



**City of Harrisonburg Environmental Performance
Standards Advisory Committee
Meeting Minutes
June 27, 2018 5:00 – 7:00 p.m.**

Members in attendance: Jeff Heie, Mikaela Schmitt-Harsh, Benjamin Meredith, Daniel Downey, Doug Hendren, Richard Baugh (Council Representative), Deb Fitzgerald (School Board Representative)

Staff/Others in attendance: Tom Hartman, Thanh Dang, Rebecca Stimson

Public Input

No public input. EPSAC welcomed Thanh Dang back to the committee.

Alleyn Harned, Virginia Clean Cities

Alleyn Harned, executive director of Virginia Clean Cities, gave a presentation on green transportation initiatives. The presentation slides are attached.

Sector Updates

Water Sector: Dan presented that the Water Sector has met multiple times since the last EPSAC meeting. A successful group meeting took place in May at Mossy Creek Fly Fishing between public and private stakeholders. After the meeting, a grant through Trout Unlimited was identified as a potential way to get funding for some of the items identified at the May meeting. Dan explained that Brad has been busy with the grant application, which will be submitted July 15. Dan also shared a map of mineral rights in the Dry River area (see attached). There was a discussion about mineral rights – Richard Baugh explained that landowners can sell mineral rights to companies (which gives the owner of those rights the ability to extract minerals such as oil, gas, coal, and others) while the landowner and their successors own the land. Often, no minerals were extracted, but the mineral rights are still held by someone other than the landowner.

Building Energy Standards Sector: Benjamin Meredith explained that this group is done with their work and has a product to present to City Council at the next opportunity. Thanh asked if the work will roll into the integrated plan. Benjamin stated that it would. Mikaela stated that Johann has been coming to the Integrated Plan Sector meetings. Thanh suggested that for the time being, the Building Energy Standards Sector be removed from future agendas and the members reassign themselves to other sectors.

Energy Sector: Doug Hendren explained that he and Jeff Heie have been working on understanding HEC and Dominion's contract. They have met with Wesley Russ, the assistant city attorney, to find the HEC mandate established by City Council, which they cannot find. They will continue to search. Doug also updated the group that the school's solar recommendation RFP is with the school's attorney and will be put out soon. He explained that HEC still has a 1% cap on solar energy in the city, which is 1% of installed

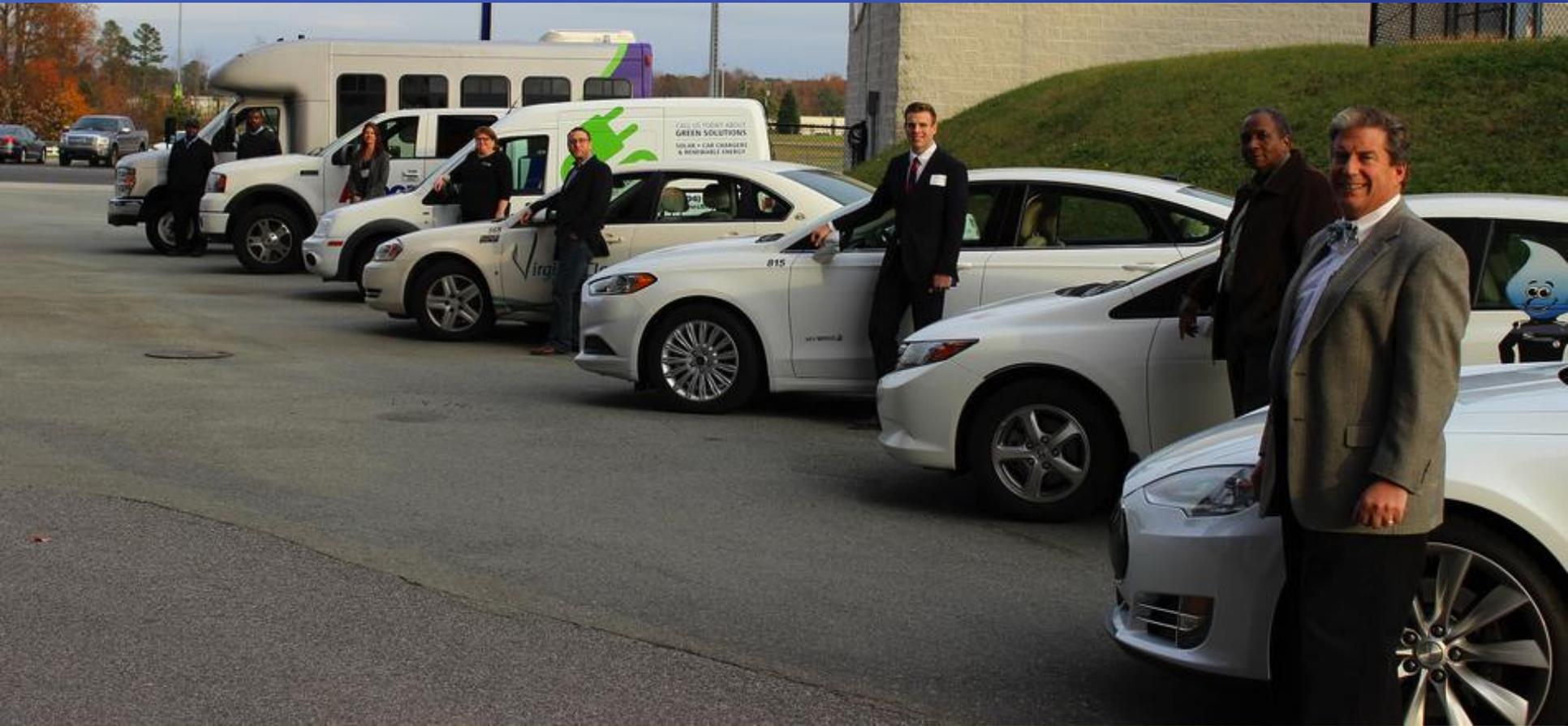
capacity. Installing solar in the schools may have the potential to exceed this cap. Alleyn offered to be a resource to this sector if needed. Mikaela asked what happens if the cap is exceeded. Jeff explained that they do not know, as the cap has not yet been exceeded by a Virginia locality. Benjamin asked if HEC was a Harrisonburg City department or its own entity. Jeff explained that technically HEC is under the control of the city; however, HEC is set up to operate independently. HEC uses revenues for maintenance and turns over some profits to the City. Richard explained that when there is an opening on the HEC Commission, HEC's general manager will present nominations to City Council, who will then approve the new commission member.

Refuse and Recycling Sector: Tom Hartman said that the group has met twice, once to speak with city staff about the refuse and recycling program. The second meeting was a conference call with Fort Collins, Colorado, which has a pay-as-you-throw program. These programs are set up so residents pay a certain fee based on how large their bins are/how much trash they generate. Tom H. also explained that the curbside recycling program for private communities such as apartment complexes and townhomes will be cancelled starting in July. Mixed recyclables were being picked up in the yellow bins from private communities that did not have city trash pickup. After the single stream program ended, the curbside pickup continued so staff could analyze the cost effectiveness of the program. The program was expensive and the quality of recyclables was low, so the program is being discontinued. Private communities can bring their recyclables to the Recycling Convenience Center on Beery Road.

