



Electric Vehicle Charging Infrastructure

Avista Perspectives

October 28, 2010

David Holmes

“THE ELECTRIC AUTOMOBILE IS A THING OF BEAUTY, AND COULD BE MADE ONE OF GREAT UTILITY. THE MOTORS AND THE BATTERIES ARE PERFECT MECHANISMS, CENTRAL STATIONS ARE IN NEED OF THE LOAD, AND THE ONLY THING THAT APPEARS TO BE IN THE WAY OF A REMARKABLE TAKING UP OF THE ELECTRICAL AUTOMOBILE IDEA IS THE LACK OF INTELLIGENT COORDINATION OF THE VARIOUS INDUSTRIES REPRESENTED.”

EDITORIAL, ELECTRICAL REVIEW, FEBRUARY 13, 1909

ELECTRIC TRUCKS FOR INLAND EMPIRE

Washington Water Power Company Will Introduce Vehicles in This City.

The Washington Water Power company has secured the agency for the commercial electric trucks manufactured by the General Vehicle company and will actively enter this field in Spokane. Both trucks and power will be sold by the company.

The trucks which the company will sell in Spokane for use here and throughout the Inland Empire where the roads make possible their successful operation are equipped with electric storage batteries. The trucks are used for general commercial purposes in order to get established in this new line the Washington Water Power

company has secured the services of J. E. Baker, a vehicle engineer, who has been placed in charge of this new department.

"We will sell both cars and power," said President D. L. Huntington today. "Not only will we furnish battery service, but we will keep the cars and trucks charged.

The success of the commercial truck has been established and we anticipate doing a big business in this line. The radius of operation of the roads, of course, upon the nature of the roads. The trucks will be used at first largely in the city, but as we get this branch established we expect to be able to place trucks with firms doing a general trucking business in and out of Spokane."

CARD PARTY HELD AT SHANNON HOME

Mrs. W. E. Shannon entertained with cards Thursday evening at her home on North Napa street. Honorary were awarded to Mrs. James Forsythe and J. F. Parks. The guests were Mr. and Mrs. J. Woodard, Mr. and Mrs. James Brady, Mr. and Mrs. I. C. Parks, Mr. and Mrs. James Forsythe, Mr. and Mrs. Harry Hill, Mr. and Mrs. L. W. Hardwell and Mrs. Gunkel.

RATHER

New Kind Strike" Dec Men at the

Marking back to W. W. soapbox "city" officials "every day, a new strike" was declared a few days ago. There were doing the matter secret, but the "strike" spread. Police McAlpin & all prisoners had and water for the Dan Riley, secretary, was at Jailer Nelson. Riley stood and advised for the torkey. contagious and to on the suggestion Nelson planted "tank" a dark department. Riley ate nothing by

