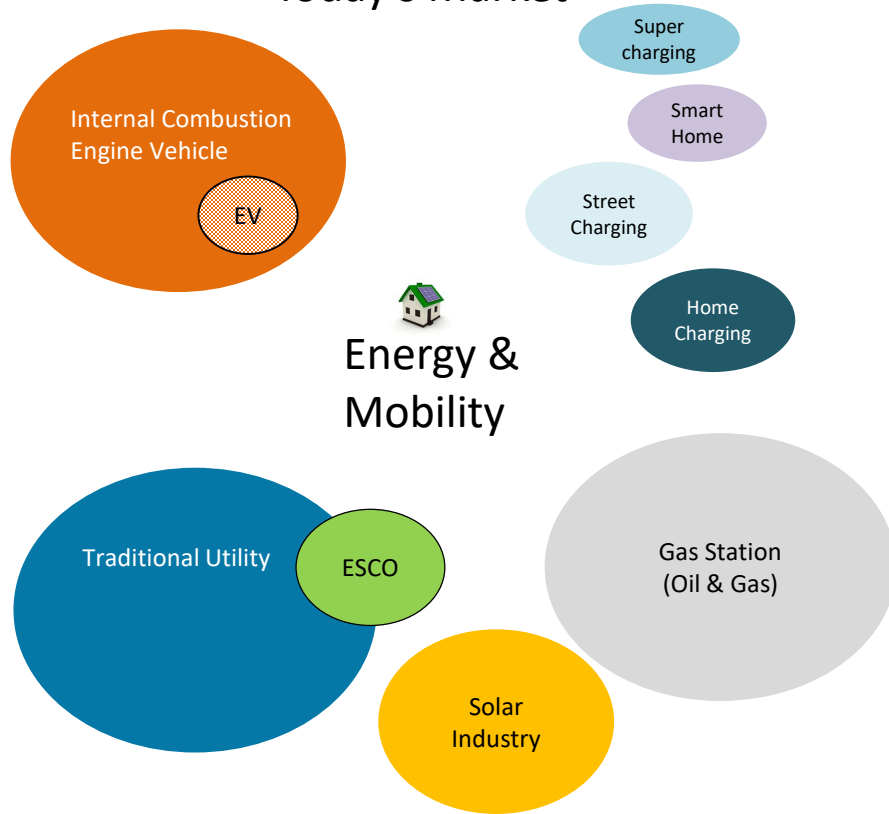


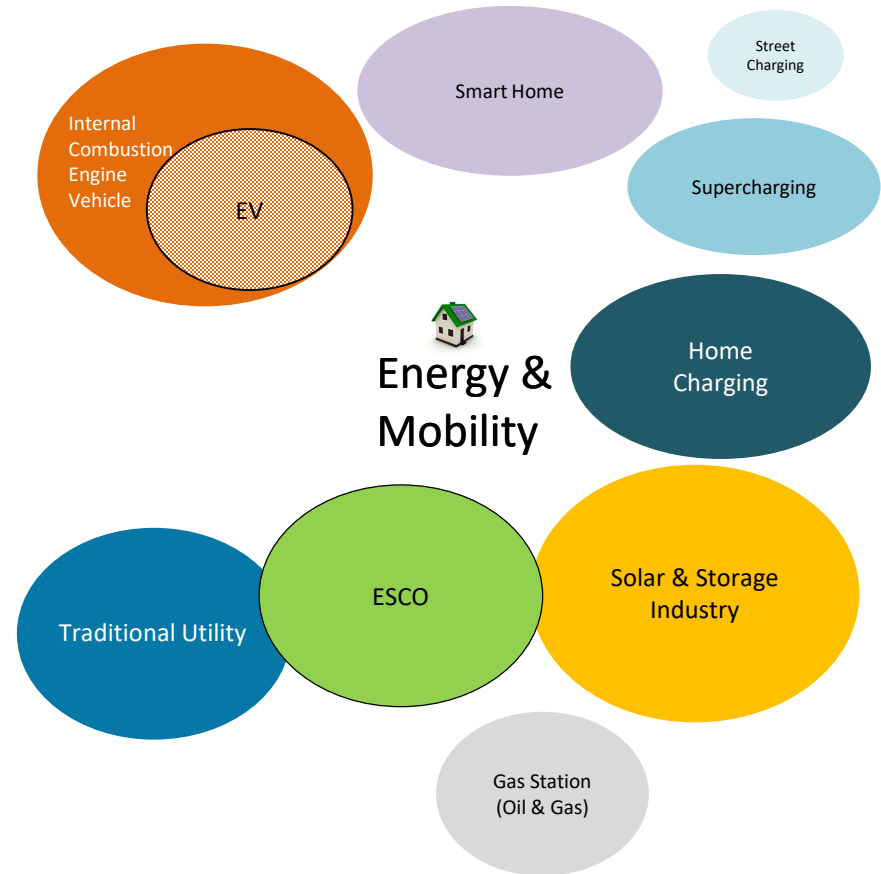


Energy & Mobility

Today's Market



Tomorrow's Market (5 – 10 years)