Integrated Plan Sector: Mikaela described that the integrated plan sector has met several times since the last EPSAC meeting. The sector has been working on putting together the plan; however, time constraints have been holding back the plan's development. The group has been meeting with City Council members and has also met once with Ande Banks, Deputy City Manager, to discuss next steps. At the meeting with Ande, a potential Sustainability Coordinator position was discussed. A Sustainability Coordinator position would have to be proposed during the planning cycle for the new budget. There were several new positions proposed in the FY19 budget that were not approved due to monetary constraints. Benjamin asked what the next steps for the group are, as the Building Energy Standards Sector is ready to present their work to City Council. Tom H. brought up last meeting's discussion – which was to create a document with high level sustainability goals and values to present to Council for approval. Thanh stated that there were many city plans, such as the Bicycle and Pedestrian Plan, Comprehensive Plan, and Stormwater Improvement Plan, that had examples of goal, objective, and strategy statements the EPSAC could model after. There was discussion about where the committee should focus its efforts. It was decided that the Integrated Plan Sector would focus on creating a high level goals and values document that could be presented to Council. The “ask” from Council would be to dedicate staff time to taking the goals and values and creating an Integrated/Action Plan.

Other Matters

The next meeting will be September 26, 2018.



Implementing Green Transportation Initiatives

Alleyn Harned Virginia Clean Cities
540-568-8896
aharned@vacleancities.org

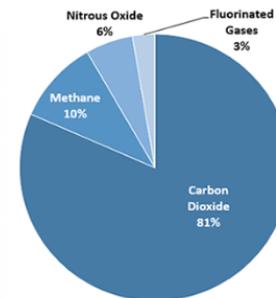


- Why
 - Who
 - How – choices - Fuels – Gaseous, biofuels, electric
 - Actions
 - Resources
 - Questions
-
- Who biked/walked here? Who drove gasoline car?
 - What is level of interest in cost savings, energy security, climate, vehicles?



- Carbon Monoxide (CO)
 - Cardiovascular disease, damage nervous system 56-95% of US CO is emitted by vehicles
- Nitrogen Oxides (NOx)
 - Respiratory damage - 55% from vehicles
- Particulate Matter (PM)
 - Aggravate asthma, emphysema, bronchitis, heart disease, lung disease, water pollution – directly from vehicles
- Ozone
 - Smog – reduce lung function
- Greenhouse Gases (GHGs)
 - Climate Change: CO₂ CH₄, NO₂
 - Gasoline = 20, Diesel 23

U.S. Greenhouse Gas Emissions in 2016

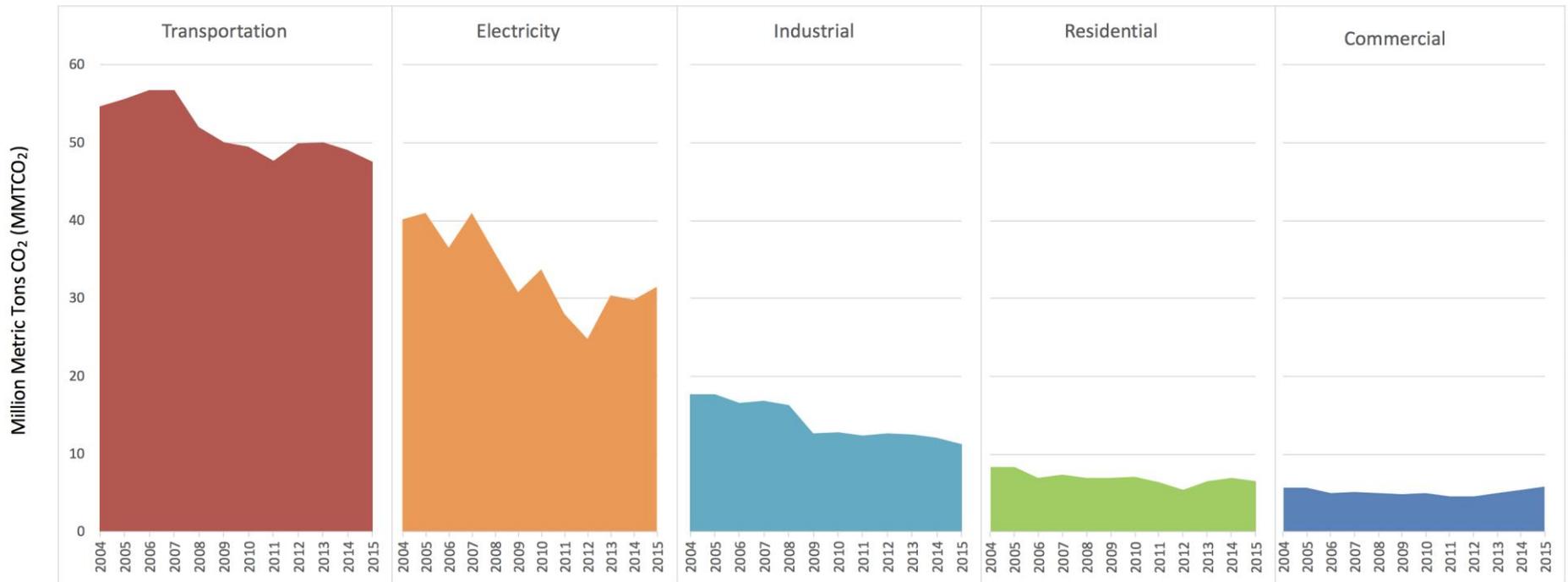


Total Emissions in 2016 = 6,511 Million Metric Tons of CO₂ equivalent.

CO2 from Fossil Fuels



Virginia's Carbon Dioxide Emissions by Fossil Fuel Combustion Sector 2004-2015



Emission estimates are based on energy consumption data from EIA's State Energy Consumption, Price, and Expenditure Estimates (SEDS) released Summer 2017
<https://www.eia.gov/state/seds/seds-data-complete.php?sid=US#CompleteDataFile>



Why – Reduce Oil Dependence

- Rising Petroleum Prices
 - U.S. Owns 2-3% of world oil reserves, but uses 25% of worlds oil
- Volatility of Petroleum Market
 - Significant production domestically, but 50% imports
- VA transportation 99 % petroleum – still strangely gasoline and diesel
 - \$33 million each day on imported leaves Virginia for imported toxic fuel
 - Statistically, 100% of our oil is out of state (99.98%)
- Alternatives can be less expensive, produced locally



Rankings: Crude Oil Production, December 2017 (thousand barrels)

[Download Table Data as CSV](#)

Rank	State	Crude Oil Production (thousand barrels)
1	Texas	121,929
2	North Dakota	36,047
3	New Mexico	17,237
4	Alaska	15,883
5	Oklahoma	15,434
6	California	14,277
7	Colorado	13,334
8	Wyoming	6,871
9	Louisiana	4,097
10	Kansas	2,868
11	Utah	2,788
12	Montana	1,680
13	Ohio	1,630
14	Mississippi	1,457
15	West Virginia	979
16	Illinois	701
17	Pennsylvania	582
18	Alabama	520
19	Michigan	448
20	Arkansas	436
21	Kentucky	317
22	Nebraska	165
23	Florida	163
24	Indiana	143
25	South Dakota	108
26	Tennessee	22
27	Nevada	22
28	New York	19
29	Missouri	8
30	Arizona	1
31	Virginia	0

Note: Rankings are based on the full source data values.

