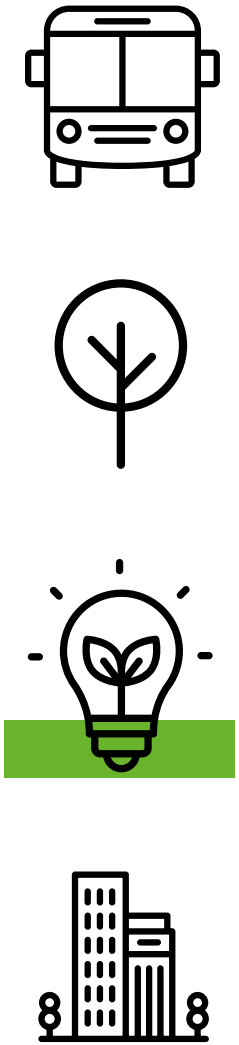
Move

Restore

Energize

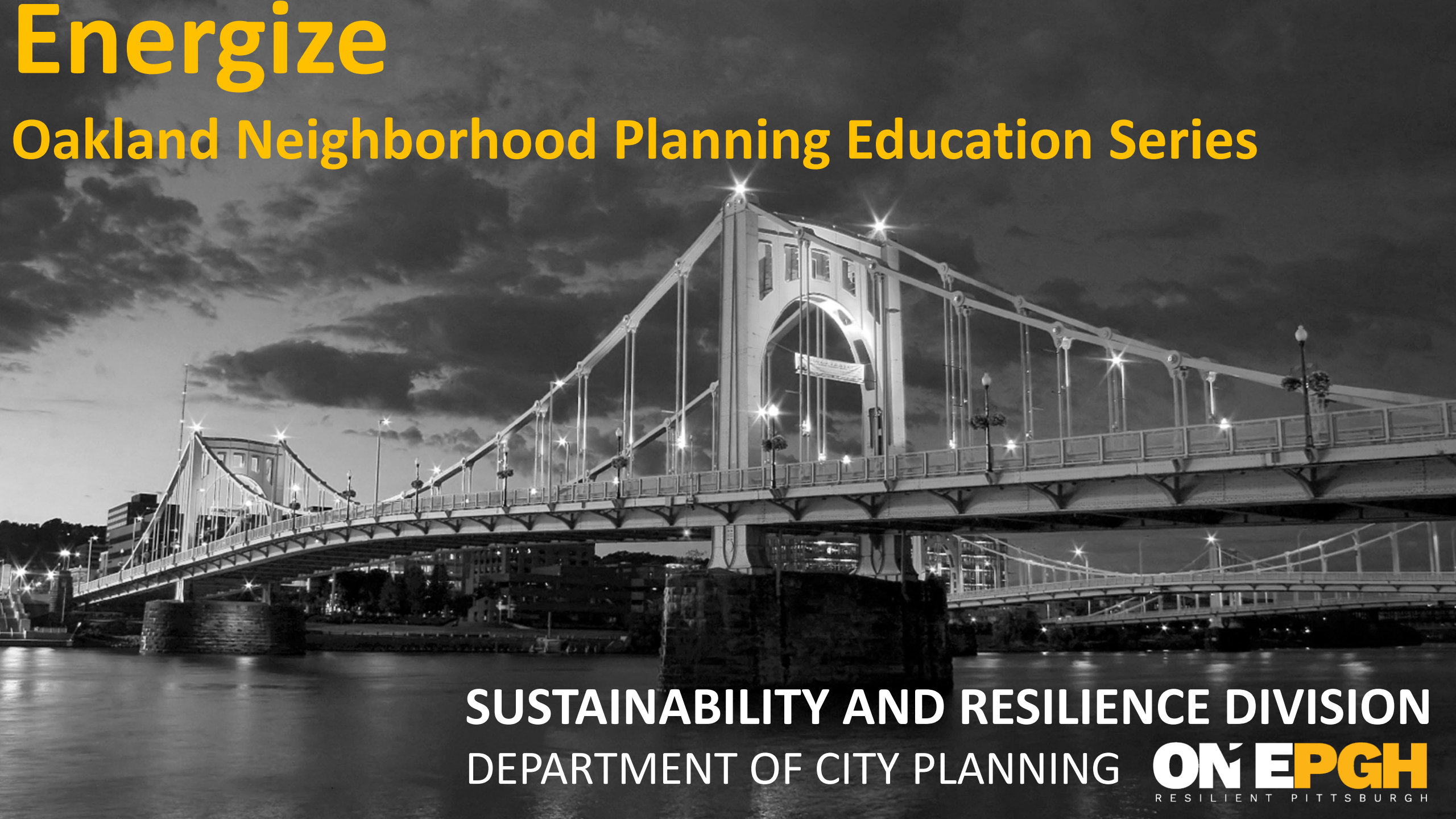
Thrive



Planning Education Series

Energize

Oakland Neighborhood Planning Education Series



SUSTAINABILITY AND RESILIENCE DIVISION

DEPARTMENT OF CITY PLANNING

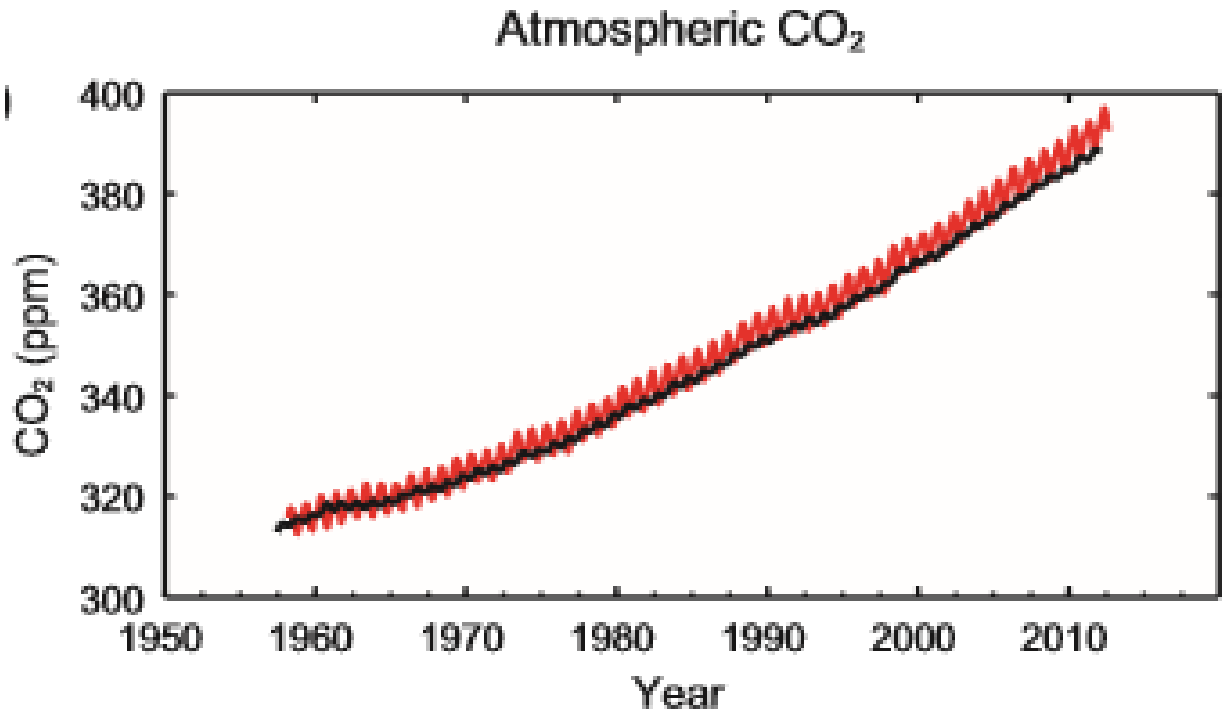
ONEPGH
RESILIENT PITTSBURGH

Sustainability and Resilience with a focus on climate

Sustainability is defined as meeting the needs of the present without compromising the ability of future generations to meet their needs. The concept of sustainability is composed of three pillars: economic, environmental, and social—also known informally as profits, planet, and people. (can also be referred to as climate mitigation)

