



Plug-In Electric Vehicles Program Update



Karl Popham, Austin Energy, Electric Vehicles & Emerging Technologies Manager
City Council Briefing
January 2013

Vision

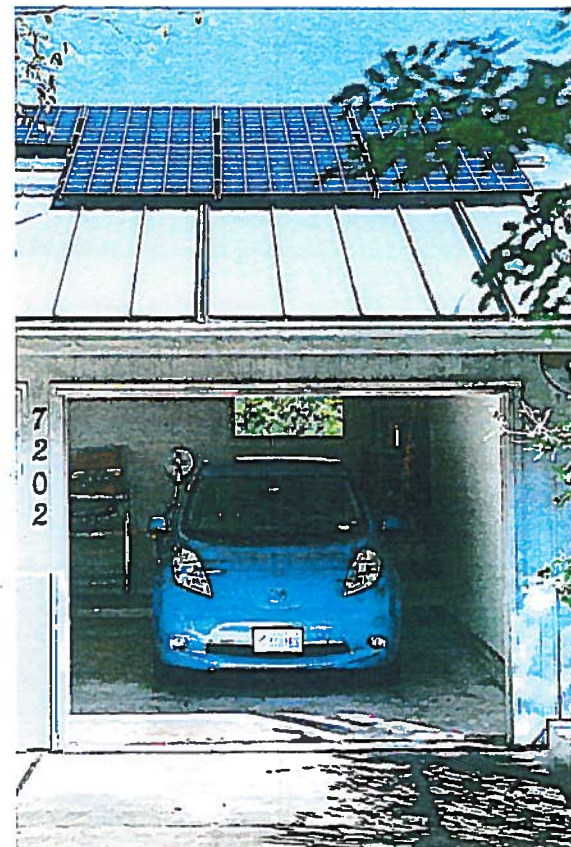


To realize the environmental, community, utility, and economic benefits; Austin City Council has passed several key resolutions:

- PEV Incentives & Leadership (050301-48)
- PEV Feasibility (040729-78)
- Energy Research, Pecan Street (20080925-084 & 20090806-033)
- Climate Protection (20070215-0232)



Austin Energy PEV programs are fully compliant with COA Resolutions



Programs



Plug-In EVerywhere™ - Under \$5/month unlimited “fill-ups” at over 150 stations. 100% GreenChoice™.
Public, Workplace, Multifamily, and Fleet Options.



Plug-in Partners™ – Rebates for Level 2 home-charging.



Texas River Cities EV Initiative – Regional plan to encourage adoption, improve standards, and reduce risk.