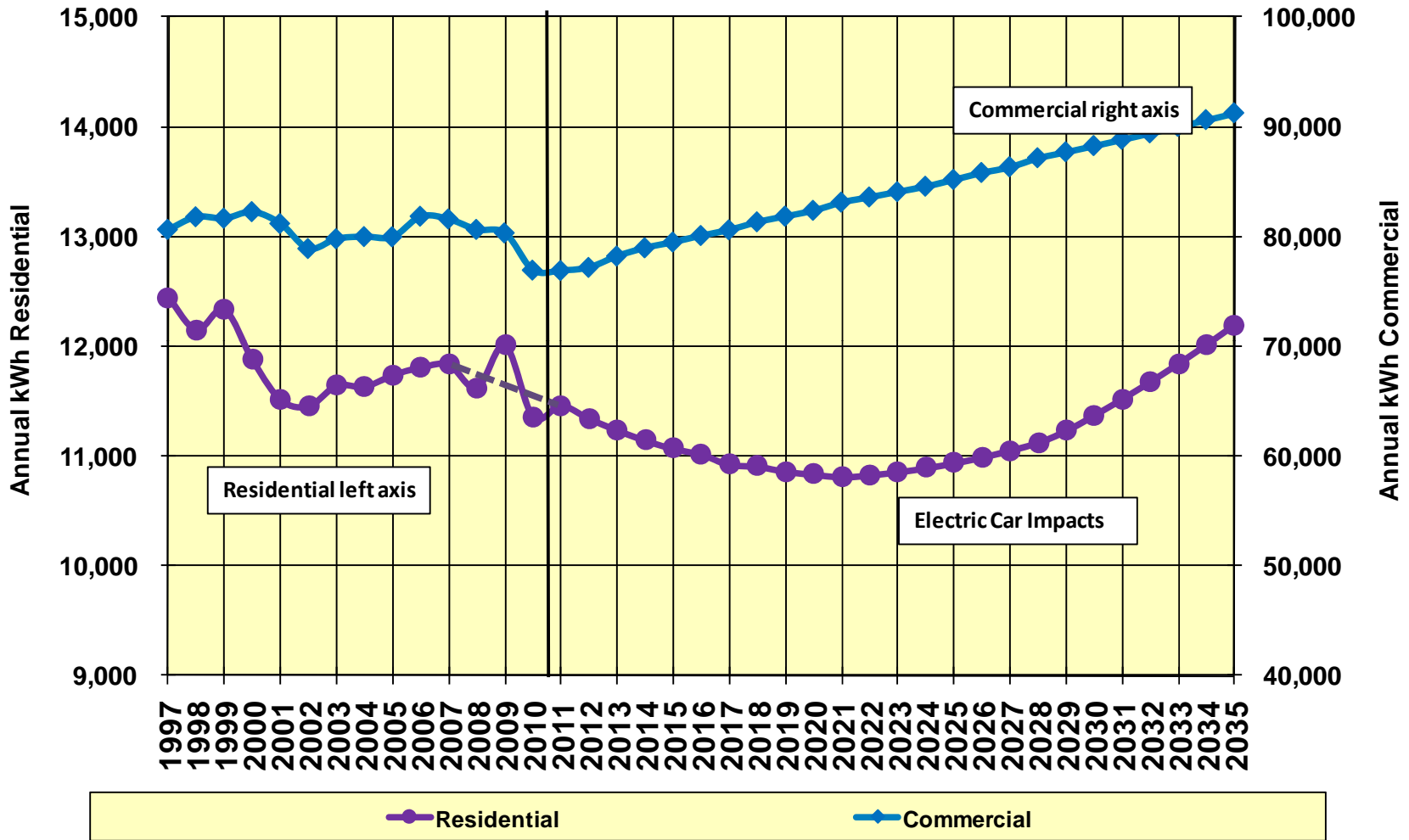
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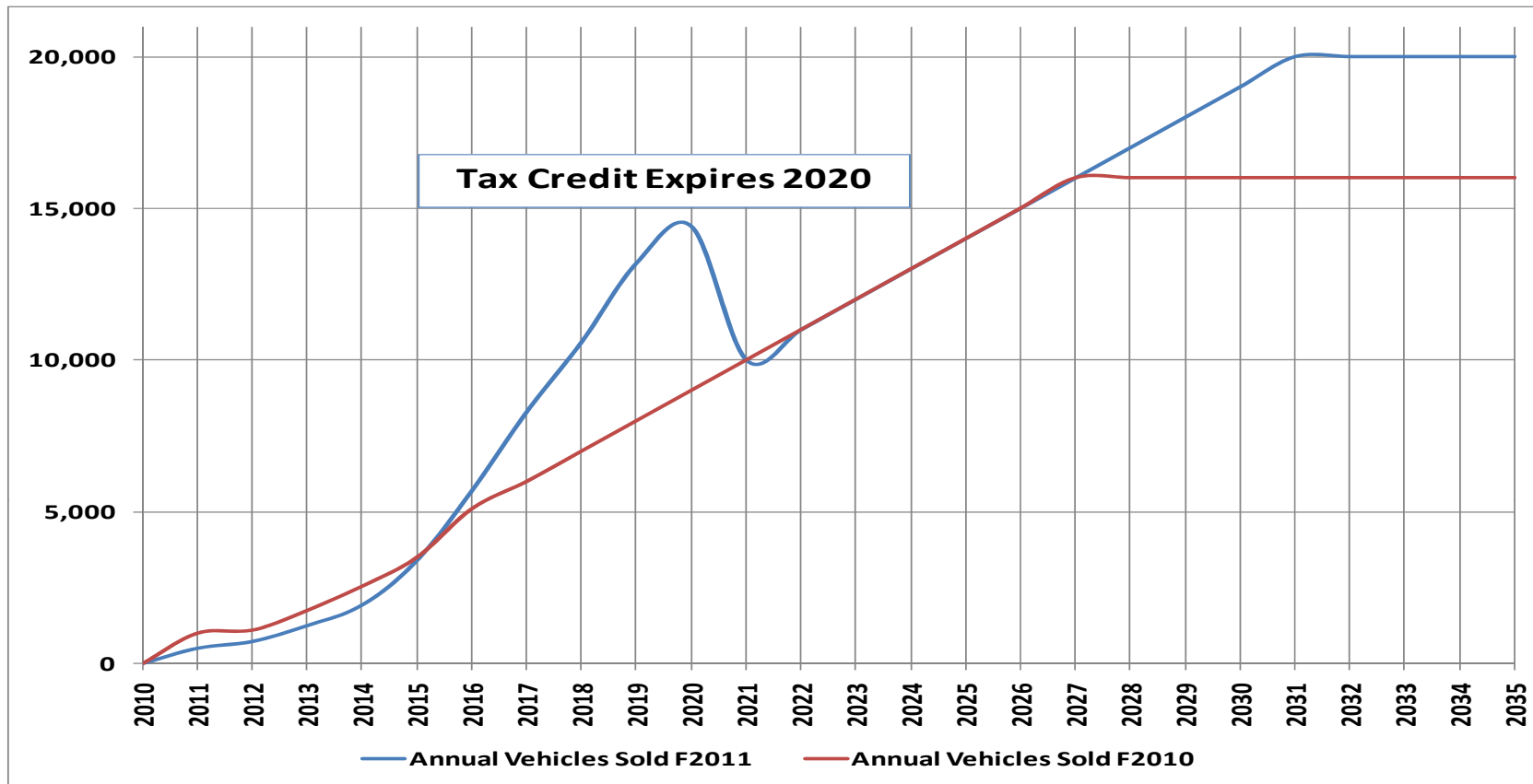
Electric Average Use per Average Customer