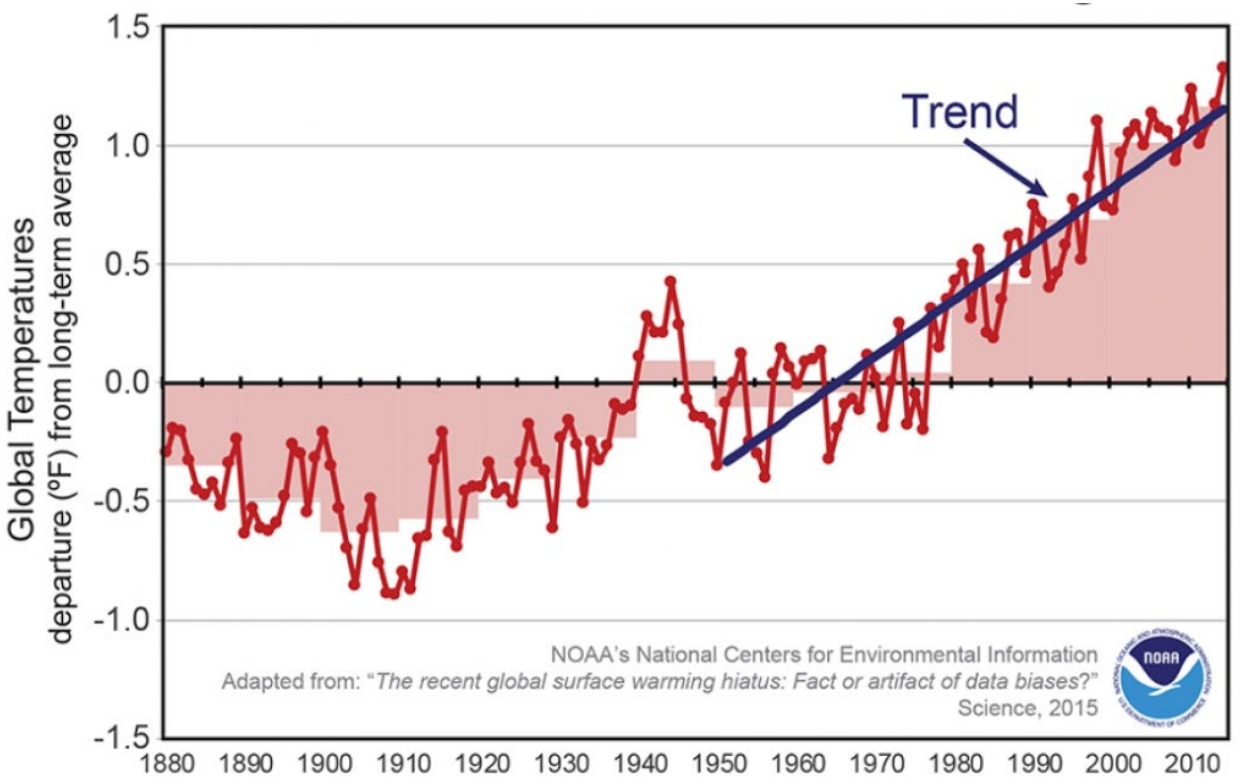
Urban **resilience** is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience. This definition considers the global megatrends of climate change, globalization and urbanization. (can also be referred to as climate adaptation)

