

Written Testimony of Dwayne Escola, Northeast Smart Energy,  
Before the Connecticut General Assembly Energy and Technology Committee March 9, 2010

Written Testimony in support of House Bill 5465, AN ACT CONCERNING THE DEVELOPMENT OF  
GREEN JOBS

I Dwayne Escola write in support of Raised H.B. 5465, An Act Concerning the Development of Green Jobs. Section 5 of this bill removes two key barriers to expanding green jobs in Connecticut. These two barriers are "short term thinking" on the part of the building owner and financing. Section 5 of HB 5465 will allow owners to stop worrying about what happens if they have to move suddenly, before reaping the benefits from energy efficiency and renewable energy improvements (when they sell, the equipment and the tax liability goes with the property to the new owner). Secondly, in this current economic environment credit is tight and it's difficult to obtain loans for building improvement items which reduce energy usage and add renewable energy. This House Bill will help building owners to finance their project and have positive cash flow from day one.

In addition to our current needs, this H.B. 5465 will assist in creating jobs during the next wave of technology coming our way starting this fall with the introduction of Electric Vehicles (EVs). Attached are some charts which show you how important your work is in helping Connecticut to become competitive with other states for green jobs and in promoting Photovoltaic Solar Clean Energy. Connecticut's next goal could be to become the friendliest state for EVs. The attached 3 charts in this package show how advantageous it would be for Connecticut and Detroit to encourage Electric Car buyers to also buy a life time supply of fuel for their Electric Car when they buy a car. With no out of pocket expense (with PACE) and less than \$6000 added to the customer's property tax the auto company's home owner customers could avoid a lifetime gasoline cost of \$36,000 (assuming gas prices stay at \$3 for the next 25 years).

In addition, for every 50 EV cars sold in CT per year one full time green job would be created, resulting in 5,000 to 10,000 jobs at Electric Vehicle market maturity.

Please seriously consider passing H. B. 5465. It will to give Connecticut the boost it needs to be on its way to becoming the leading state in green job creation while also saving all of our citizens money on utility and gasoline bills!

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# LIFETIME SUPPLY OF FUEL can be purchased with 1st ELECTRIC CAR

(with NO out of pocket expense – this fact could be explained to purchaser in auto show room)

## Lifetime of Fuel (25 Years)

### Electric Vehicle (EV)

Needs 8 Solar Panels for fuel  
(2kW PV Solar System)



When PACE (Property Assessed

Clean Energy) is adopted in CT:

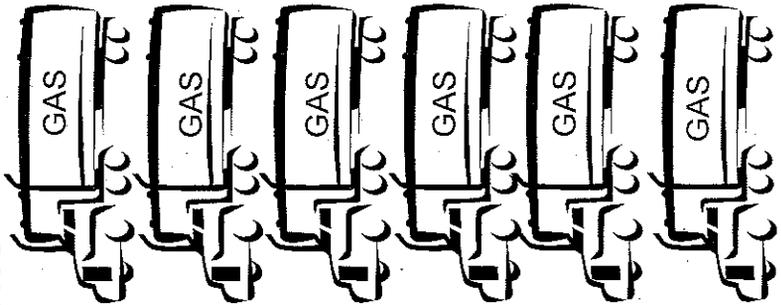
- No out of pocket expense
- \$5,700 Solar cost (\$12,000 minus incentives and tax credits)
- Paid as part of property tax
- Fuel savings is more than tax increase
- **Creates one green job per 50 EV cars sold in Connecticut/year**

### Assumptions

- EV gets 5 miles/kWh
- 250 watt solar panels
- Gas vehicle gets 25 miles/gal
- Both cars are driven 12,000 miles/year
- CO2 Emissions of 8.89 kgm/gal of gasoline (EPA greenhouse gas calculator)

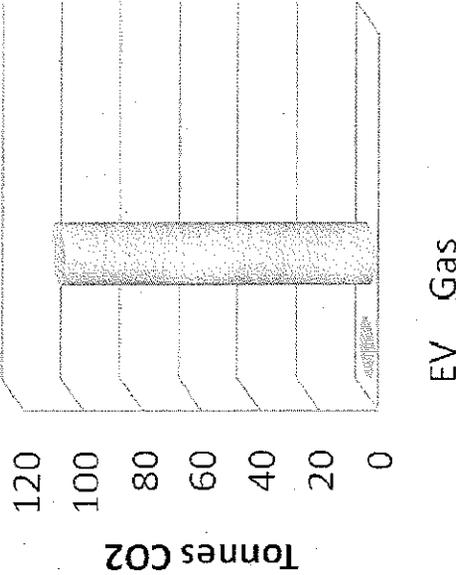
### Gasoline Vehicle

- Needs six 2,000 gal trucks of fuel
- \$36,000 at today's price



## 25 Years of Emissions

### CO2 Emissions



## Positive Utility Impact

- EV decreases demand during high demand time of day (daylight time)
- EV increases demand at night when charging EVs and demand is low