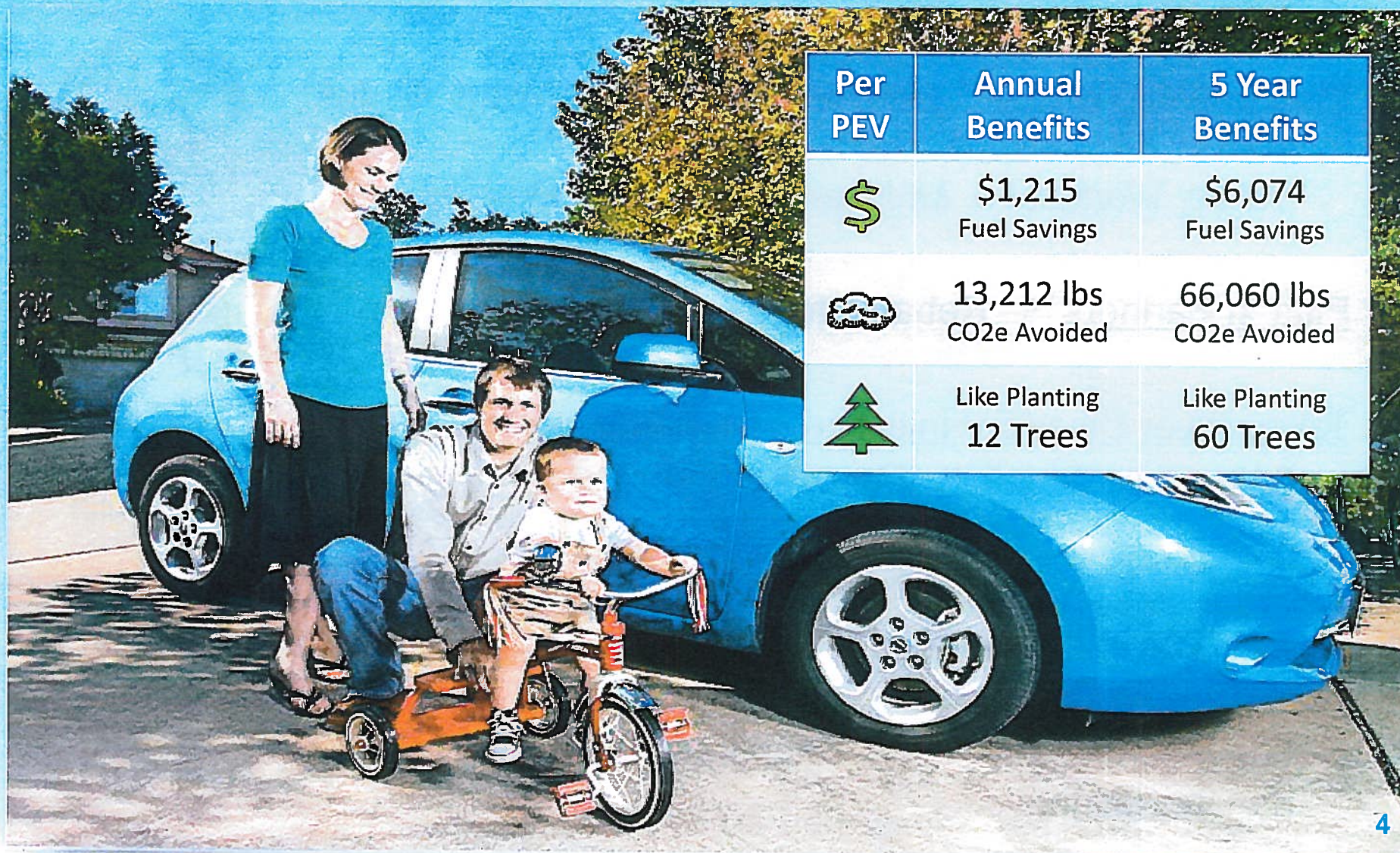
Pecan Street EV Pilot – Study the largest, non-fleet EV adoption in the country.





E-Ride Incentive Program – Encourage two-wheel electric transportation.