As global CO_2 concentration increases over time, so does global temperature



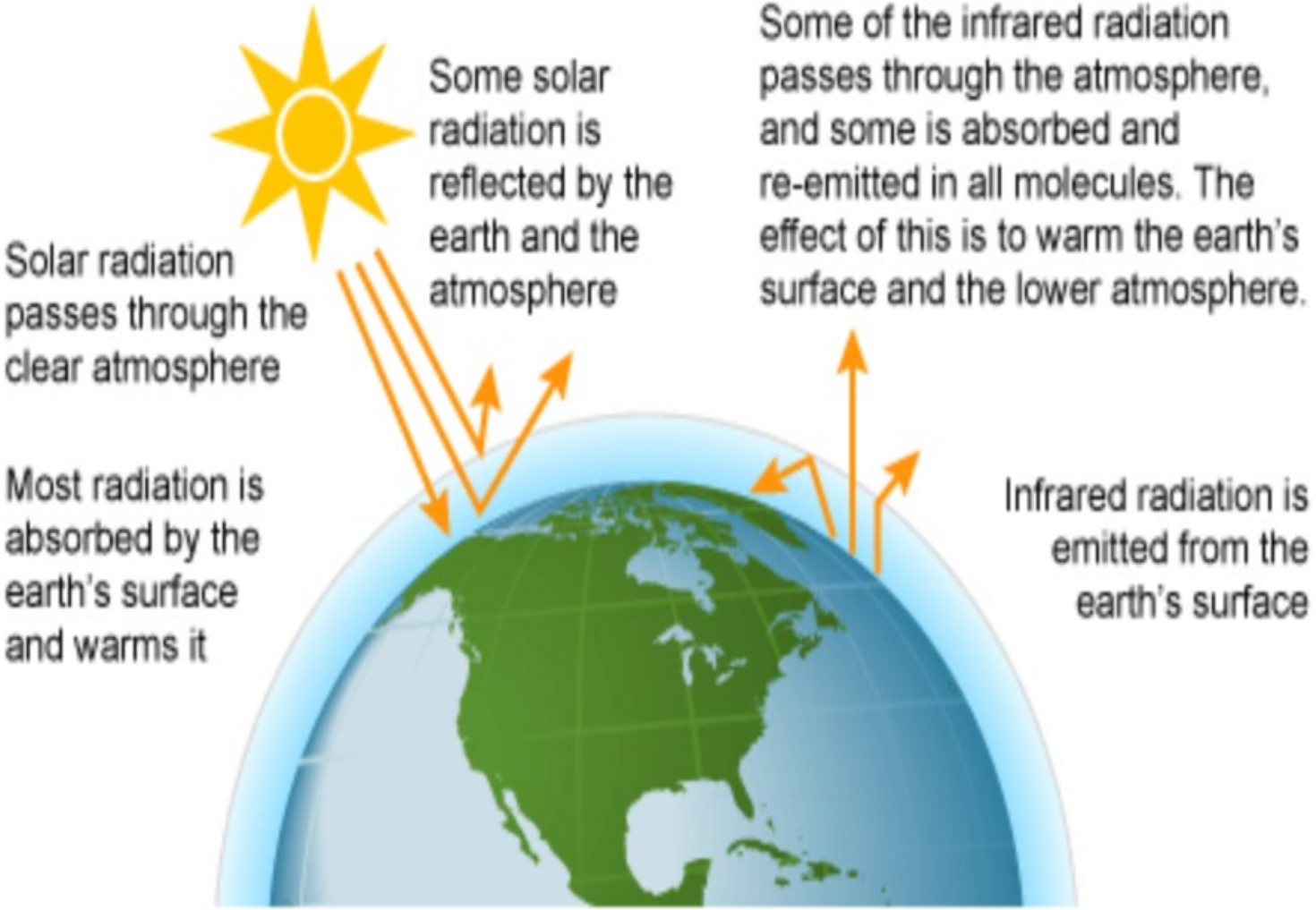
Source: UN IPCC

Global Temperature

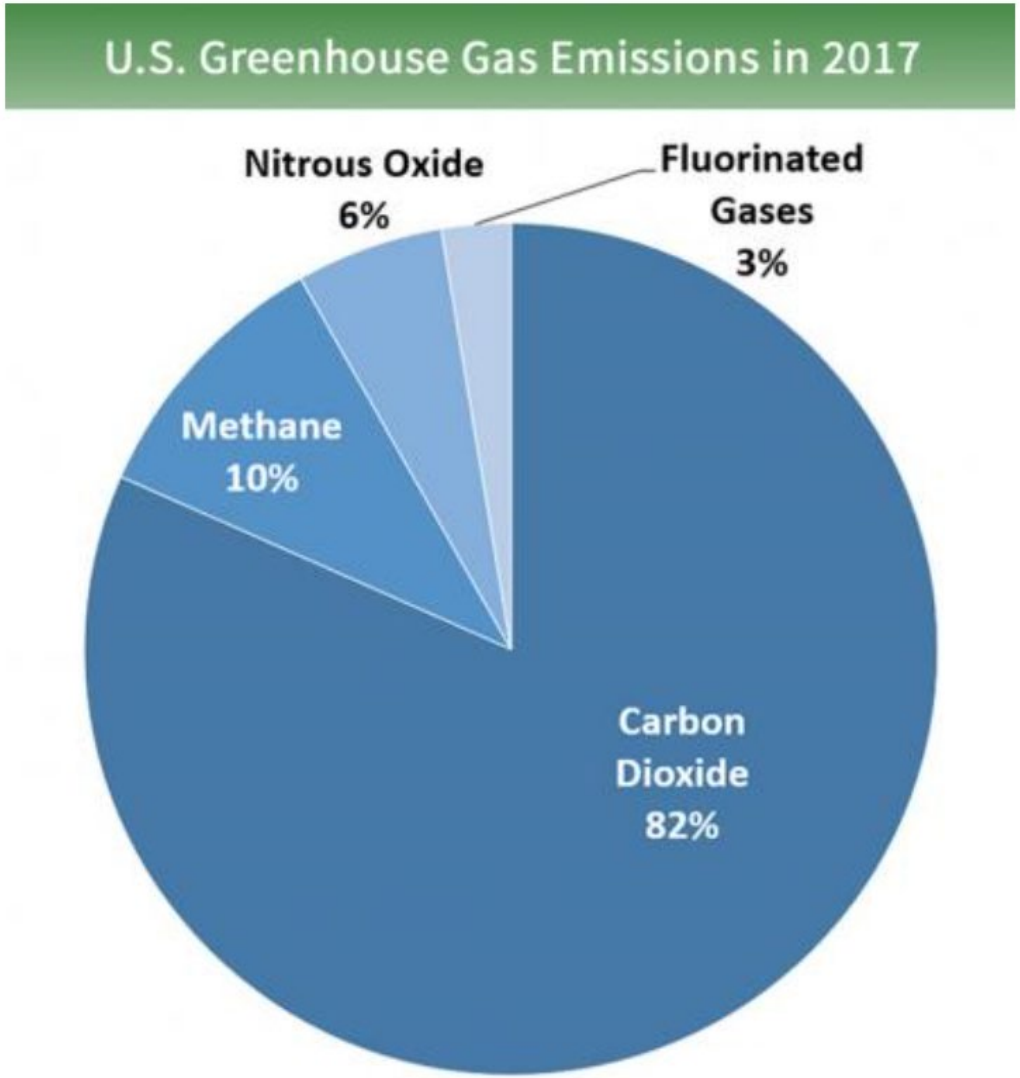


Source: US NOAA

The greenhouse effect

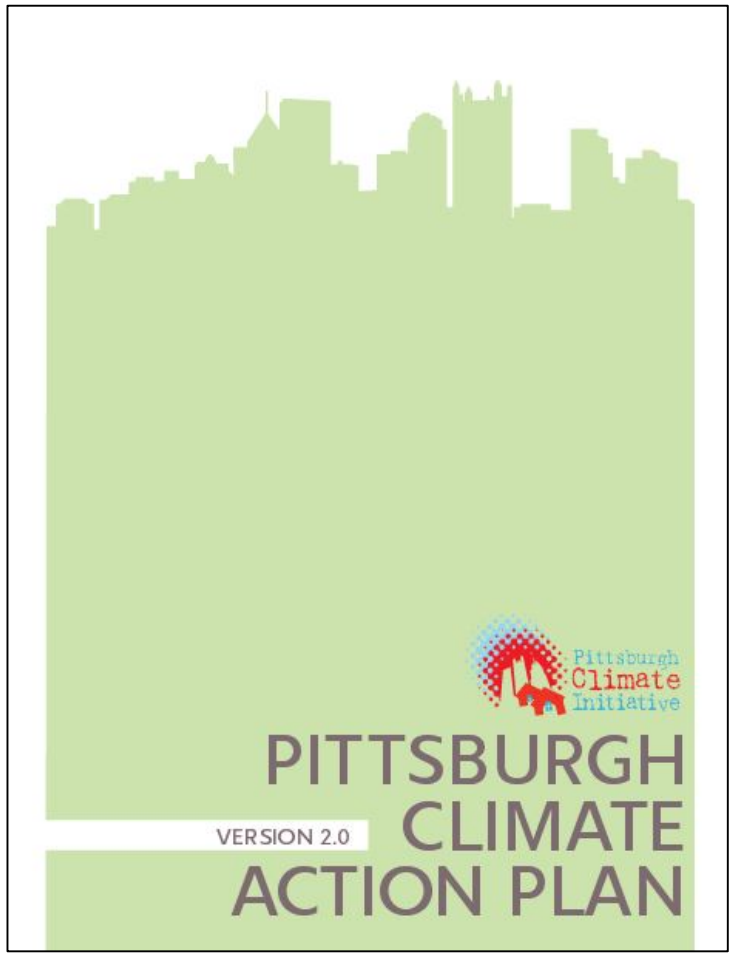


Source: US Department of Energy, Energy Intelligence Agency



Source: US Environmental Protection Agency

Pittsburgh's Climate Action Plan



Climate Action Plan 3.0 (2019)

Pittsburgh's 2030 Goals

- 100% renewable energy use
- 50% building energy use reduction
- 50% water use reduction
- 100% fossil fuel free fleet
- 100% waste diversion
- 50% transportation emissions reduction
- Divestment strategy for pension fund

Why is Energy so Important?

- Reducing carbon emissions mitigates the negative impacts of climate change
- Reducing air pollutants improves human health
- Money saved from reduced energy costs is good for residents and businesses
- Keeping the lights on minimizes disruption of services

Air Quality And Health

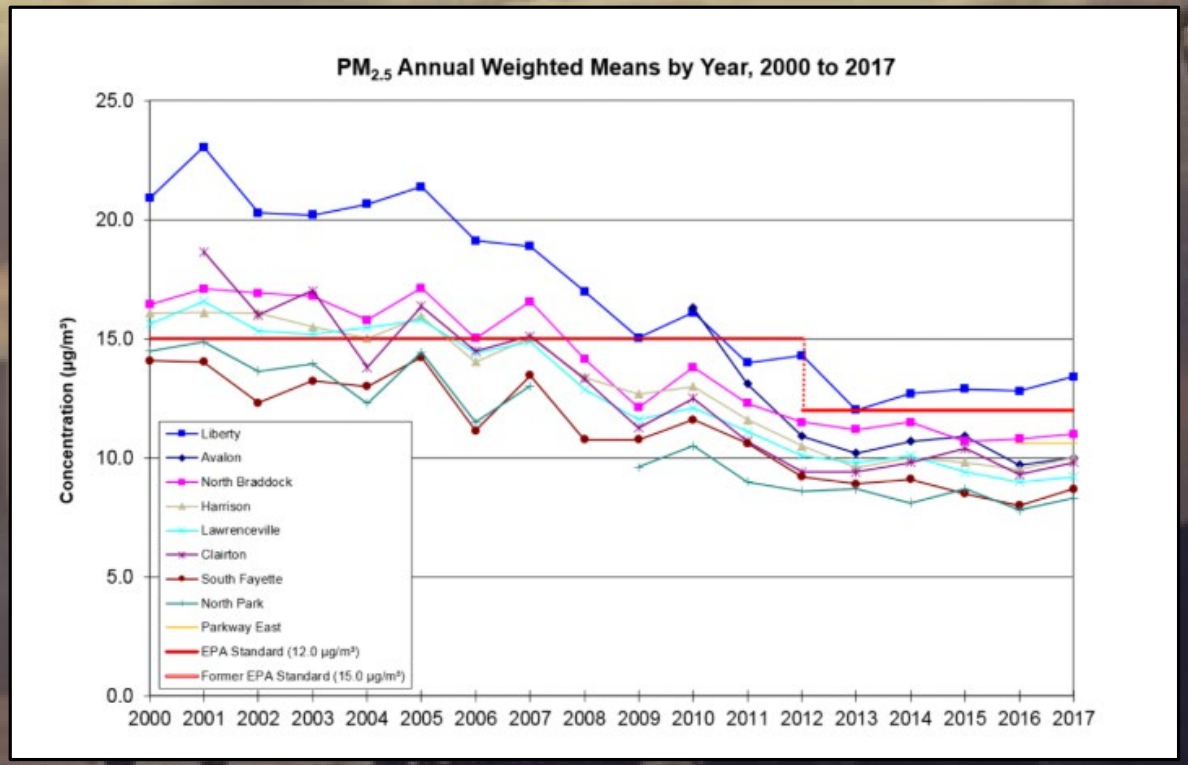
American Heart Association "State of the Air"
Failed for ozone and long and short term particulates

EPA Standards for PM 2.5
Has improved in past years, but beginning to show an uptick in pollution

PennEnvironment "Trouble in the Air" Report
Pittsburgh 4th in large metropolitan areas in number of days that air poses moderate to serious health risks

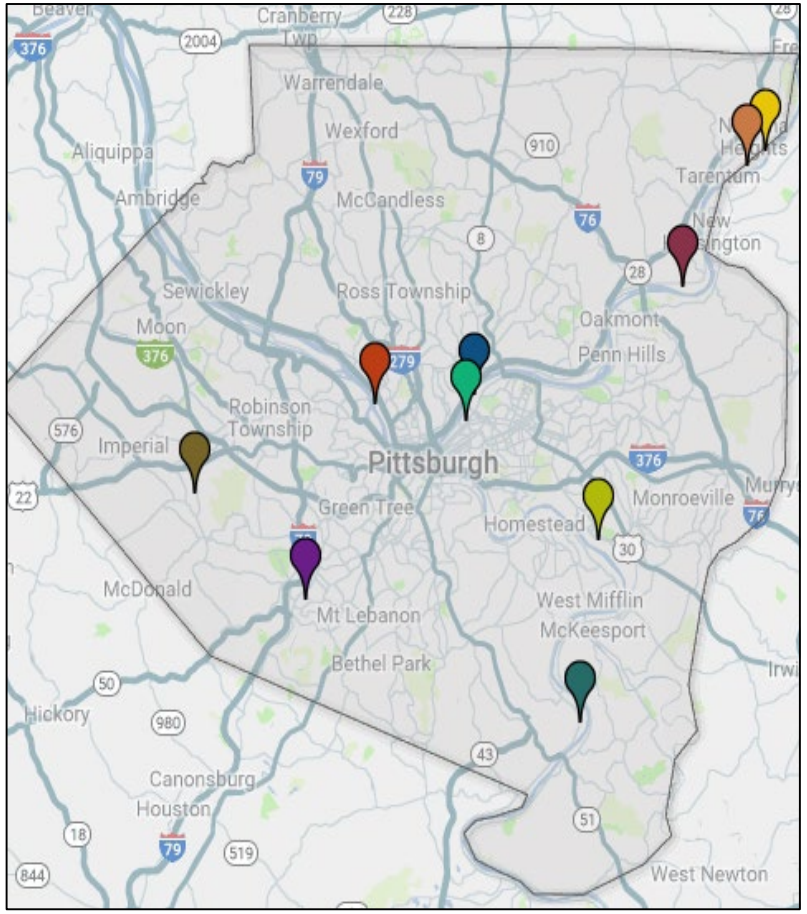
22% Childhood Asthma Rate in Some Schools
Compared to a 10% national average, study by local researcher