Weather Adjusted



Randy Barcus August 2, 2010





*My forecast assumes 305,000 EV's in use in our service area where we provide electric service. My forecast assumes we have 418,000 residential customers at that time. My forecast is 5,202 million kWh total, with **762.5 million kWh** attributed to EV's, representing 14.7%, roughly **15%**.*

Randy Barcus August 17, 2010



Annual
Energy
600
kWh



Annual
Energy
260
kWh



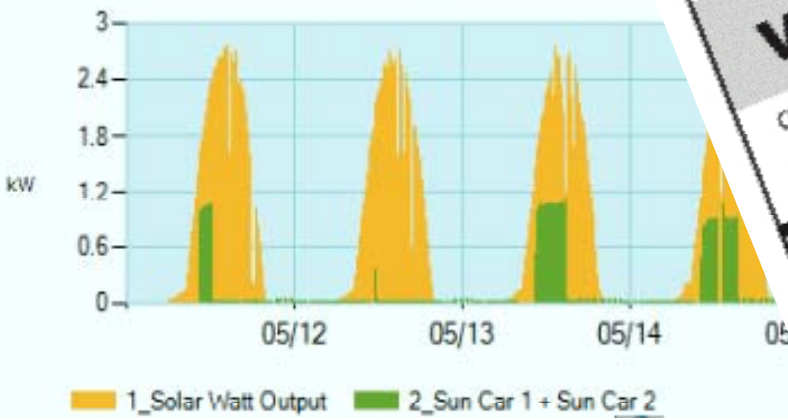
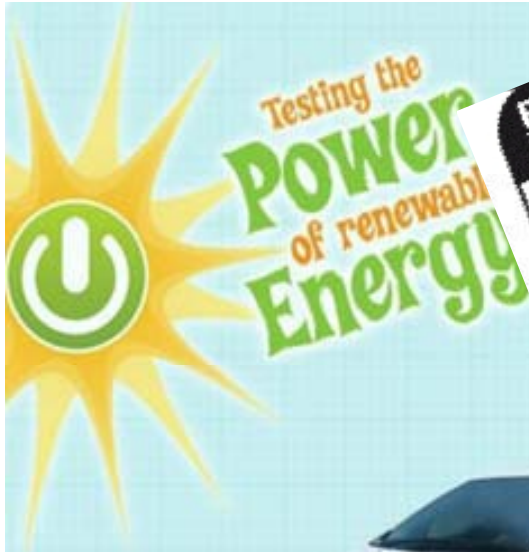
Annual
Energy
2,300
kWh