Car Manufacturer
Energy Company (O&G)
Ecosystem

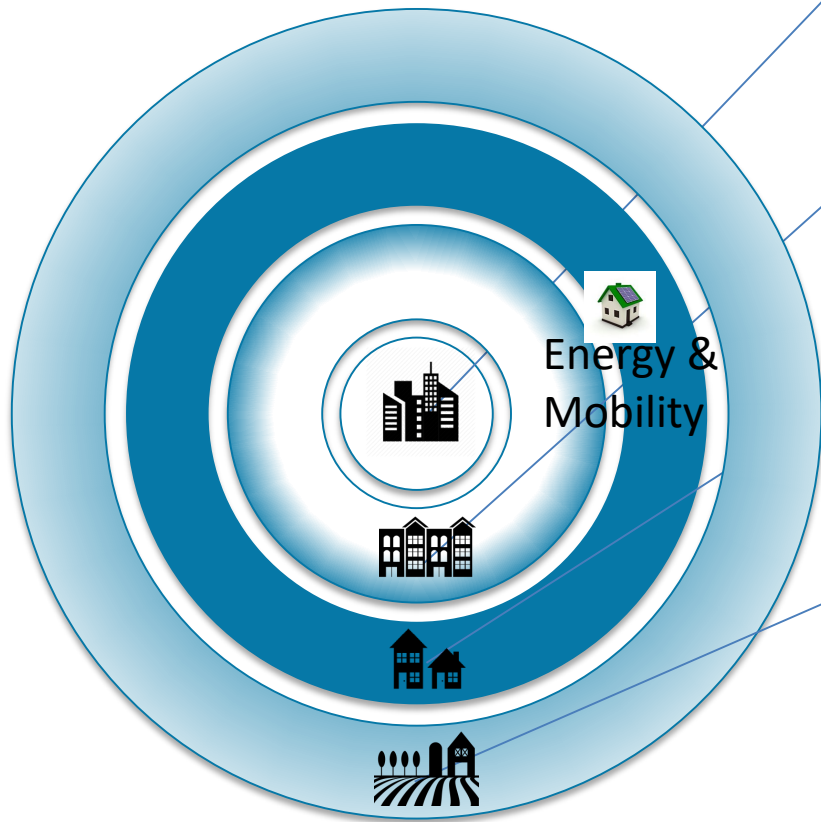
Smart Home
Ecosystem



Energy &
Mobility

Utilities / ESCO
Ecosystem

Solar & Battery
Ecosystem



Downtown

Mobility solution : Mass Transit; Car Sharing

EV Solution : Street Charging / Multiple Charging Parking

Energy Solution : Grid / Microgrid

High Density Residential

Mobility solution : Mass Transit; Car Sharing

EV Solution : Street Charging / Multiple Charging Parking

Energy Solution : Grid

Suburb

Mobility solution : EVs; Mass Transit to work

EV Solution : Residential Charging

Energy Solution : Nanogrid + Grid

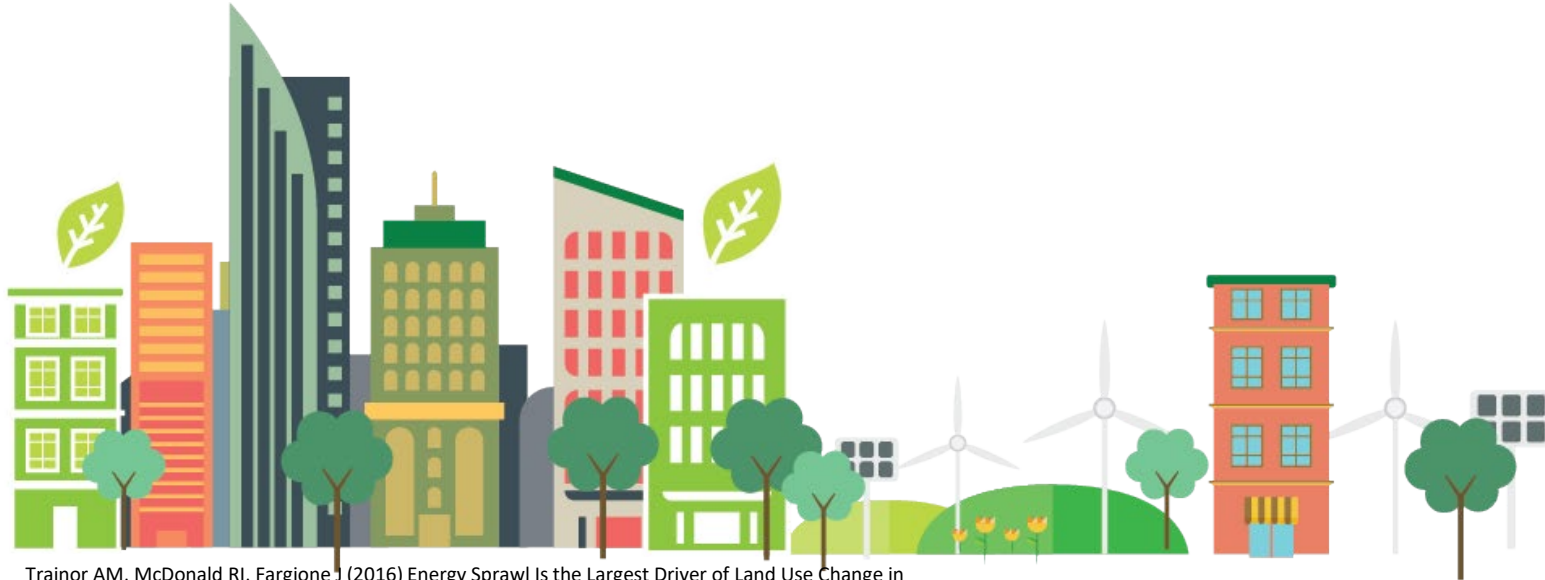
Rural

Mobility solution : Combustion engine + some EVs

EV Solution : Residential Charging

Energy Solution : Nanogrid + Grid

Energy Sprawl Is the Largest Driver of
Land Use Change in United States. Why
I just don't use my roof and basement?



Disrupted

Energy is no longer a resource market.

Energy is no longer an infrastructure market.

Energy is now a technology market!

The beginning of a global disruption (problem/opportunity)



Energy & Mobility