Mar 1, 2010 – dwayne@nesmartenergy.com

# Cash Flow Example for Electric Vehicle vs. Gas Vehicle

## -Purchase Lifetime of Fuel with Electric Vehicle

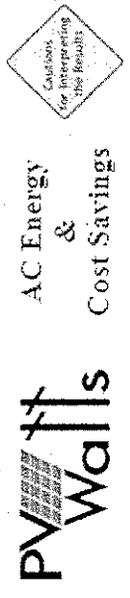
Bond Amount	\$5,700
Interest	6%
Length of Loan (yrs)	5
Payment per year	(\$1,322)
<p>Note: Cash Flow in early years can be increase by lengthening loan repayment beyond 5 years.</p>	
Assumptions:	
Miles driven/year	12,000
Gasoline at price/gal	\$3.00
Gasoline price inflation %	0%
Gas Vehicle miles/gal	25
Combined Fed & State tax	39%

Year	Yearly Increase In Property Tax	Reduction in Fuel (gasoline) Expense	Positive Cash Flow
1	(1,322)	1,440	\$118
2	(1,322)	1,440	\$118
3	(1,322)	1,440	\$118
4	(1,322)	1,440	\$118
5	(1,322)	1,440	\$118
6	0	1,440	\$1,440
7	0	1,440	\$1,440
8	0	1,440	\$1,440
9	0	1,440	\$1,440
10	0	1,440	\$1,440
11	0	1,440	\$1,440
12	0	1,440	\$1,440
13	0	1,440	\$1,440
14	0	1,440	\$1,440
15	0	1,440	\$1,440
16	0	1,440	\$1,440
17	0	1,440	\$1,440
18	0	1,440	\$1,440
19	0	1,440	\$1,440
20	0	1,440	\$1,440
21	0	1,440	\$1,440
22	0	1,440	\$1,440
23	0	1,440	\$1,440
24	0	1,440	\$1,440
25	0	1,440	\$1,440
	(6,612)	36,000	\$29,388

# Electric Vehicle vs. Gasoline Vehicle - Calculations

- A 2 kilowatt solar system production in CT = 2,316 kW hours/year (see PV Watts chart)
- EV mileage = 5 miles/kWh; thus, for 12,000 miles per year of driving an EV requires 12,000 miles ÷ 5 miles/kWh = 2,400 kWh/year (matches projected PV panel production)
- Installation of eight 250 watt panels (a 2kW System) with inverter and net-meter at \$6/watt = \$12,000
- Fed Tax Credit of 30% = \$3,600
- CT Clean Energy residential incentive of \$1.75/watt times efficiency of 77% times 2kW = \$2,695
- Net PV System cost = \$12,000 - \$3,600 - \$2,695 = \$5,705 or around **\$5,700**
- PV panels have a life of 25+ years.

- A gasoline car needs 12,000 miles ÷ 25 miles/gal = 480 gallons of gas per year
- 480 times 25 years = 12,000 gallons
- At \$3/gal, 12,000 gal = **\$36,000** at today's prices (unable to add this to property tax)



Station Identification		Results			
City:	Hartford	Month	Solar Radiation (kWh/m <sup>2</sup> /day)	AC Energy (kWh)	Energy Value (\$)
State:	Connecticut	1	3.01	150	30.00
Latitude:	41.93° N	2	3.87	174	34.80
Longitude:	72.68° W	3	4.39	212	42.40
Elevation:	55 m	4	5.16	228	45.60
DC Rating:	2.0 kW	5	5.28	252	46.40
DC to AC Derate Factor:	0.770	6	3.79	239	47.80
AC Rating:	1.5 kW	7	5.62	238	47.60
Array Type:	Fixed Tilt	8	5.37	228	45.60
Array Tilt:	50.0°	9	4.75	203	40.60
Array Azimuth:	180.0°	10	3.77	172	34.40
Energy Specifications		11	2.71	123	24.60
Cost of Electricity:	20.0 c/kWh	12	2.44	119	23.80
		Year	4.35	2316	463.20