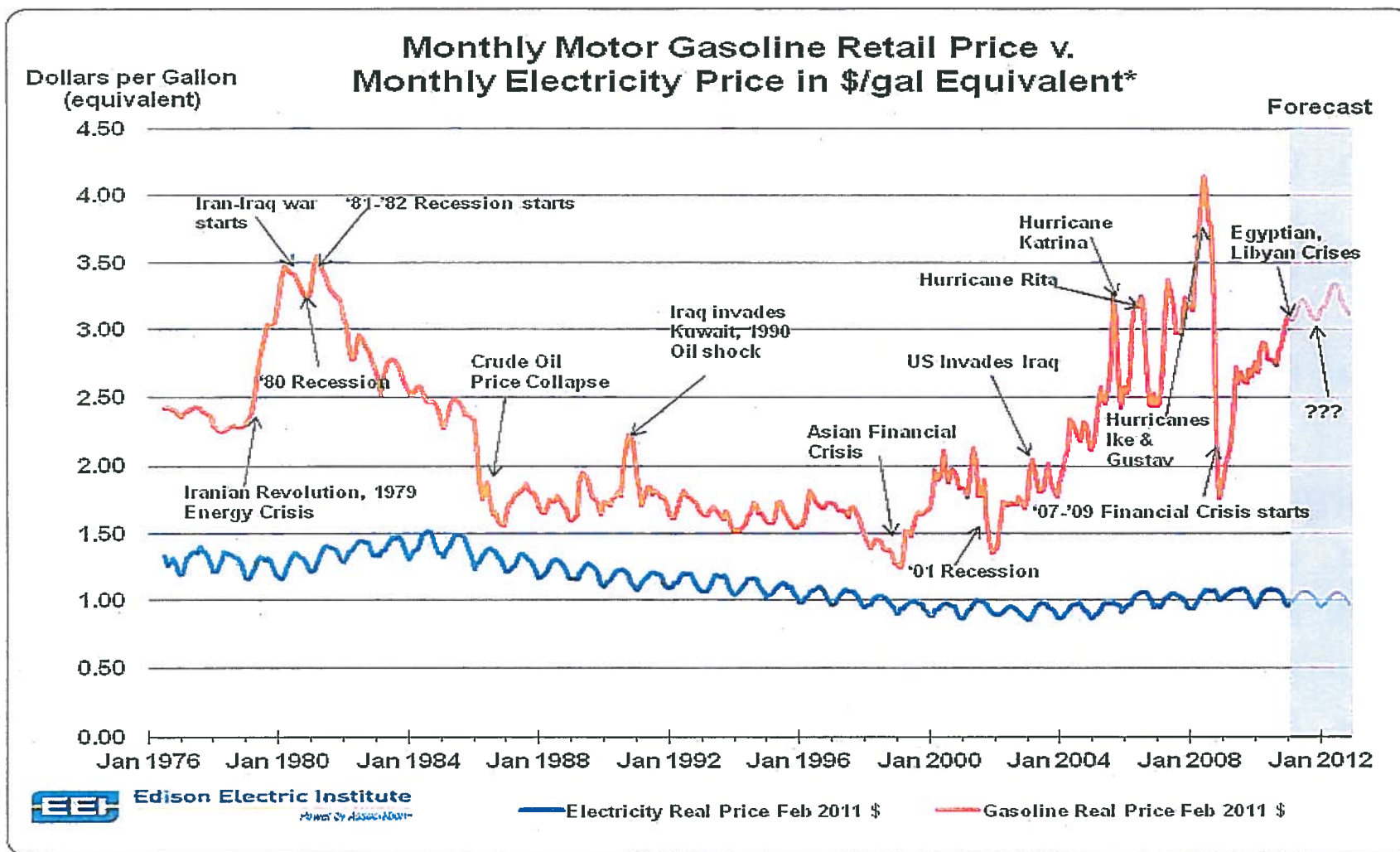


A Cleaner, Cost-Effective Choice



Per PEV	Annual Benefits	5 Year Benefits
\$	\$1,215 Fuel Savings	\$6,074 Fuel Savings
	13,212 lbs CO2e Avoided	66,060 lbs CO2e Avoided
	Like Planting 12 Trees	Like Planting 60 Trees

Cost-Effective & Stable



Importance of “Smart Charging”