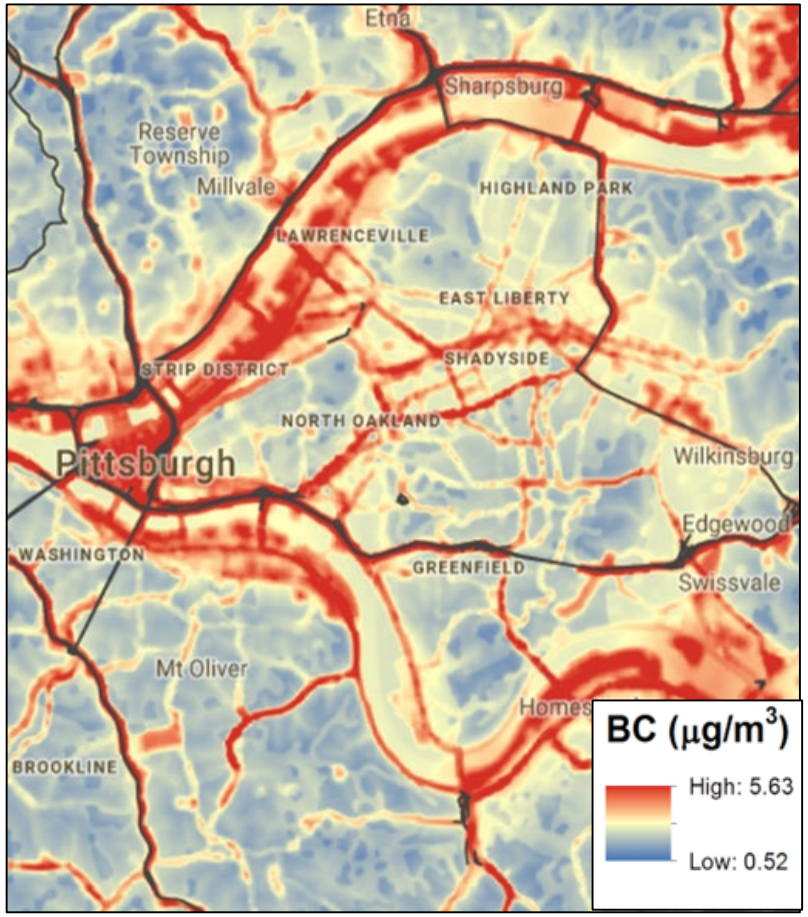
Allegheny County top 2% of counties at risk of cancer from air pollutants
Caused by energy generation and extraction, point source polluters and diesel emissions



Sources of Pollution

- "Toxic 10" point source polluters
- Pittsburgh's topography lends itself to inversion events, causing pollution from regional energy generation to linger
- Vehicle emissions



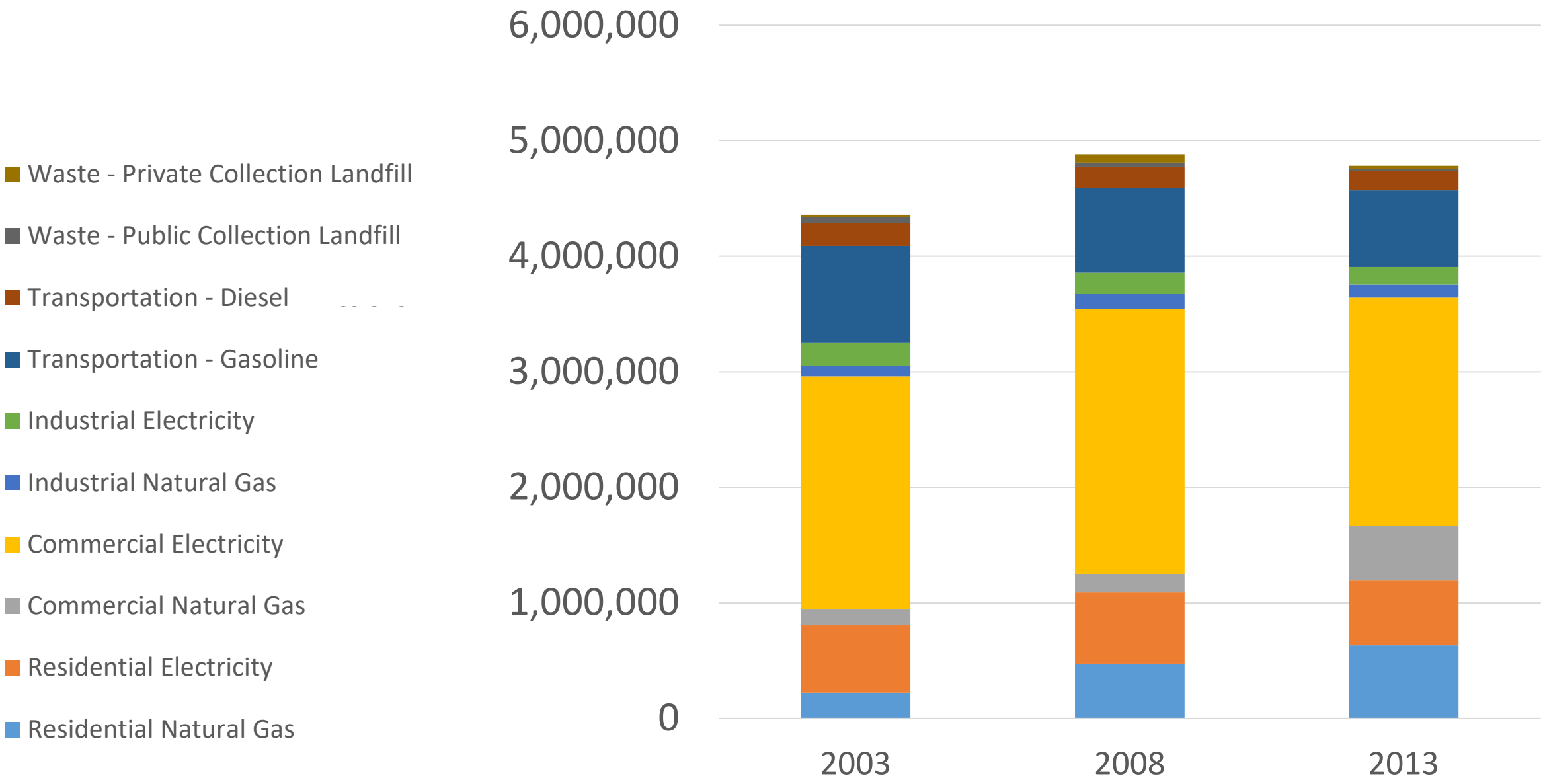


Sources of energy for the City of Pittsburgh grid

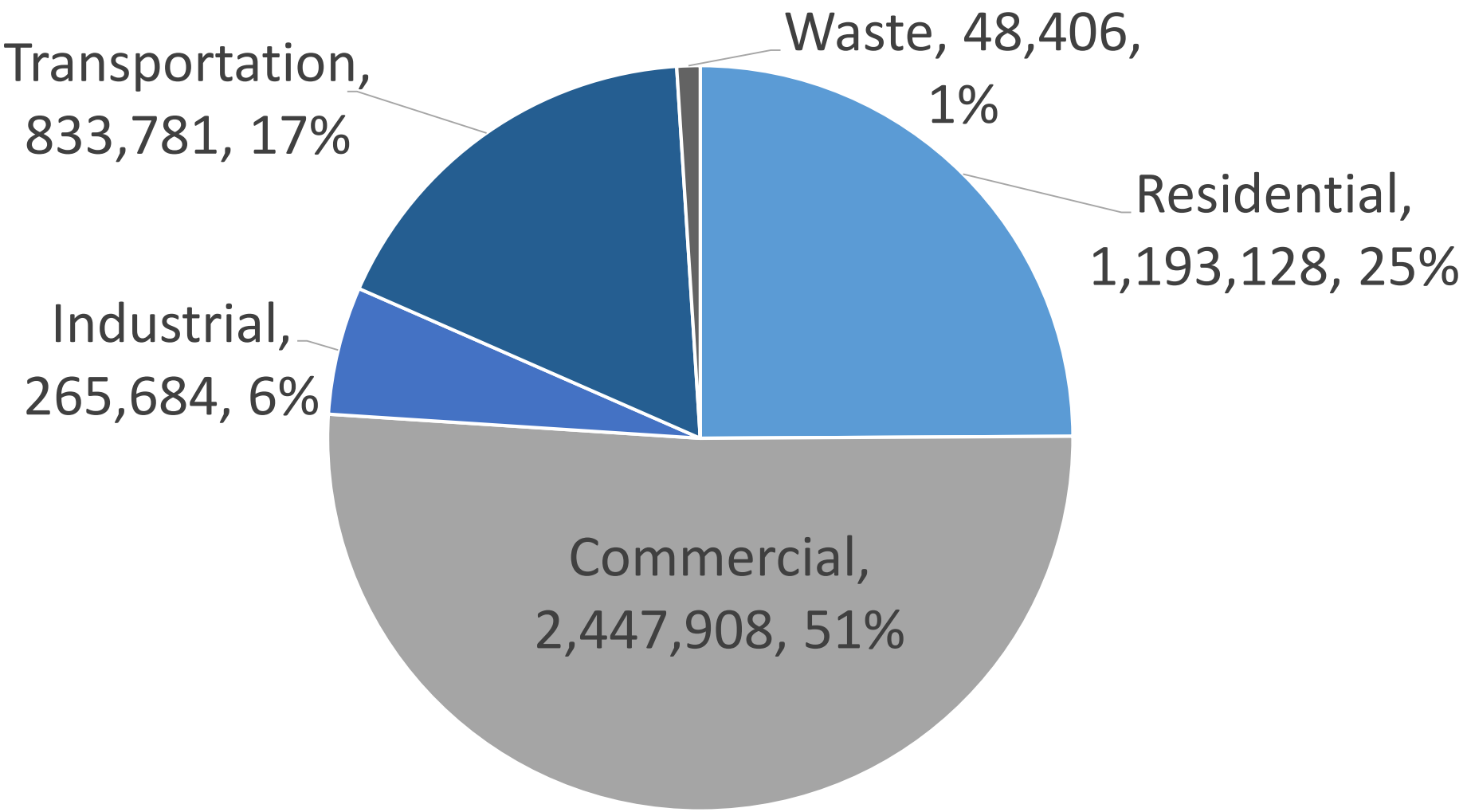
Generators within the Duquesne Light Company Service Territory

Generator	GenerationType	Output (MW)	Percent (%)
Beaver Valley	Nuclear	1831	69.46
Brunot Island	Natural Gas (Peaker)	220	8.34
Cheswick	Coal	578	21.93
Patterson	Hydroelectric	2	0.27
Townsend	Hydroelectric	5	
	Total MW	2636	