Chevy Volt = 1,900 kWh
Extended Range Electric Vehicle



Nissan Leaf = 2,500 kWh
Battery Electric Vehicle





EPA DOT Fuel Economy and Environmental Comparison

A+



The above grade reflects fuel economy and greenhouse gases. Grading system ranges from A+ to D.

website.here

Over five years, this vehicle saves **\$6,900** in fuel costs compared to the average vehicle.

Electric Vehicle		MPGe City	MPGe Highway	CO ₂ g/mile (average)	Annual fuel cost
Range (miles)	99	102	94	0	\$618
kWh-hrs/100 Miles	34				

Other Air Pollutants: 0 g/mile

Estimated MPGe: 103

Fuel economy for all midsize cars ranges from 12 to 103 MPGe/gallon. MPGe/gallon: 33.7 kWh-hrs = 1 gallon gasoline energy. Annual fuel cost based on 15,000 miles per year at 12 cents per kWh-hr.

Visit website.here to calculate estimates personalized for your driving, and to download the Fuel Economy Guide (also available at dealers).



Energy generated to date: 3524.7 kWh

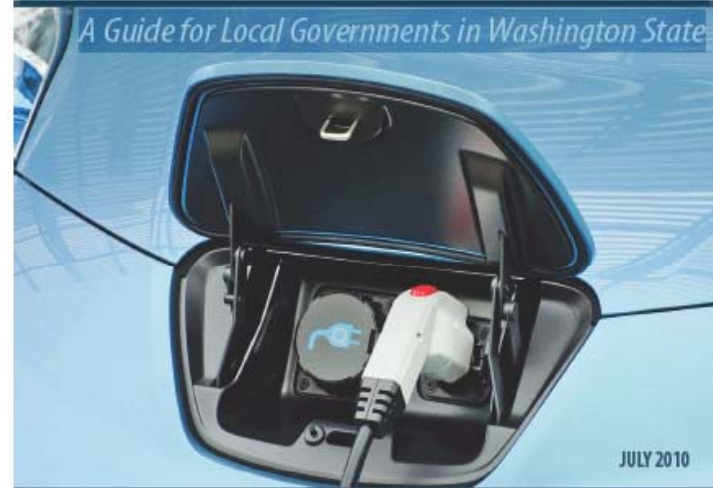






Electric Vehicle Infrastructure

A Guide for Local Governments in Washington State



JULY 2010

Model Ordinance, Model Development Regulations, and Guidance Related to Electric Vehicle Infrastructure and Batteries per RCW 47.80.090 and 43.31.970



AVISTA

- The adoption of Electric Vehicles (EV's) is an effective way to reduce our countries dependence on foreign oil and reduce harmful effects of greenhouse gases.
- Consumer's adoption of electric vehicles will be in part dependent on the availability of infrastructure to charge and service their vehicle.
- Consumers need to be assured that; charging sites are available, the services are safe and fees reasonable and accurate.
 - ✓ The National Electric Code Article 625 and other industry standards provide necessary consideration for the installation, operation and safety of charging appliances.
 - ✓ The majority of EV charging will be completed at home, and supplied from the house meter, representing equal accuracy with residential loads.
 - ✓ Consumer will have a choice of public charging vendors and market forces should ensure pricing is competitive, just as filling stations are today.