Excludes federal offshore production.



One designated statewide Coalition in Virginia - since 1996

501c3 not-for-profit & James Madison University partnership

Supported by donors, stakeholders, DOE, DMME, and grants

Managing alt fuel deployment and education programs on behalf of governments, fleets, and other stakeholders

Strategies:

- Partner with State & Local Organizations, Public and Private fleets
- Provide Outreach, Education, & Information Resources
- Facilitate Infrastructure and Vehicle Deployment with Grants
- Provide Technical & Financial Assistance

Platinum Level Sponsors & Strategic Partners



- Practice more efficient driving techniques
- Properly refuel your vehicle
- Reduce idling time
- Utilize alternative forms of transportation



Driving More Efficiently



- Be less aggressive
 - Includes speeding, rapid acceleration, and braking
 - Lowers gas mileage by 33% on highways
 - Savings: \$0.17 – \$1.11/gallon
- Obey the speed limit
 - Gas mileage decreases at speeds over 50 mph
 - For each 5 mph over 50 mph, you pay \$0.24/gallon for gas
 - Savings: \$0.24 - \$0.47/gallon
- Remove excess weight
 - An extra 100 lbs. could reduce your MPG by up to 2%
 - Savings: \$0.03 - \$0.07/gallon



Driving More Efficiently



- Avoid idling
 - Can use up to half a gallon of fuel per hour
 - Turn off engine when vehicle is parked
 - Savings: \$0.01 – \$0.03/minute
- Keep engine tuned
 - Fixing serious problems can improve mileage by 40%
 - Savings: \$0.13/gallon
- Properly inflate tires
 - Under-inflated tires can lower MPG by 0.3% for every 1 psi pressure drop
 - Savings: \$0.10/gallon





- By practicing more efficient driving techniques, you could save \$0.67 to \$1.88 per gallon of gasoline
 - For a 13 gallon tank, you could save \$8.72 to \$24.44
 - For an 18 gallon tank, you could save \$12.06 to \$33.84
- Biking and walking is free – take the 1 mile challenge
- What about selecting the right vehicle?
 - Driver and consumer choices

Show me the Money



2017 Chevrolet Bolt EV X



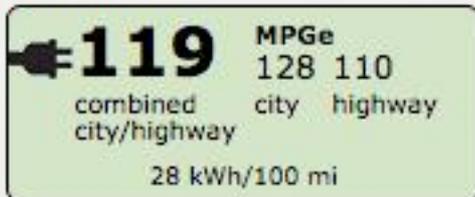
Electric Vehicle



Automatic (A1)

MSRP: \$36,620 - \$40,905

Electricity



Electricity



238 miles
Total Range

2017 Toyota Prius X



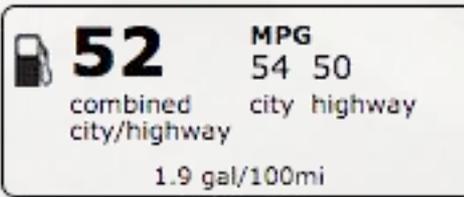
Hybrid Vehicle
Gasoline



1.8 L, 4 cyl, Automatic (variable gear ratios)

MSRP: \$24,685 - \$30,015

Regular Gasoline



Gasoline



588 miles
Total Range

2008 Chevrolet Impala X

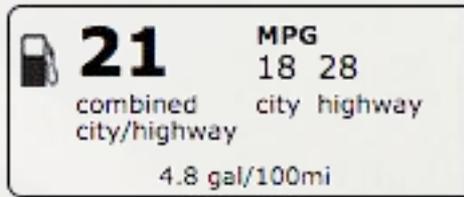


E85 Flexible-Fuel Vehicle
Gasoline-Ethanol (E85)



3.9 L, 6 cyl, Automatic 4-spd

Regular Gasoline



Gasoline Only



357 - 500 miles
Total Range

EPA Fuel Economy

1 gallon of gasoline=33.7 kWh

Show me the Money



www.fueleconomy.gov
the official U.S. government source for fuel economy information

2017 Chevrolet Bolt EV



Automatic (A1)

2017 Toyota Prius



1.8 L, 4 cyl, Automatic (variable gear ratios)

2008 Chevrolet Impala



3.9 L, 6 cyl, Automatic 4-spd

You save or spend*	You SAVE \$4,750 in fuel costs over 5 years compared to the average new vehicle	You SAVE \$3,500 in fuel costs over 5 years compared to the average new vehicle	You SPEND \$1,500 more in fuel costs over 5 years compared to the average new vehicle
Annual Fuel Cost*	\$450	\$700	Gas: \$1,700 E85: \$1,400
Cost to Drive 25 Miles	\$0.78	\$1.15	Gas: \$2.86 E85: \$2.34
Cost to Fill the Tank		\$27	Gas: \$41 E85: \$26
Tank Size		11.3 gallons	17.0 gallons

- E85 price also analogous to Propane (cost and energy)

That other Green...

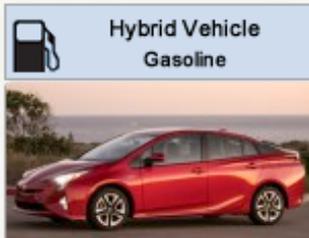


2017 Chevrolet Bolt EV X



Automatic (A1)
MSRP: \$36,620 - \$40,905

2017 Toyota Prius X



Hybrid Vehicle
Gasoline
1.8 L, 4 cyl, Automatic (variable gear ratios)
MSRP: \$24,685 - \$30,015

2008 Chevrolet Impala X



Flexible-Fuel Vehicle
Gasoline-Ethanol (E85)
3.9 L, 6 cyl, Automatic 4-spd

Annual Petroleum Consumption

- U.S. barrel
 - Imported barrel
1 barrel = 42 gallons

Energy Impact Score i

ELECTRICITY



0.2 barrels

REGULAR GASOLINE



6.3 barrels

REGULAR GASOLINE



15.7 barrels

E85



4.7 barrels

Greenhouse Gas Emissions i

ELECTRICITY

0 grams per mile



REGULAR GASOLINE

171 grams per mile



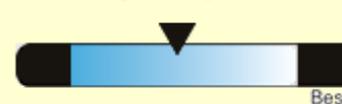
REGULAR GASOLINE

423 grams per mile



E85

388 grams per mile



Cities do this – Why?



