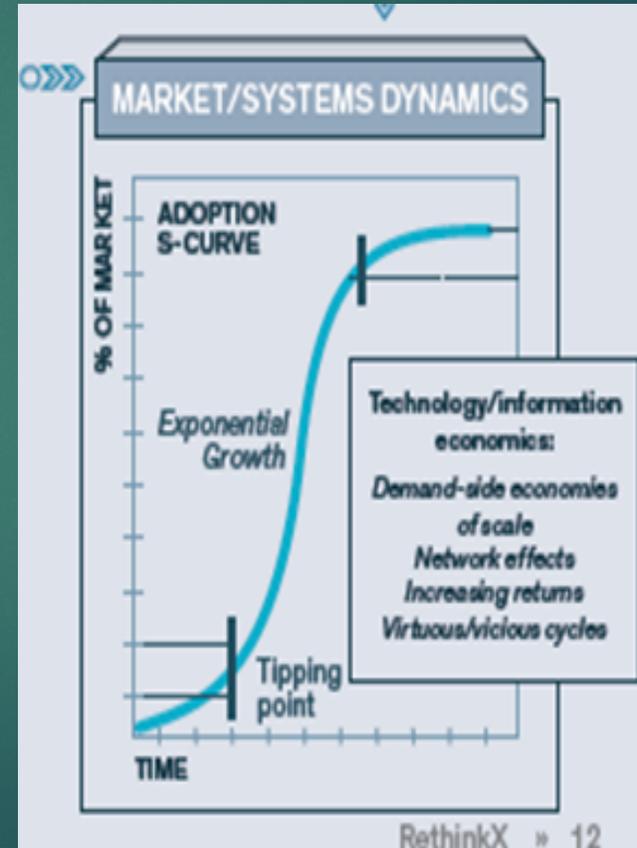
company	% sales	date
Bloomberg	54%	2040
Morgan Stanley	50%	2040
Electrix	100%	2035
Bernstein	40%	2037
Wood Mc Kenzie	21%	2035
Boston consulting Group	50%	2030
Mc Kenzie	10-15%	2030



# How fast?

- ▶ Based on how quickly horses and buggies disappeared in the early 1900's - the electric transportation transformation could occur in 15 years or less
- ▶ Other 15 year technology changes
  - ▶ Radio to TV
  - ▶ Digital cameras
  - ▶ Mobile phones
  - ▶ Microwave ovens
  - ▶ Mainframes to desktops and then to laptops and tablets
  - ▶ renewable energy

EV sales could hit the rapid-growth part of the technology-adoption S-curve as soon as 2026, in the estimation of Bloomberg New Energy Finance



# Forums

## PUC

- DSM
- Non Traditional Resources Docket

## ERCOT

- New working group
- Loads in SCED
- Ancillary services

## TCEQ

- VW settlement
- TERP
- SIPS

## The Leg

- EV taxation
- Clarify storage policy

# Workplan

- ▶ Introductory meeting in April
  - ▶ Create subcommittees
  - ▶ Solicit additional participants
  - ▶ Build economic development argument
- ▶ Develop policies
  - ▶ Managing demand
  - ▶ Providing ancillary services
  - ▶ EV taxation
  - ▶ Autonomous vehicle integration
- ▶ Seek opportunities for intervention
  - ▶ DSM docket
  - ▶ New Technologies docket
  - ▶ VW settlement
- ▶ Prepare for session
- ▶ Apply for various 501 (c) tax statuses

# Policy Committees- Chairs?

- ▶ VW settlement + TERP incentives
- ▶ Charging system deployment
- ▶ How to minimize impact on the grid
- ▶ Using EV's as grid back-up
- ▶ EV taxation to pay for road use
- ▶ Transportation equity
- ▶ Tax incentives