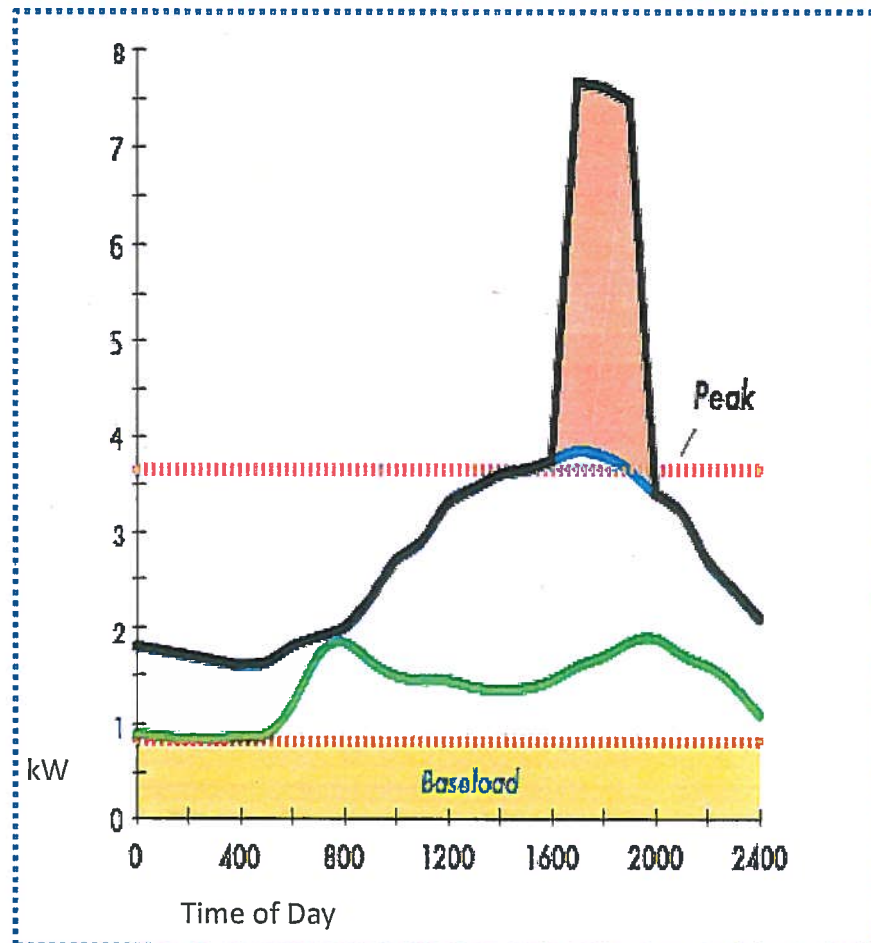


Charging During Peak (Undesirable):

- Generates more CO2 from utilizing peak generation
- Higher cost per kWh to provision from energy markets
- May overload transformers

Charging Off Peak (Desirable):

- Less CO2 emissions
- Aligns well with wind generation
- Lower cost per kWh to provision
- Significant revenue opportunity

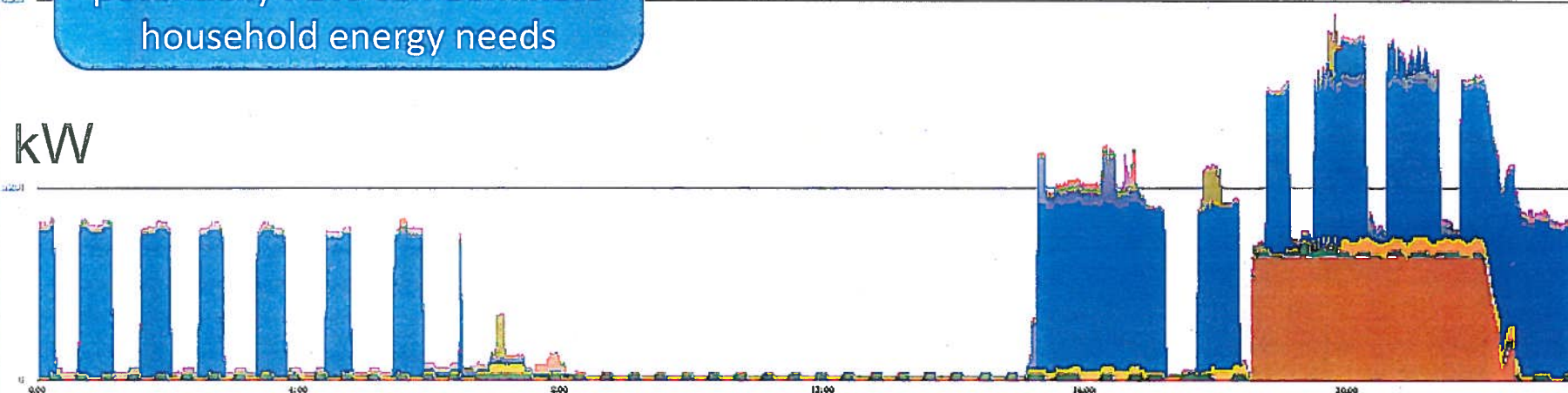




PEV Charging Data

Real-World data shows that air conditioning and now potentially PEVs can dominate household energy needs