- Plan and review
- Right size
- Save money and improve public health
- Basic contracts with local fuels bring lower cost

<p>2018 Chevrolet Bolt EV X</p> <p> Electric Vehicle</p> <p>Automatic (A1)</p> <p>Possible Tax Break</p> <p>Electricity</p> <p> 119 MPGe 128 110 combined city highway city/highway 28 kWh/100 mi</p> <p> Electricity 238 miles</p>	<p>2018 Chevrolet Tahoe C1500 2WD X</p> <p> E85 Flexible-Fuel Vehicle Gasoline-Ethanol (E85)</p> <p>5.3 L, 8 cyl, Automatic 6-spd</p> <p>MSRP: \$47,450 - \$62,130</p> <p>Regular Gasoline</p> <p> 19 MPG 16 23 combined city highway city/highway 5.3 gal/100mi</p> <p> Gasoline Only 494 miles</p>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

- **You save or spend***
Note: The average 2018 vehicle gets 27 MPG

You SAVE
\$7,250
in fuel costs over 5 years
compared to the
average new vehicle

You SPEND
\$3,500
more in fuel costs over 5 years
compared to the
average new vehicle

Annual Fuel Cost*

\$150

Gas: \$2,300

E85: \$2,250

Cost to Drive 25 Miles

\$0.21

Gas: \$3.84

E85: \$3.75



Technology Portfolio – Virginia Clean Cities Coalition:

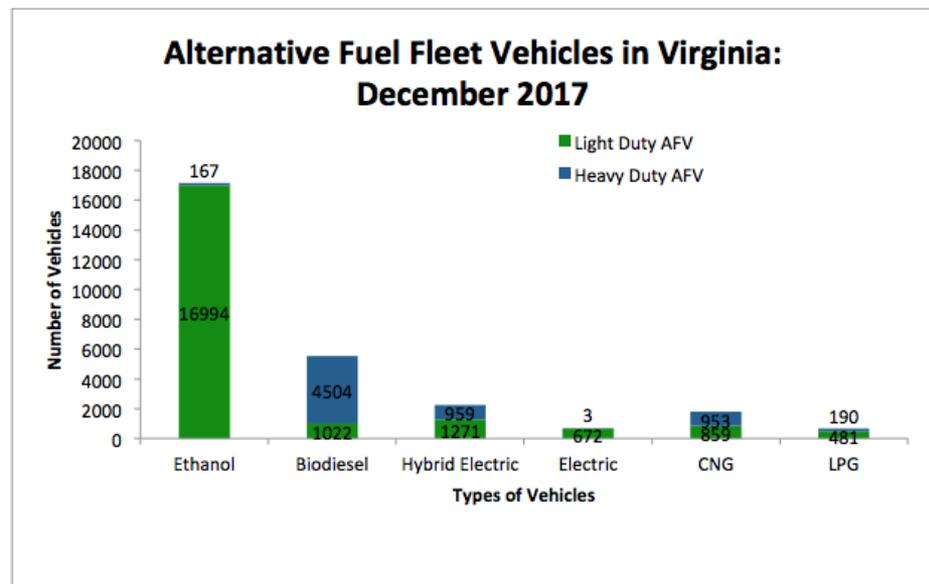
- Alternative (non-petroleum) Fuels & Vehicles
 - Biodiesel, Ethanol, Hydrogen, Electric, Propane, Natural Gas
- Advanced Vehicles (e.g., HEVs, PHEVs)
- Vehicles and Driver Choices that Increase Fuel Economy
- Idle Reduction

Green Fleet Coalition (2017)

33 million gasoline gallons reduced
177k tons of GHG reduction

Virginia's Alt Fuel Effort (2017)

100 Green Fleets
28,000 Alt Fuel Fleet Vehicles
770 Alt Fuel Station (now)





- Natural Gas, 1812 fleet vehicles, 27 stations in Virginia
 - Vehicle runs on compressed or liquid natural gas from a tank
 - Fewer emissions, 20% less CO₂, 60% less CO, 75% less nitrogen oxides
 - **\$1.00/gal is recent public price in Norfolk VA, \$1.00 fleet achievable**
 - Potential for landfill renewable gas projects (95% fewer emissions)
 - VA Produces 1.2 billion GGE Natural Gas annually
 - Facilities upgrades may be necessary, especially to work on fuel systems

LPG – Propane -Autogas



- Propane – LPG - Autogas
- LPG, 74 stations, 671 vehicles
- JMU dozens of vehicles
- Project replacing Roanoke Diesel
- Save \$1 to \$2 a gallon
- Vehicles run on propane, tanks are higher capacity than your home grill, but same fuel
- 85% of propane is domestic resource –
- 60% less CO, 20% less CO₂