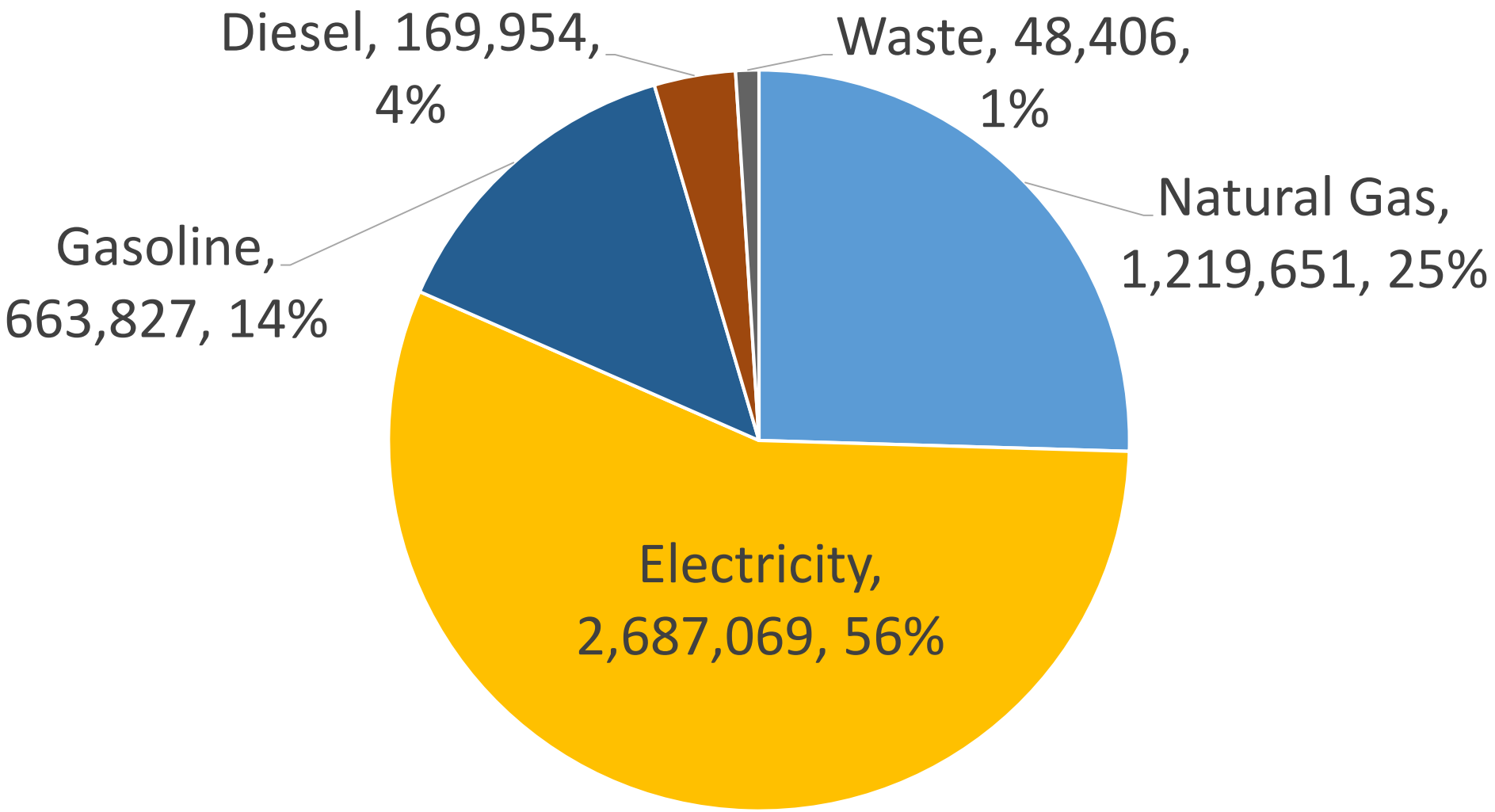
Weather Normalized Emissions



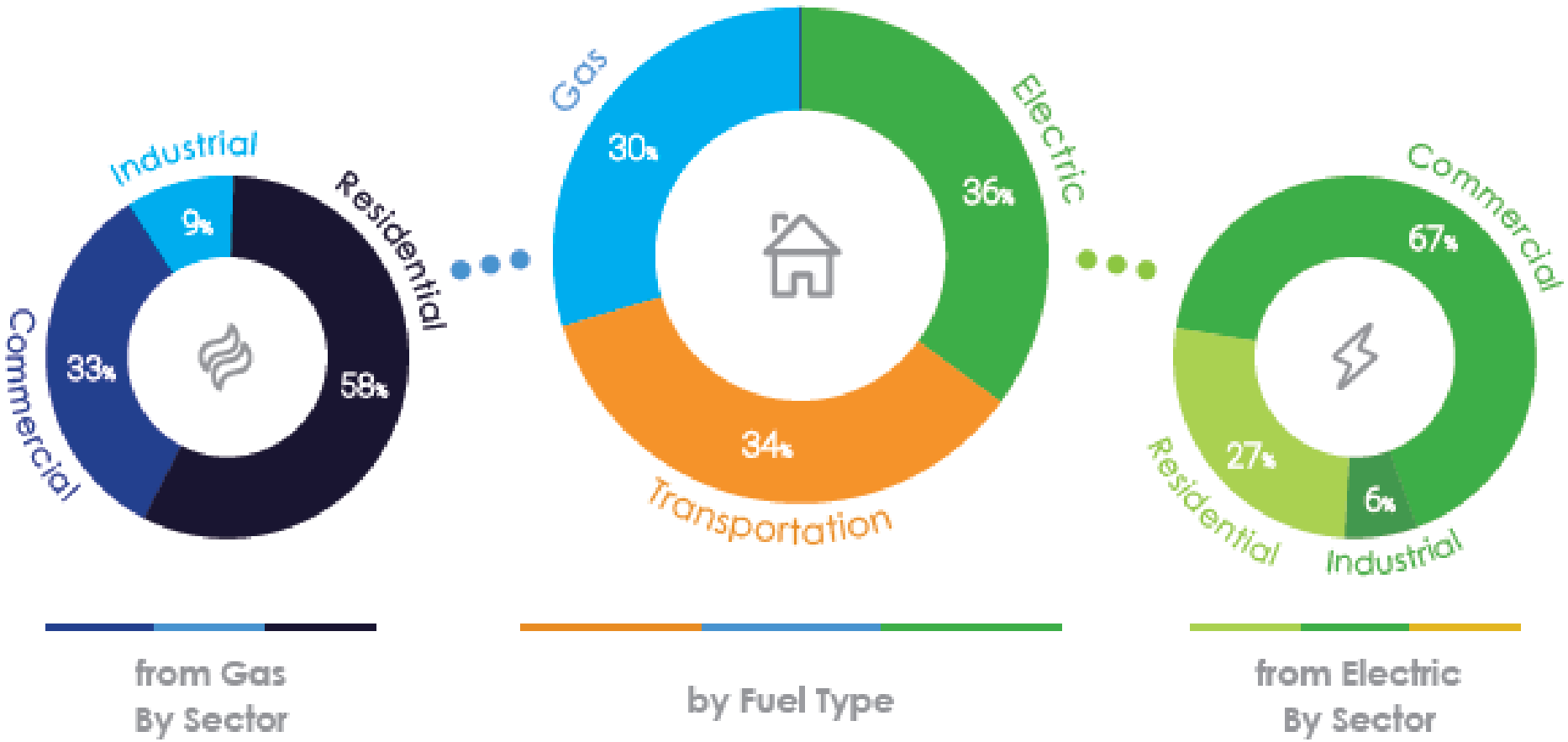
Weather Normalized Sector Breakdown



Weather Normalized Source Breakdown



2013 Greenhouse Gas Emission Breakdown

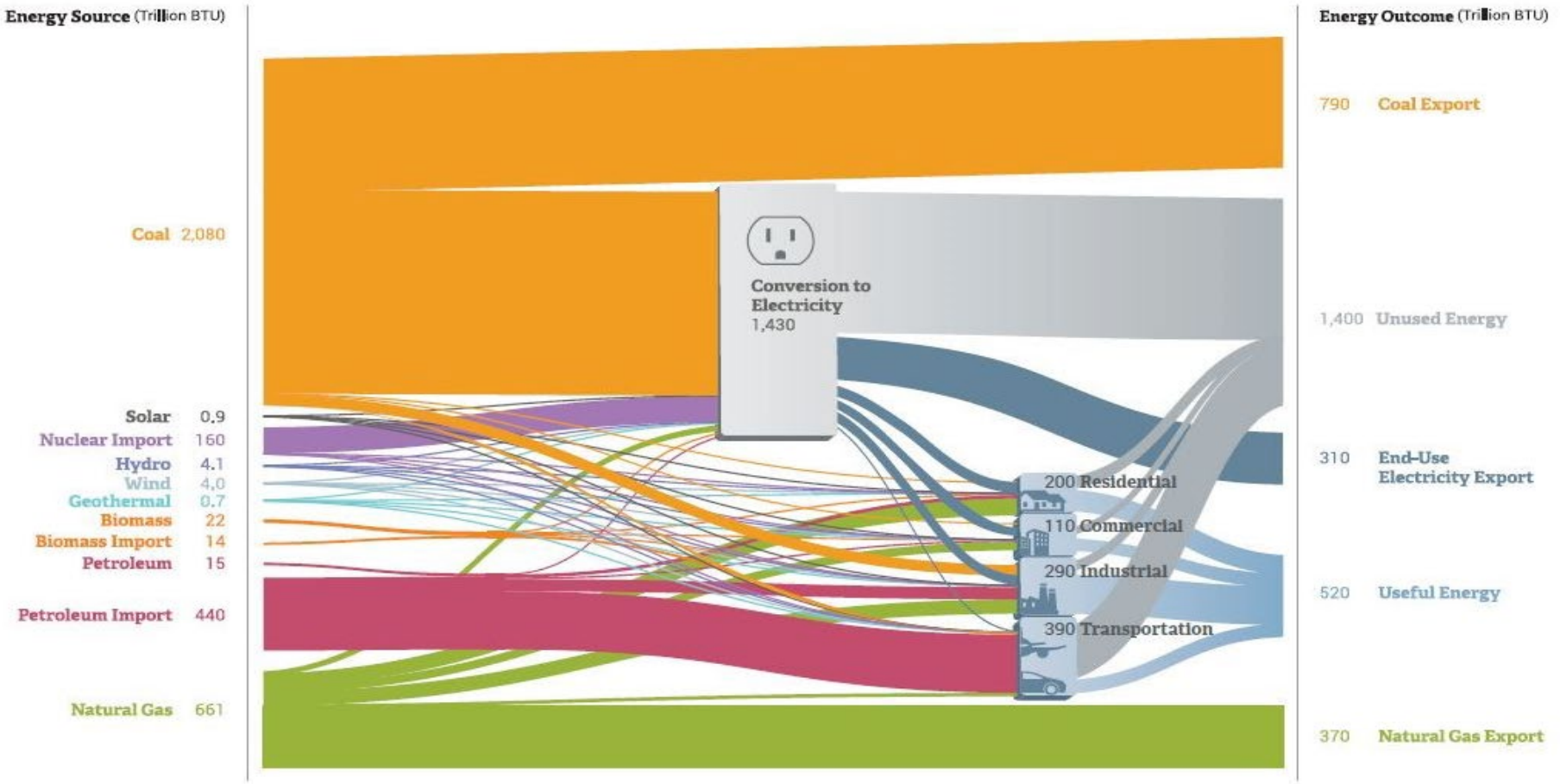


*Transportation emissions are estimated should be considered only to be of this general order of magnitude

Energy Lost in Transmission + Distribution

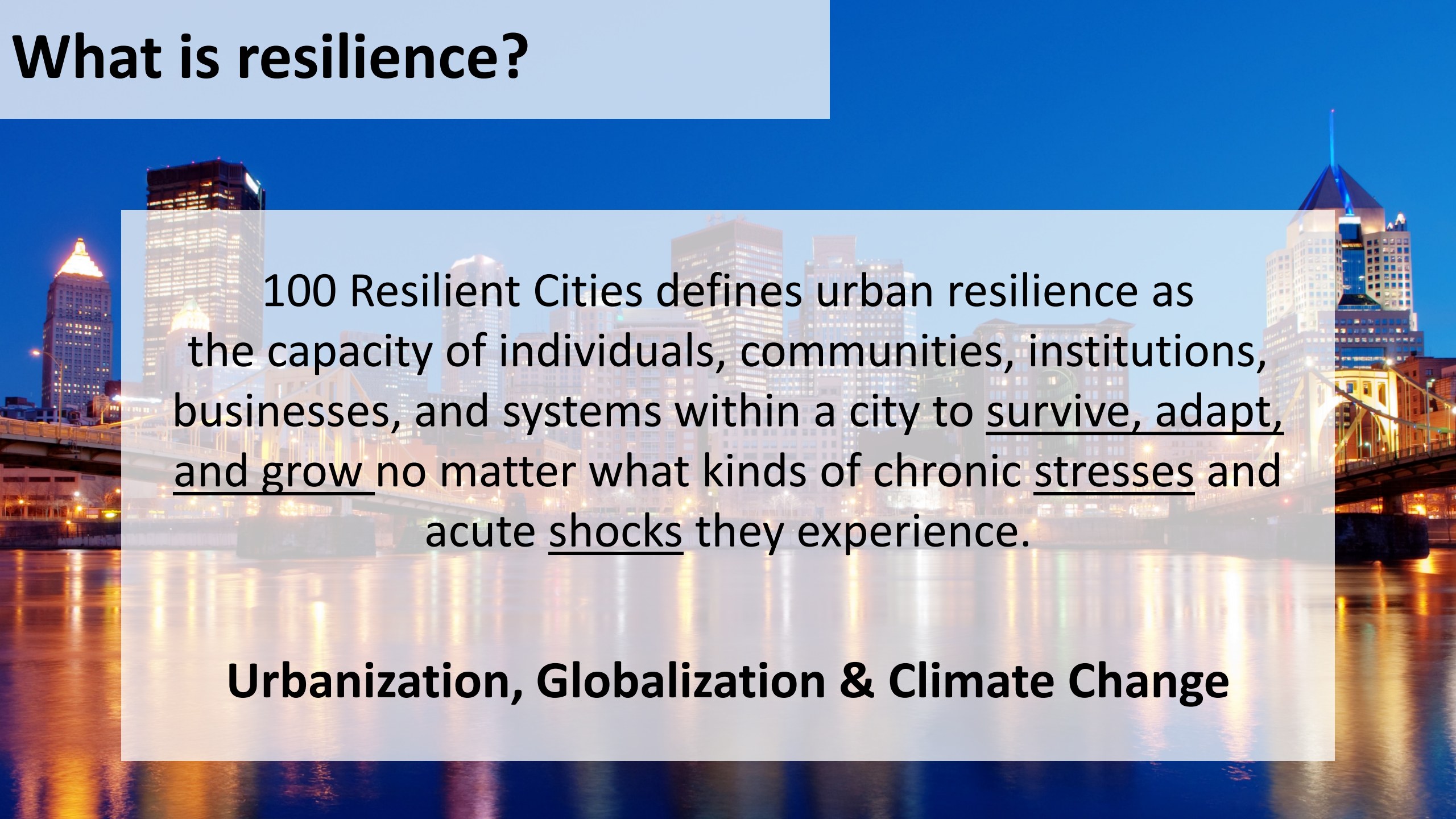
Regional Energy Flow: Production, Consumption, Net Imports/Exports, and Losses

Power of 32 Region - uniting Pittsburgh and 32 counties across western Maryland, eastern Ohio, southwestern Pennsylvania, and northern West Virginia