kW



Time of Day

Refrigerator

Microwave / toaster oven

Bathroom 1

Living room / TV

Washer / dryer

Bedroom 2

Kitchen lights

Dishwasher

Bathroom 2

Garage

Master bedroom

HVAC

Car

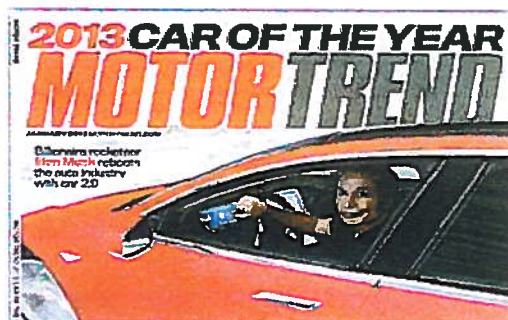
First Generation
Chevy Volt using
Level 2 @3.3kW



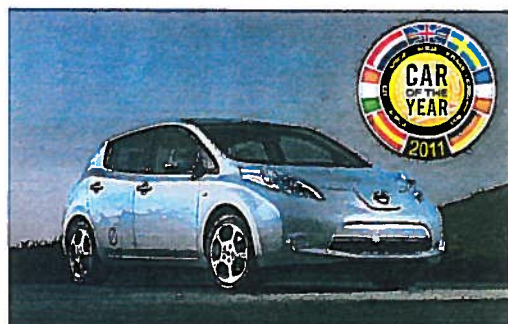
Pecan Street Inc.

July 31st, 2012 Pecan Street Inc.

“Bigger & Faster” Trend



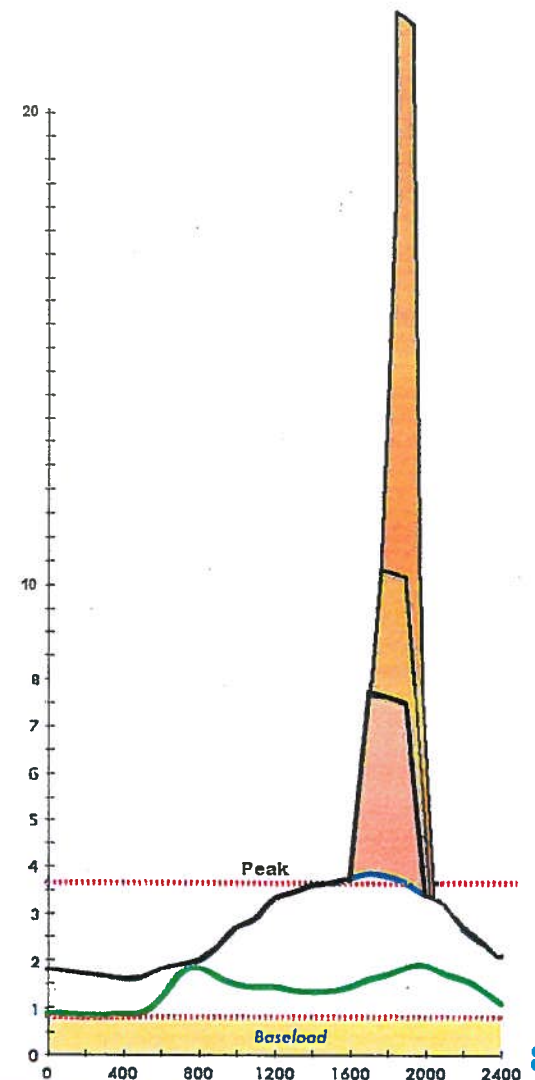
2013 Tesla S
85 kWh battery @
19.2 kW charge rate



2013 Nissan Leaf
24 kWh battery @
6.6 kW charge rate



2012 Chevy Volt
16 kWh battery @
3.3 kW charge rate



Addressing Utility Impact

Currently...