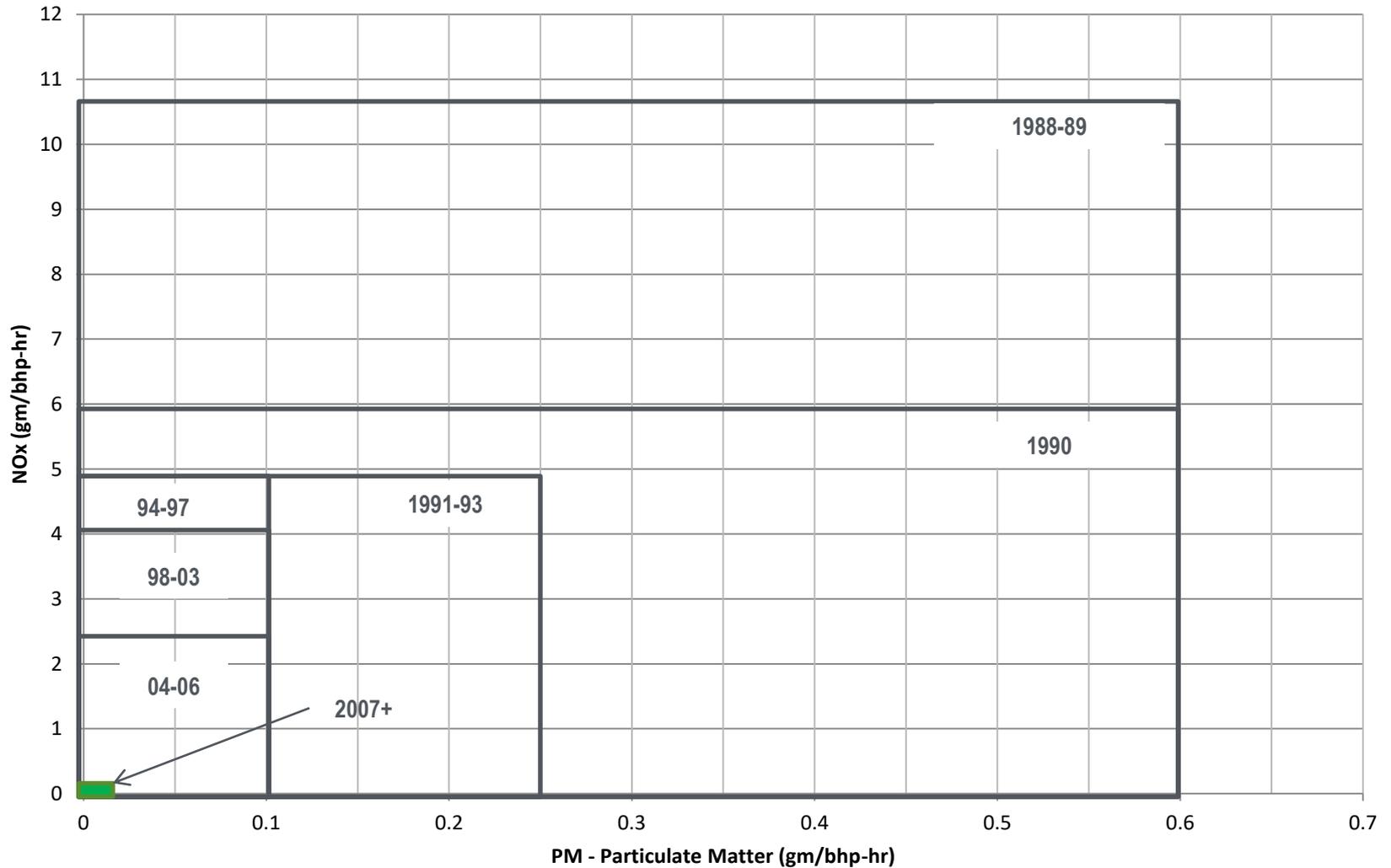




- Biodiesel – 5500 vehicles, 35 stations in VA
 - Renewable fuel produced by processing vegetable and animal fats
 - Often blended with diesel at levels from 5% to 20% biodiesel
 - Works with practically any diesel engine, little/no modification
 - Two active producers in Virginia, made around 2 million gallons
 - Planned plant in Edinburg, VA recycling waste grease
 - Dozens of fleets – modern engines often have warranty for B5-B20
 - JMU student project 2018 – suggested biodiesel
 - **New Diesel vehicles wildly better than old (2007) diesel for emissions**



Federal Heavy-Duty Emission Standards History





- Ethanol E85 – 17,000 fleet vehicles, 35 public stations
 - A renewable alcohol fuel, blended with gasoline
 - 10% ethanol can be used in most vehicles without modification
 - 15% blends OK for 2001 and up vehicles
 - E85 –85% blended with 15% gasoline
 - VA produces around 20 million gallons per year and leads in research
 - Can make ethanol from paper waste, agricultural waste, animal feed is byproduct of ethanol production

Ethanol Stations Nearby



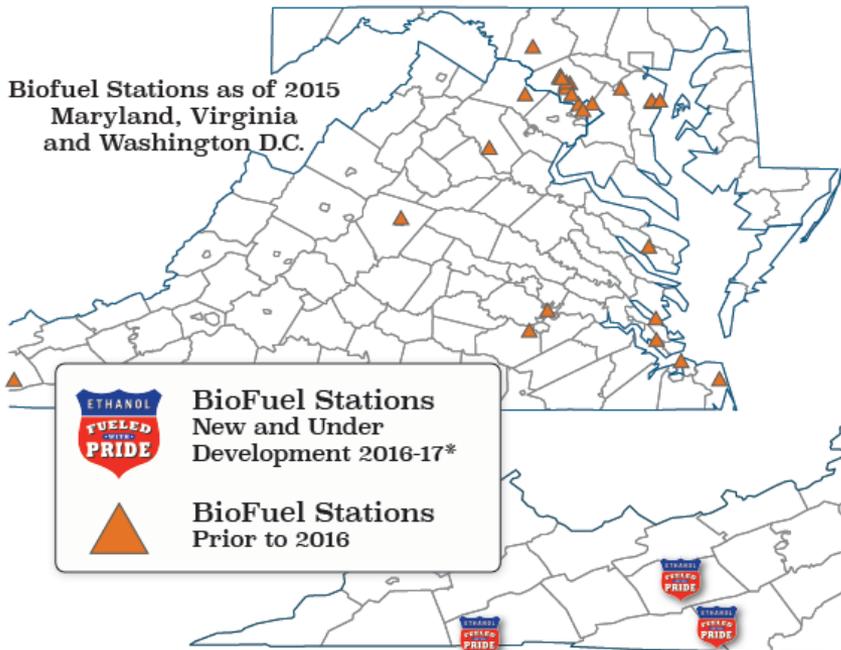
- Rockingham Petroleum 981 N Liberty
- Exxon 1001 E Market St
- Exxon 2131 E Lincoln Hwy McGaheysville
- Sheetz 227 Conicville Rd Mt Jackson,
- Sheetz 2156 W Main St Waynesboro, VA
- Sheetz 135 Market St, Zion Crossroads



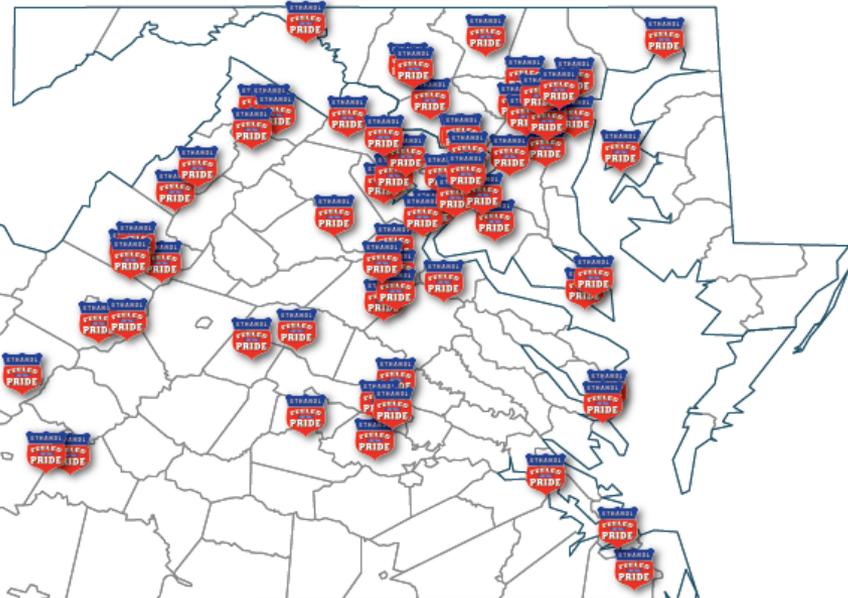
Mid-Atlantic Biofuel Infrastructure Partnership

Mid-Atlantic Biofuels Infrastructure Partnership Expanded Access to Ethanol 2016-2017

Biofuel Stations as of 2015
Maryland, Virginia and Washington D.C.



2016-2017 Biofuel Stations Under Development in
Maryland, Virginia and Washington D.C.