Year 2011 Data



Source: Sustainable Pittsburgh 2014. Format for this energy flow chart is adapted from the Lawrence Livermore National Laboratory's (LLNL) US National Energy Flow Chart. The data were derived primarily from 2011 county-level data published by the Energy Information Administration (EIA), the U.S. Department of Agriculture, which represents the most comprehensive local data available. For more information on the complete data sources and methodology to prepare the estimations for the Power of 32 region, see pages 18-19 of the full report at www.energy4p32.org.

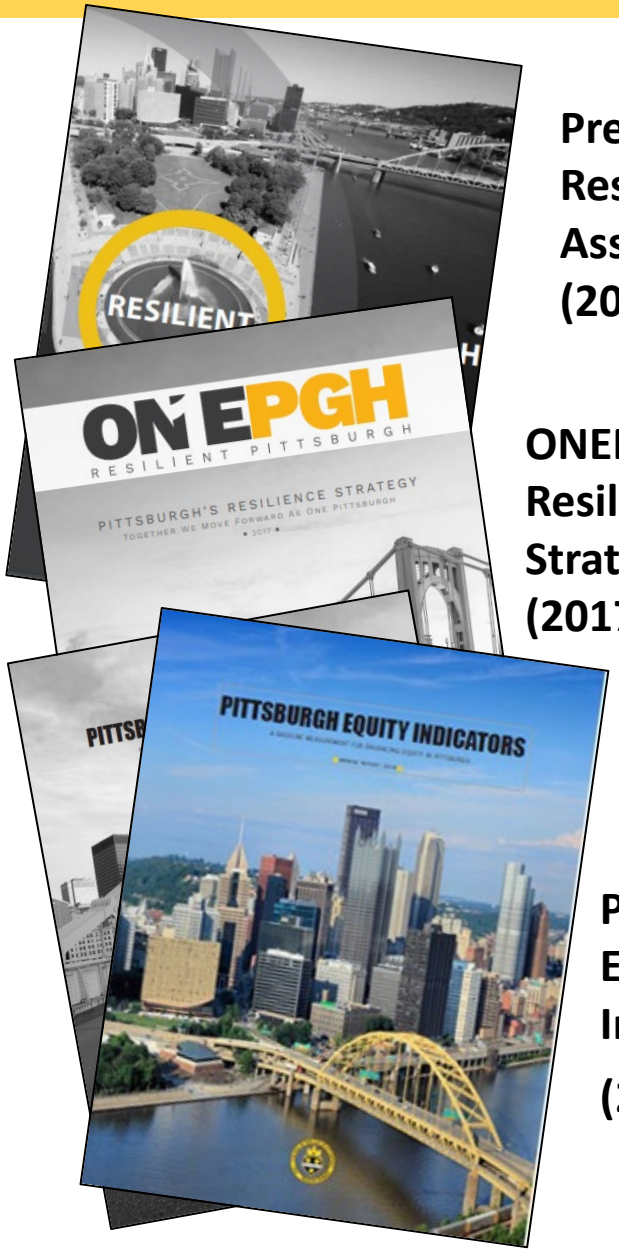
What is resilience?