Business Models

- New Time of Use & Tiered Rates

Collaboration & Outreach

- Electric Power Research Institute
- Texas River Cities EV Initiative

New Technologies

- Vehicle and station timers

Understanding Consumer Behavior

- Pecan Street, Inc
- Surveys & Studies
- EV Information Exchange

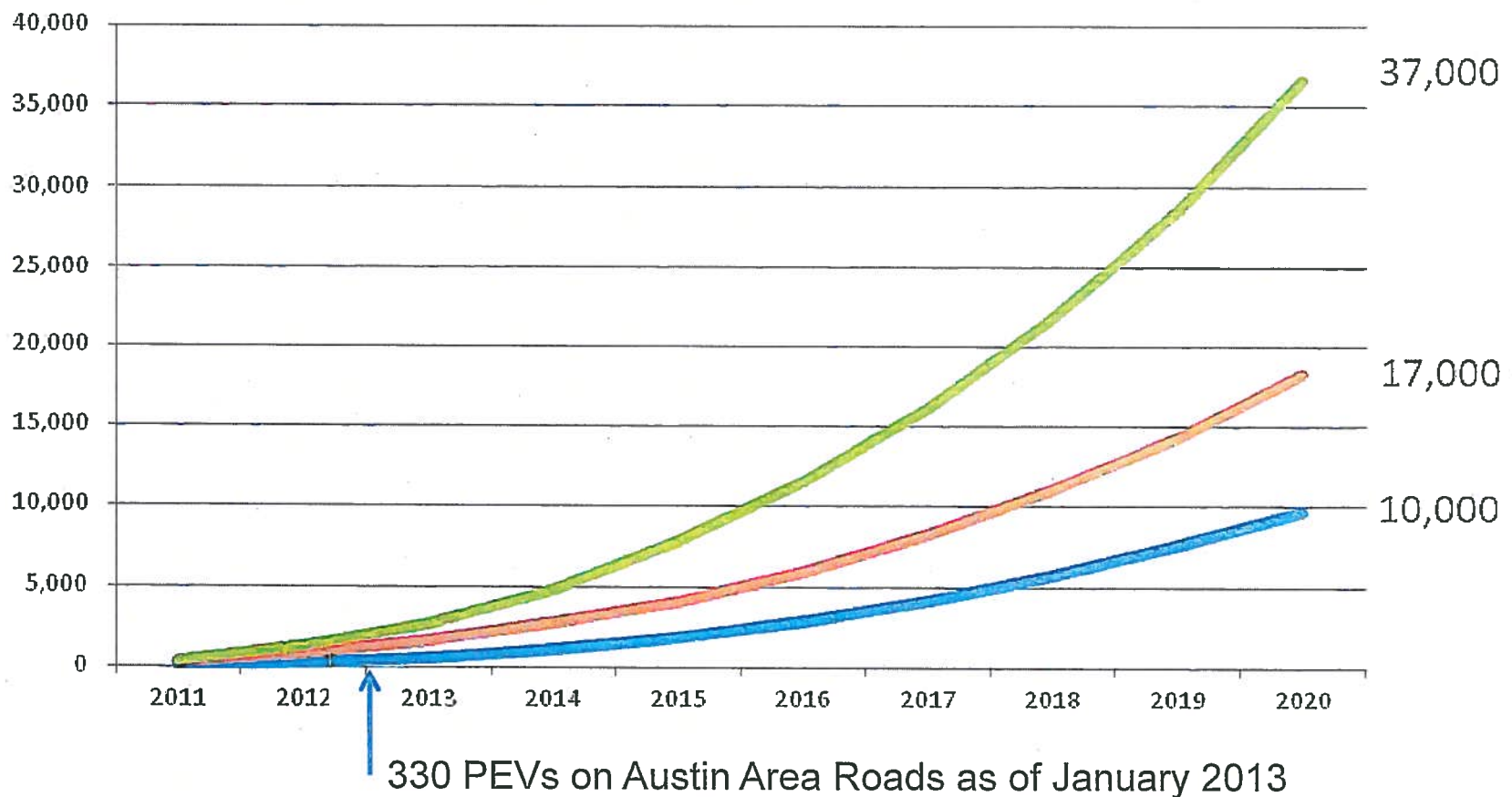
And In The Future...