**ETHANOL
FUELED
WITH
PRIDE**

**BioFuel Stations
New and Under
Development 2016-17***

**BioFuel Stations
Prior to 2016**

In 2016 and continuing in 2017,
79 additional biofuel stations are under development!

In 2015 there were 27 biofuel stations in the region

The Mid-Atlantic Biofuels Infrastructure Partnership (BIP) is a collaborative, public-private partnership that is in the process of expanding access to E15 and E85 stations in Maryland, Virginia, and Washington, D.C.

This map shows the progress and growth in availability of this clean, renewable, and domestic fuel



Fueling Clean Transportation

Data Source: Mid-Atlantic Biofuels Partnership and Virginia Clean Cities
Contact: Christopher Mueller
VAcleancities.org

*Stations under development include completed stations and those planned and under construction within 2016-2017

Date Produced: 3/23/2017
Cartographer: Phil Sturm
CartographySolutions.com

Types of EVs and PEVs



- Hybrid Electric. Plug-in Hybrid Electric
- Battery Electric
 - Pure electric, no gasoline, no oil
 - 24 to 100 KW batteries
 - 95 to 300 miles of range

Toyota Prius Prime



Chevy Volt



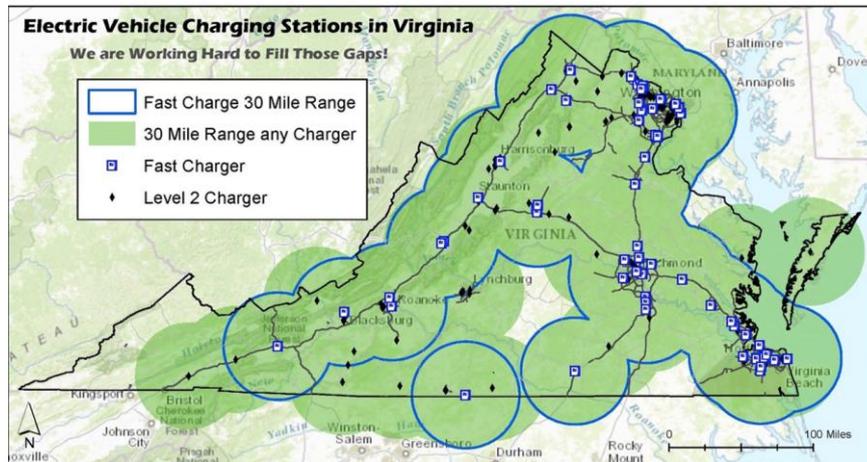
Tesla Model 3



2018 Nissan LEAF



Chevy Bolt





Find a Car | Save Money & Fuel | Benefits | My MPG | Advanced Vehicles & Fuels | About

You are here: [Find a Car Home](#) > [Side-by-Side Select](#) > Compare Side-by-Side

Compare Side-by-Side

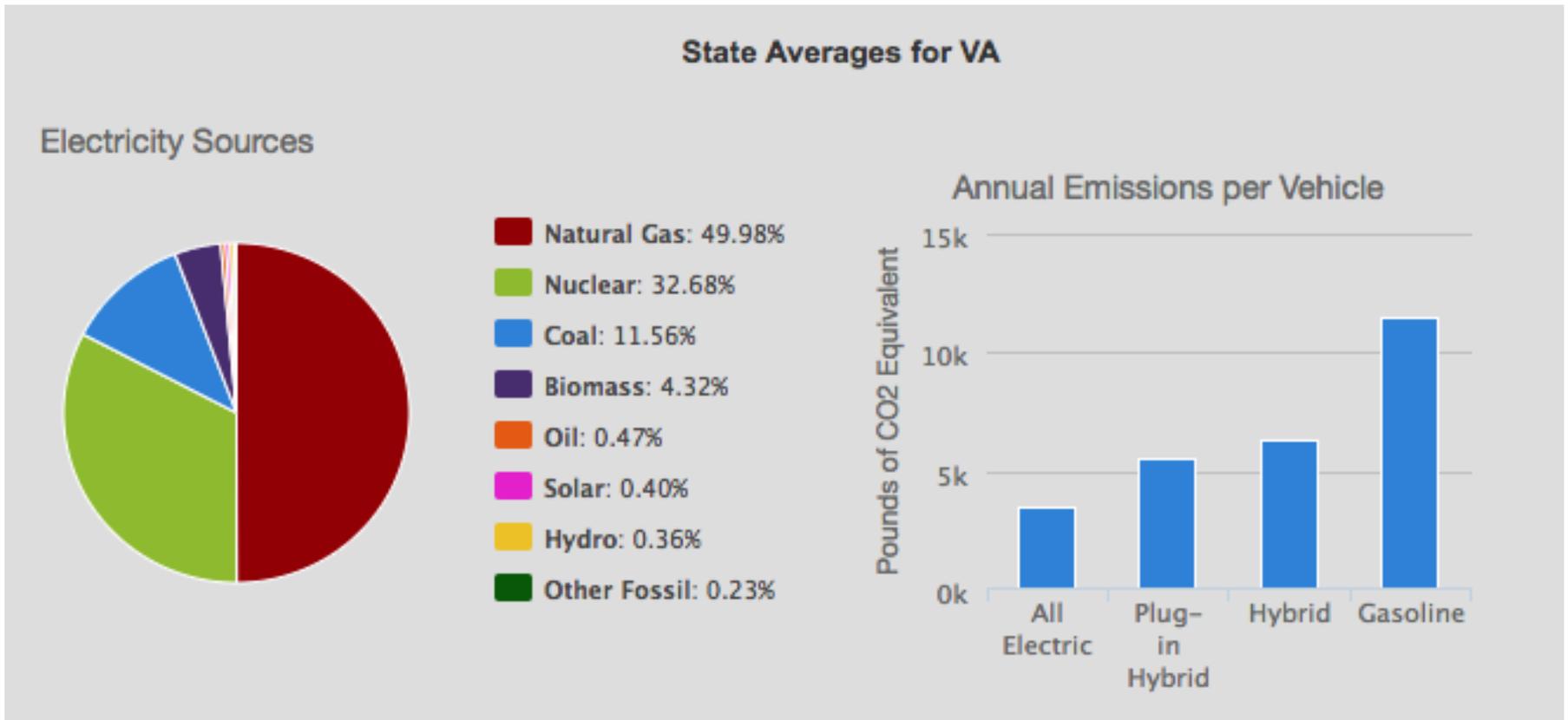
Fuel Economy | Energy and Environment | Safety | Specs