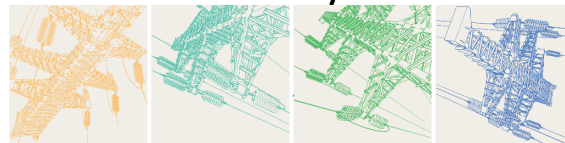
NICK STOCKTON TRANSPORTATION 02.03.18 10:00 AM

ELECTRIC CARS COULD DESTROY THE ELECTRIC GRID —OR FIX IT FOREVER



Even if utilities are paying attention to the broad trends, they need to watch out for a patchwork uptake in EVs that could hit particular cities, towns, or neighborhoods.

CHEVROLET



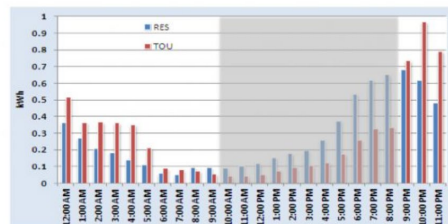
The Impact Of Growing Electric Vehicle Adoption On Electric Utility Grids

By Eric Schmidt Posted August 28, 2017 In Electric Utility

f 24 t in

The market for electric vehicles (EVs) is growing and is expected to reach **3.8 million by 2020**. Tesla and other players are expanding the production of electric vehicles to meet the rising demand. EV models are becoming more affordable as a result, which in turn fuels the adoption even further. The charging infrastructure has been growing along, often supported by local governments. But how will the shift to electric vehicles impact the grid? Are the utilities prepared to accommodate this extra load? What will happen to peak demand? And can the grid benefit from wider electric cars deployment?