Adoption



Electric Power Research Institute (EPRI) PEV Austin Forecast



Roadmap



1

OPERATIONAL
Completed

- Public charging on GreenChoice
- Pre-Pay cards
- Home charging rebate program
- E-Ride Program

2

GROW
In-Progress

- Workplace, Fleet, & Multi-Family programs
- Process improvements
- New market channels
- Advanced PEV studies & pilots (TRC, PSP)

3

TRANSFORM
Planning

- May include:
- New business models and EV rates
 - Ancillary Services & Demand Response
 - Faster charging mgmt

2011

2012

2013

2014+

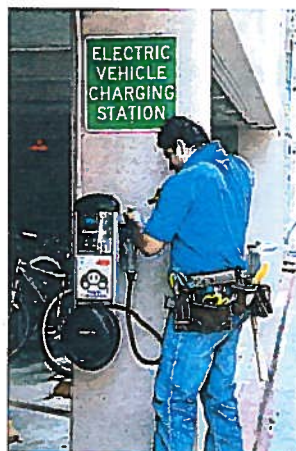
Program Partners (examples)



Workplace Charging Pilot – **National Instruments**



Car Share PEV Pilot - **Car2go**



EVSE Installers
29 registered **Electricians**



Car Dealership Charging Pre-Pay Pilot - **Town North Nissan**

Federal PEV Grants of \$1.6M



ChargePoint America

2011-2012: \$633k (100% Complete)

Deployed 113 public charging stations.

Texas River Cities PEV Initiative

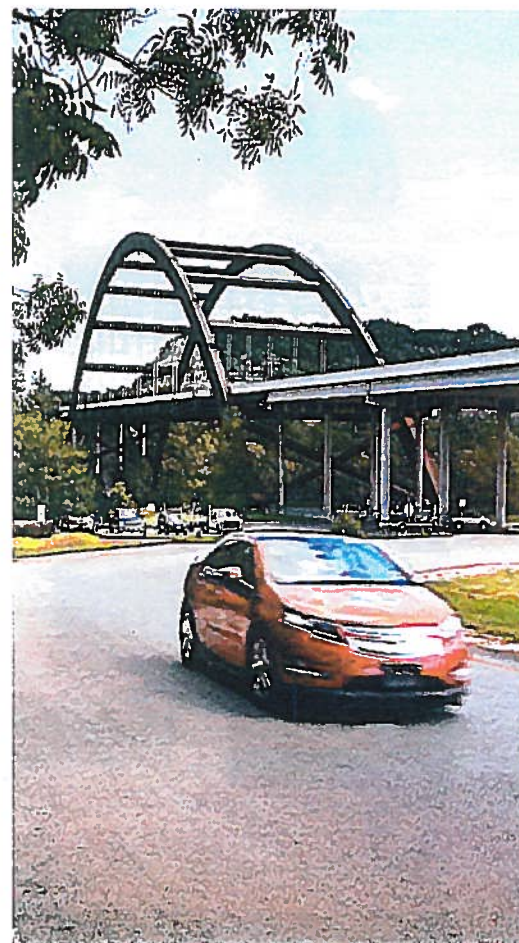
2012-2013: \$500k (80% Complete)

Comprehensive plan, outreach, & open forum.

Texas Fuel Independence Project

2013-2014: \$500k (Planning Stage)

Execute and expands alternative fuel scope of The Texas River Cities PEV Plan.



Texas River Cities Participants



Recognition



2012 Top 10 Networked
Utility North America &
#1 "coolest" EV project
—GreenTech Media

2012 "Bronze Quill" for
Plug-In EVerywhere
-International Assoc. of
Business Comm.

2012 A Top
EV Friendly City
-US Electric Drive
Transportation Assoc.

"Another way Austin is promoting green driving is by providing over 100 charging stations for EVs." —AOL autos

"Austin a top city for electric cars," —Austin Business Journal

*"The utility has earned a reputation as a national player in plug-in vehicles..."
—Austin American Statesman*

*"... [Austin EVerywhere Network] all powered by 100% renewable energy."
—GreenPower News, US Dept. of Energy*

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Questions?