	2018 Ford Focus FWD X	2018 Ford Focus Electric X
<p>Personalize</p>	<p>Gasoline Vehicle</p>  <p>2.0 L, 4 cyl, Automatic (AM-S6) MSRP: \$17,950 - \$24,470</p>	<p>Electric Vehicle</p>  <p>Automatic (A1) MSRP: \$29,120</p>
<p>EPA Fuel Economy 1 gallon of gasoline=33.7 kWh</p> <p>Show electric charging stations near me</p>	<p>Regular Gasoline</p> <p>28 MPG combined city highway 3.6 gal/100mi</p> <p>Gasoline  347 miles Total Range</p>	<p>Electricity</p> <p>107 MPGe combined city highway 31 kWh/100 mi</p> <p>Electricity  115 miles Total Range</p>
<p>Unofficial MPG Estimates from Vehicle Owners</p> <p>Learn more about "My MPG" Disclaimer</p>	<p>User MPG estimates are not yet available for this vehicle</p>	<p>About All-Electric Cars</p> <p>User MPG estimates are not yet available for this vehicle</p>
<p>You save or spend*</p> <p>Note: The average 2018 vehicle gets 27 MPG</p>	<p>You SAVE \$500 in fuel costs over 5 years compared to the average new vehicle</p>	<p>You SAVE \$4,750 in fuel costs over 5 years compared to the average new vehicle</p>
<p>Annual Fuel Cost*</p>	\$1,450	\$600
<p>Cost to Drive 25 Miles</p>	\$2.46	\$1.02
<p>Cost to Fill the Tank</p>	\$34	

Fuel Economy | Energy and Environment | Safety | Specs

	2018 Ford Focus FWD X	2018 Ford Focus Electric X
<p>Personalize</p>	<p>Gasoline Vehicle</p>  <p>2.0 L, 4 cyl, Automatic (AM-S6) MSRP: \$17,950 - \$24,470</p>	<p>Electric Vehicle</p>  <p>Automatic (A1) MSRP: \$29,120</p>
<p>Annual Petroleum Consumption</p> <p>REGULAR GASOLINE</p>  <p>11.8 barrels</p> <p>ELECTRICITY</p>  <p>0.2 barrels</p> <p>1 barrel = 42 gallons</p>	<p>Greenhouse Gas Emissions</p> <p>REGULAR GASOLINE</p> <p>321 grams per mile</p> <p>6</p> <p>ELECTRICITY</p> <p>0 grams per mile</p> <p>10</p> <p>10 Best</p>	
<p>Units: Grams per mile</p>	<p>Show: Tailpipe CO2</p>	

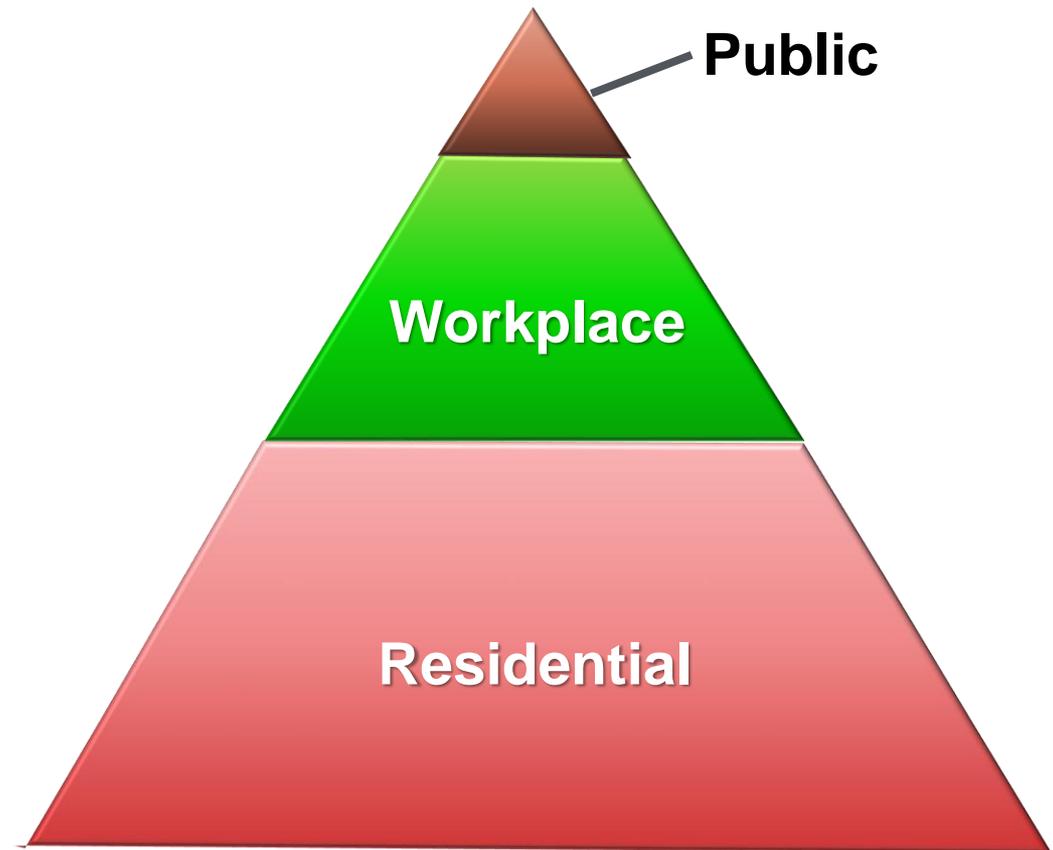
- Zero tailpipe, but what is electricity generation?



https://www.afdc.energy.gov/vehicles/electric_emissions.php

Charging Paradigm

- **Public charging (5-10%)**
 - High visibility
 - Commercial/retail
 - Shopping centers
- **Workplace (15-20%)**
 - Corporate, municipal
Parking lots
 - Movie theaters
- **Residential (70-80%)**
 - Often just 120 volt



Level 1 – Level 2 – and Fast Charge

- “An outlet is enough” – Home and workplace
- U.S. SAE J1772 Charge protocol
- Supply equipment signals presence of AC input power
- Two way communication - safety
- EV commands energy flow
- Charge continues as determined by vehicle
- Charge may be interrupted by unplugging connector



Understanding Costs

Hardware Costs

- Level 1 - \$5
- Level 2 - \$500 to \$5,000
- DC Fast - \$15,000+

Installation Costs

- Planning and research
- Vary depending on site conditions from few hundred dollars to \$5,000 per EVSE.
- Plan to avoid trenching and site design

Operating costs

- Electricity 11 cents/kwh
 - Cheaper off peak
 - Cheaper if City pays 3 cents per kwh
- Network costs





- **Green: energy, efficiency, money, environment**
- We can work together on environmental, energy, and economic security goals
- How much green can Harrisonburg save in transportation?
- How much green can Harrisonburg help residents save?
- What are quality of life improvements from considering transportation fuels?
- Why oil burning power plant? Use local energy to benefit local economy
- Information is the gap – seek knowledge from real sources
- Be a part of a solution – especially ones that save city and residents resources they can better use elsewhere
- Student project for free this fall for analysis

Clean Cities Web Resources



Dept of Energy Clean Cities

Alt Fuel Data Center

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Clean Cities

HOME ABOUT COALITIONS

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Alternative Fuels & Advanced Vehicles Data Center

About the AFDC Fuels Vehicles Fleets Incentives & Laws Data, Analysis & Trends Information Resources

Celebrating 20 Years of Alternative Fuel Information

The Alternative Fuels and Advanced Vehicles Data Center (AFDC) provides information, data, and tools to help fleets and other transportation decision makers find ways to reduce petroleum consumption through the use of alternative and renewable fuels, advanced vehicles, and other fuel-saving measures.