100 Resilient Cities defines urban resilience as the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.

Urbanization, Globalization & Climate Change

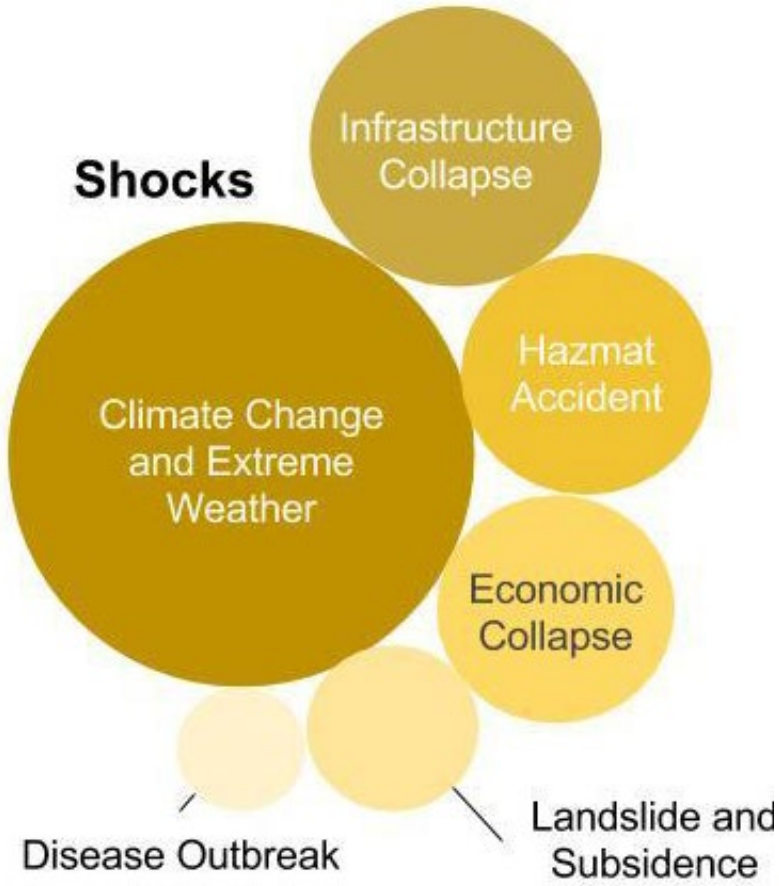
Pittsburgh's focus on resilience

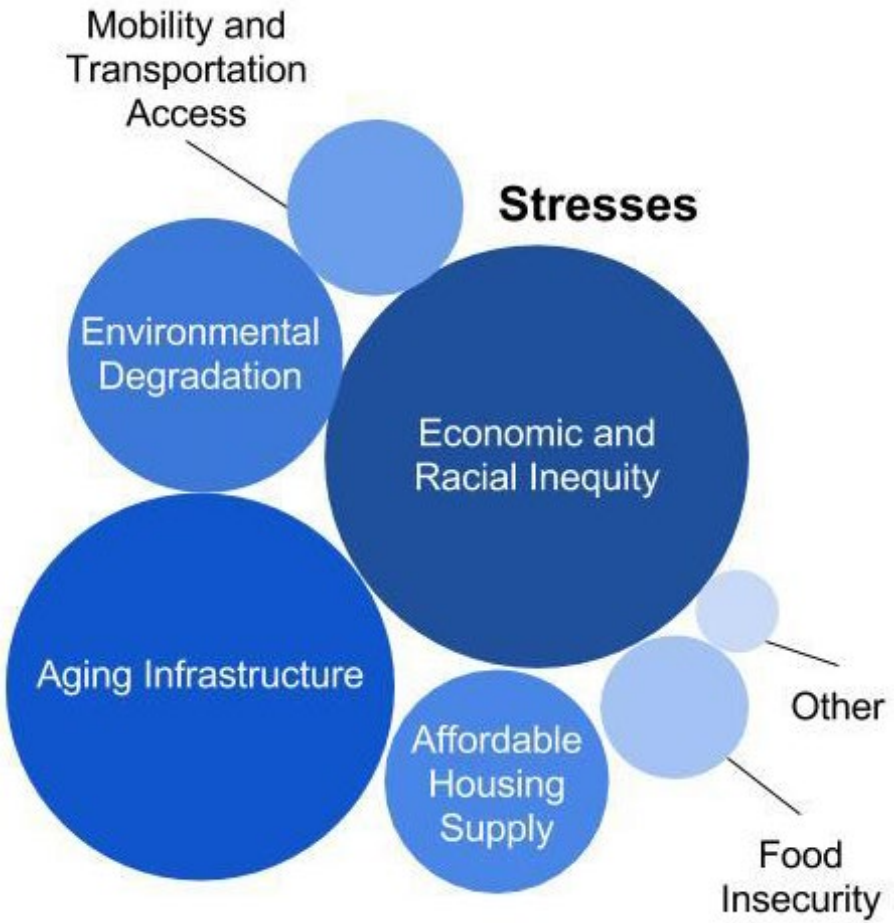


Preliminary Resilience Assessment (2016)

ONEPGH Resilience Strategy (2017)

Pittsburgh Equity Indicators (2018 + 19)

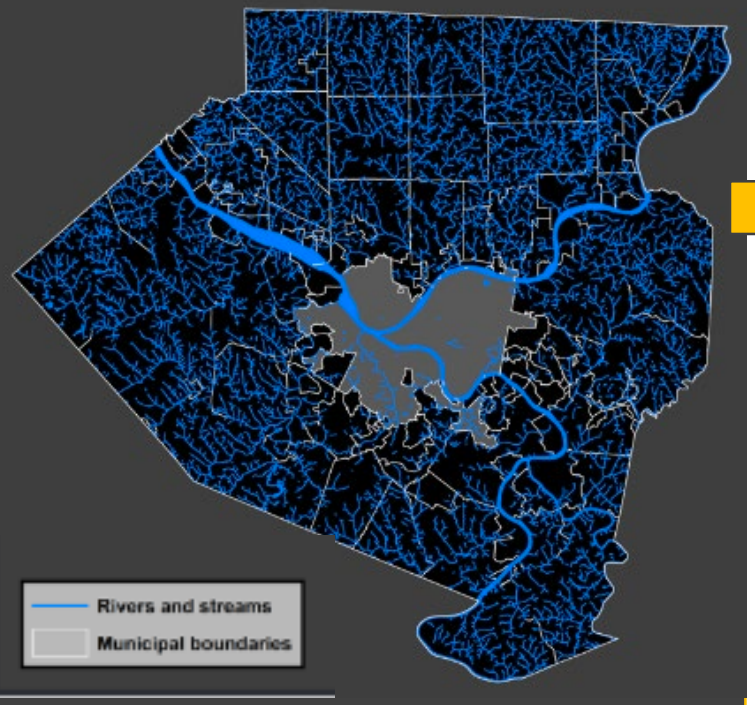




Impacts of Climate Change in PGH

STRESS

Aging Infrastructure



SHOCK

Climate Change: Warming and wetting, increased rainfall frequency, intensity and duration

IMPACT

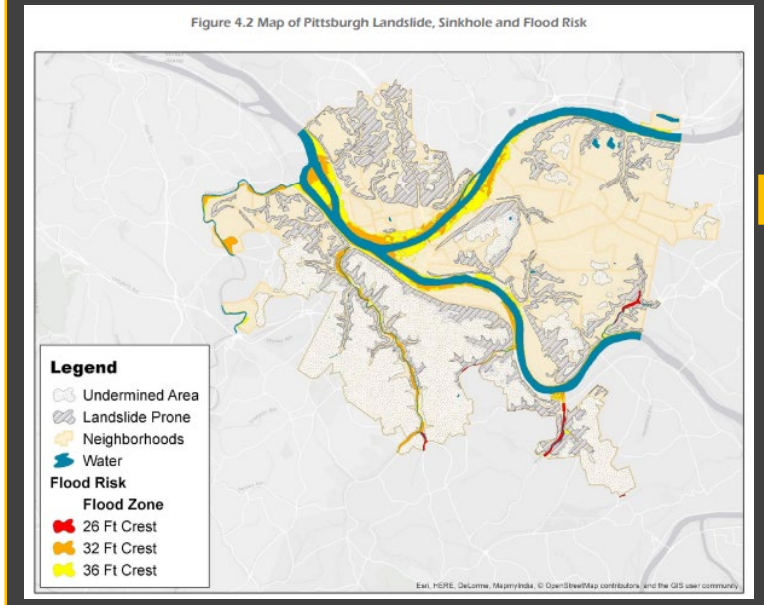
Infrastructure failure, flooding

CITY OF PITTSBURGH

Impacts of Climate Change in PGH

STRESS

Fragile hillsides, aging infrastructure



+

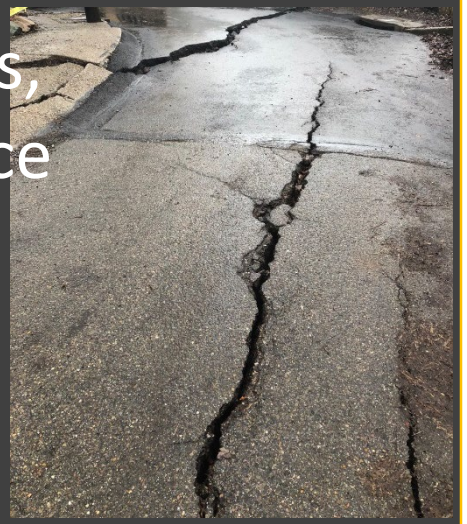
SHOCK

Climate Change: Warming and wetting, increased rainfall frequency, intensity and duration