Figure 4: Charging Patterns With and Without Time-of-Use Rates During Summer Weekdays



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Sustainable Energy

Could Electric Cars Threaten the Grid?

Some neighborhood grids just aren't built for huge spikes in power demand. The rise of the electric car has utilities scrambling to adjust.

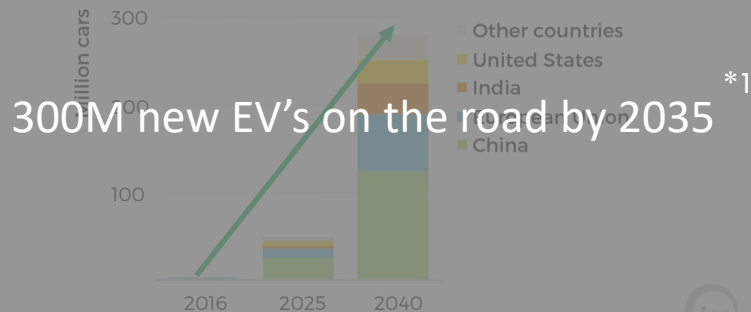
by Kevin Bullis August 16, 2013

Electric cars can draw large amounts of power from the grid.

Plugging in an electric vehicle is, in some cases, the equivalent of adding three houses to the grid. That has utilities in California—where the largest number of electric vehicles are sold—scrambling to upgrade the grid to avoid power outages.

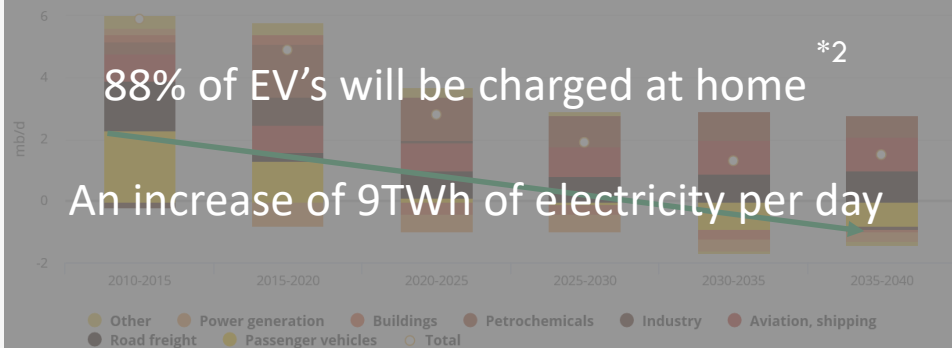
Electric car fleet, 2016-2040

World Energy Outlook 2017

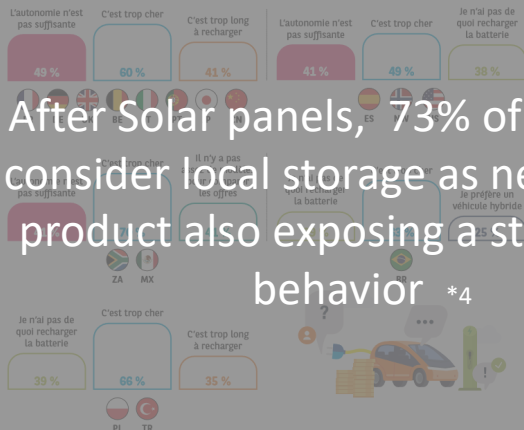


Change in global oil demand by sector

2010-2040, New Policies Scenario



After Solar panels, 73% of customer consider local storage as next energy product also exposing a strong V2H behavior



70% of the market said they will consider an EV only if charging time is below 45 Minutes



Public Utility Commissions (PUC) are on the horns of a dilemma.

“While the states provides policy support, it also continues to support a strong preference for electric conservation efforts ...”

“The commission previously addressed this dichotomy ... but price signal will be mandatory to mitigate impact ...”

“Prior attempts to implement dynamic pricing in the Pacific Northwest had limited success due to ... (too many reasons to enumerate)”

“Notably, Commission rules focus on protecting customers from monopoly ... and it is therefore essential that EV charging rules are just an reasonable ...”

Washington State UE-160799



Disrupted

Energy is no longer a resource market.

Energy is no longer an infrastructure market.

Energy is now a technology market!

The good news, help is on the way.

Based on 10 innovative patents, Ossiaco will launch a new generation of smart home energy device next year.

No need to say thanks.