State Information: Select a State

Tools

- Alternative Fuelling Station Locator
- Incentives & Laws Search
- Light-Duty Vehicle Search
- Heavy-Duty Vehicle Search
- Publications

More Tools

ABOUT CLEAN CITIES

- Goals & Accomplishments
- Partnerships

COALITIONS

- Benefits of Joining
- Starting Coalitions
- Success Stories

Printable Version

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

www.fueleconomy.gov

the official U.S. government source for fuel economy information

Find a Car | Tips | Save Money | Benefits | Your MPG | Hybrids & Electrics | Diesels | Alternative Fuels | More... | New Window Sticker

U.S. ENVIRONMENTAL PROTECTION AGENCY

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Virginia Clean Cities
Fueling Clean Transportation

VCC Home Electric Vehicles Natural Gas Green Operators Propane

Home About Cleaner Transportation Events Resources And Reports Station Locator Blog

Find and Compare Cars

MPG ratings for new and used cars and trucks

Compare Side-by-Side Power Search

Your MPG

Calculate or Share Estimates from Drive

Enter your MPG at

NATIONAL BIODIESEL BOARD

biodiesel OEM AND TECHNICAL update

Search

Upcoming Events

- Green Truck Summit - Indianapolis, IN - Mar 04, 2014
- Propane Autogas First Responders Call - Mar 04, 2014
- DEQ Environmental Excellence Conference - Richmond, VA - Mar 11, 2014
- Clean Cities EV Quarterly Webinar - Mar 12, 2014
- CNG Training and Certification - Chesapeake, VA - Mar 17, 2014

Twitter Feed

VirginiaCleanCities @VaCleanCities 28 Feb

New video about the regional CNG trainings! Event registration is at vacleancities.org/ft.me/2qnfKaf41

Show Media

Virginia Clean Cities IN THE NEWS

Projects & ACCOMPLISHMENTS

Get INVOLVED

FuelEconomy.gov

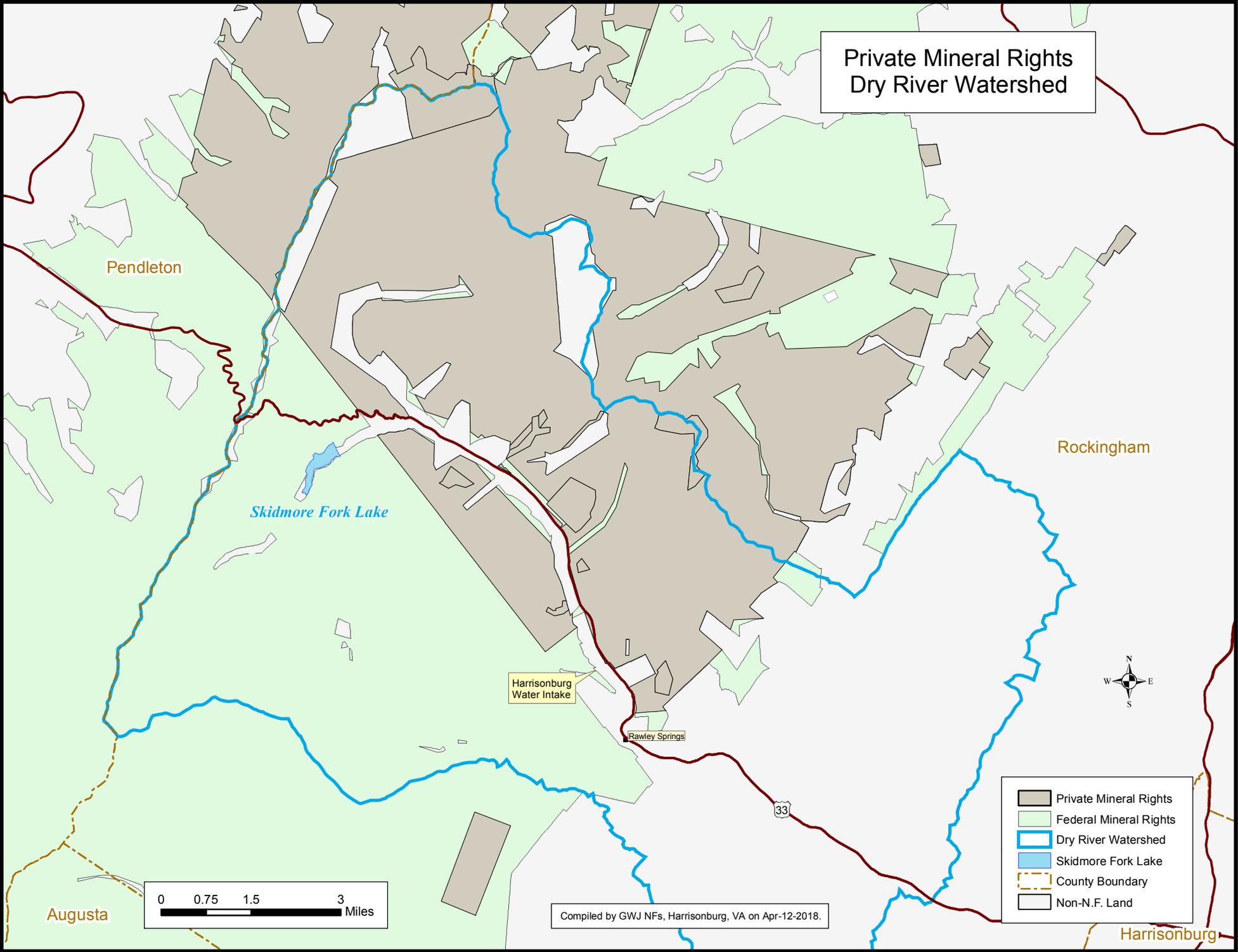
Virginia Clean Cities



- Virginia Clean Cities – <http://www.vacleancities.org>
- DOE Clean Cities – <http://cleancities.energy.gov>
- DOE Alt Fuel Data Center <http://www.afdc.energy.gov/>
- Fuel Economy DOE/EPA <http://www.fueleconomy.gov>

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aharned@hrccc.org

Private Mineral Rights Dry River Watershed



Pendleton

Rockingham

Skidmore Fork Lake

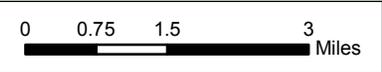
Harrisonburg
Water Intake

Rawley Springs

33



- Private Mineral Rights
- Federal Mineral Rights
- Dry River Watershed
- Skidmore Fork Lake
- County Boundary
- Non-N.F. Land



Compiled by GWJ NFs, Harrisonburg, VA on Apr-12-2018.

Augusta

Harrisonburg