=

IMPACT

Landslides, Subsidence

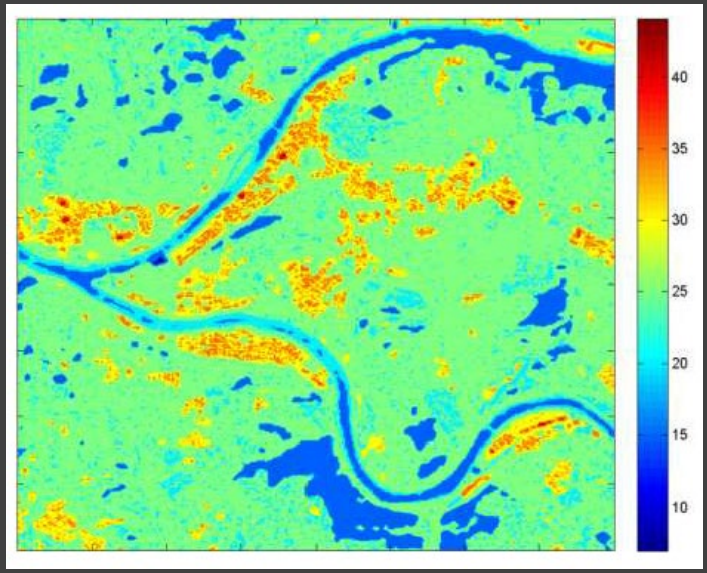


CITY OF PITTSBURGH

Impacts of Climate Change in PGH

STRESS

Urban heat island, aging infrastructure



SHOCK

Climate change and extreme weather: increased temperatures lead to increased energy consumption

IMPACT

Extended grid failure, disruption of services, poor air quality, increased emergencies

CITY OF PITTSBURGH

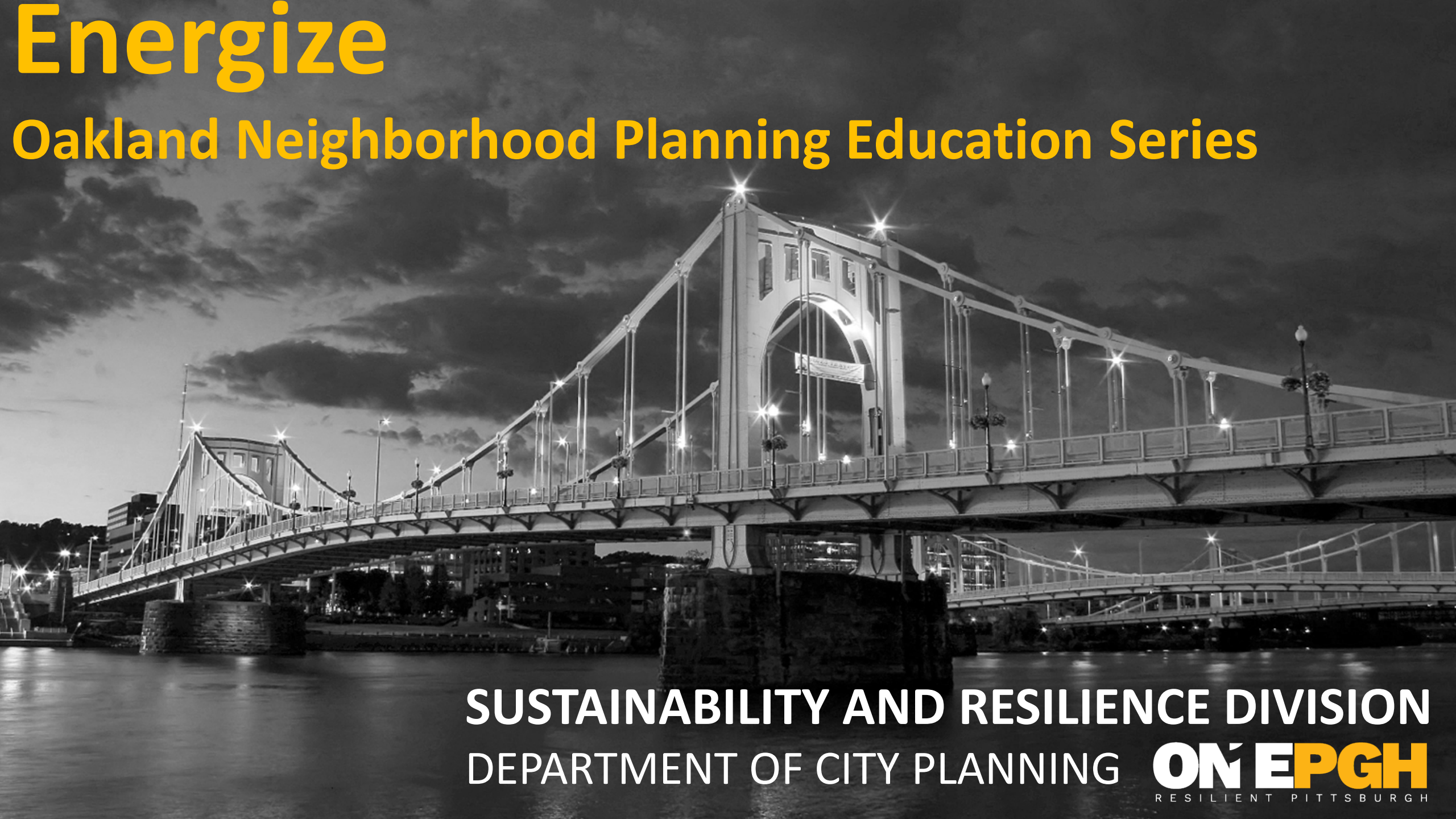
District Energy in Pittsburgh

Addressing energy burden improves health

- **Energy Burden** is the percentage of gross household income spent on energy costs
- **Pittsburgh residents pay almost twice the national for energy although utility costs for energy** and gas are among the lowest nationally
- 6th worst city in the country with residents suffering from Energy Burden, second worst for African Americans experiencing Energy Burden
- ACEEE reports note a 15% decrease in Pittsburgh's energy consumption could result in healthcare savings of $200 per capita

Energize

Oakland Neighborhood Planning Education Series



SUSTAINABILITY AND RESILIENCE DIVISION

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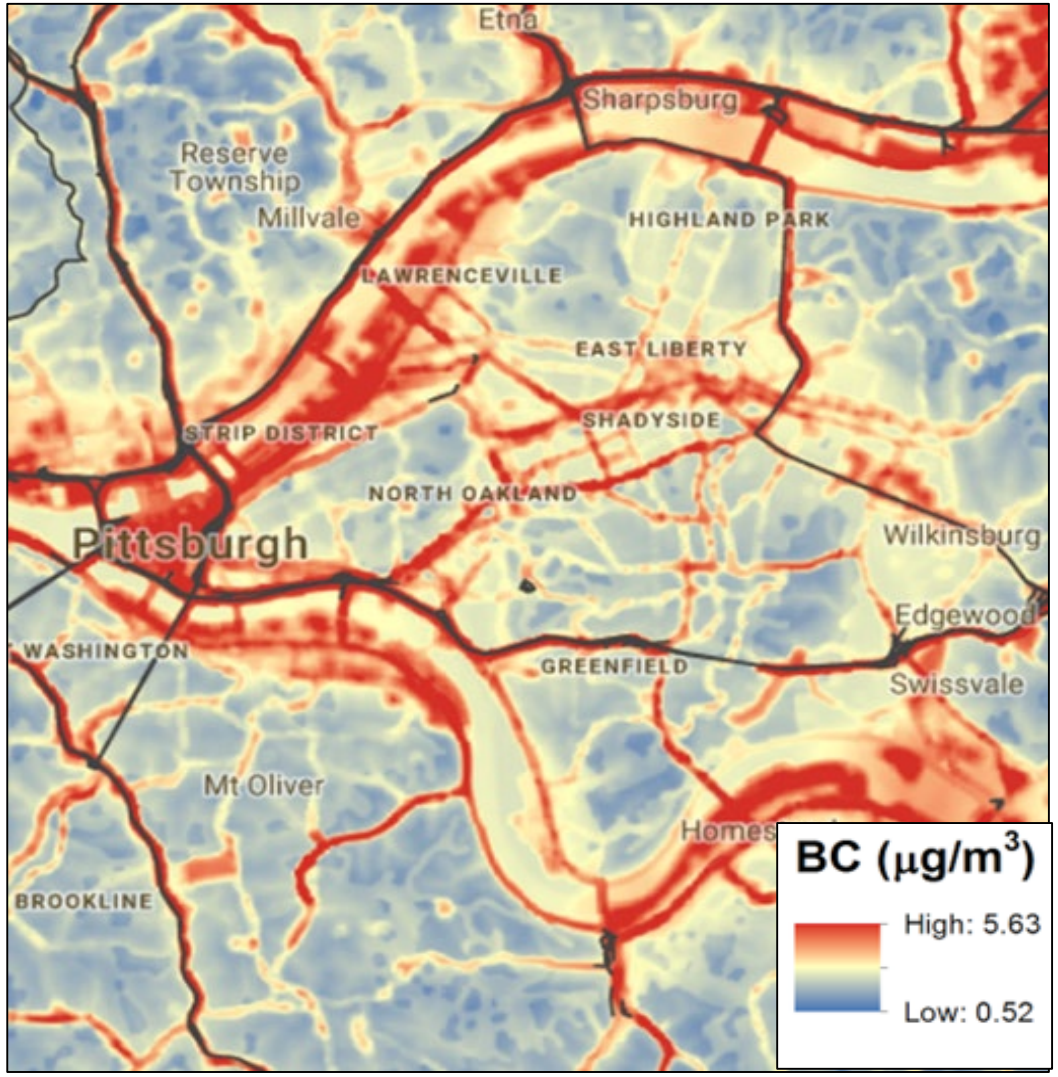
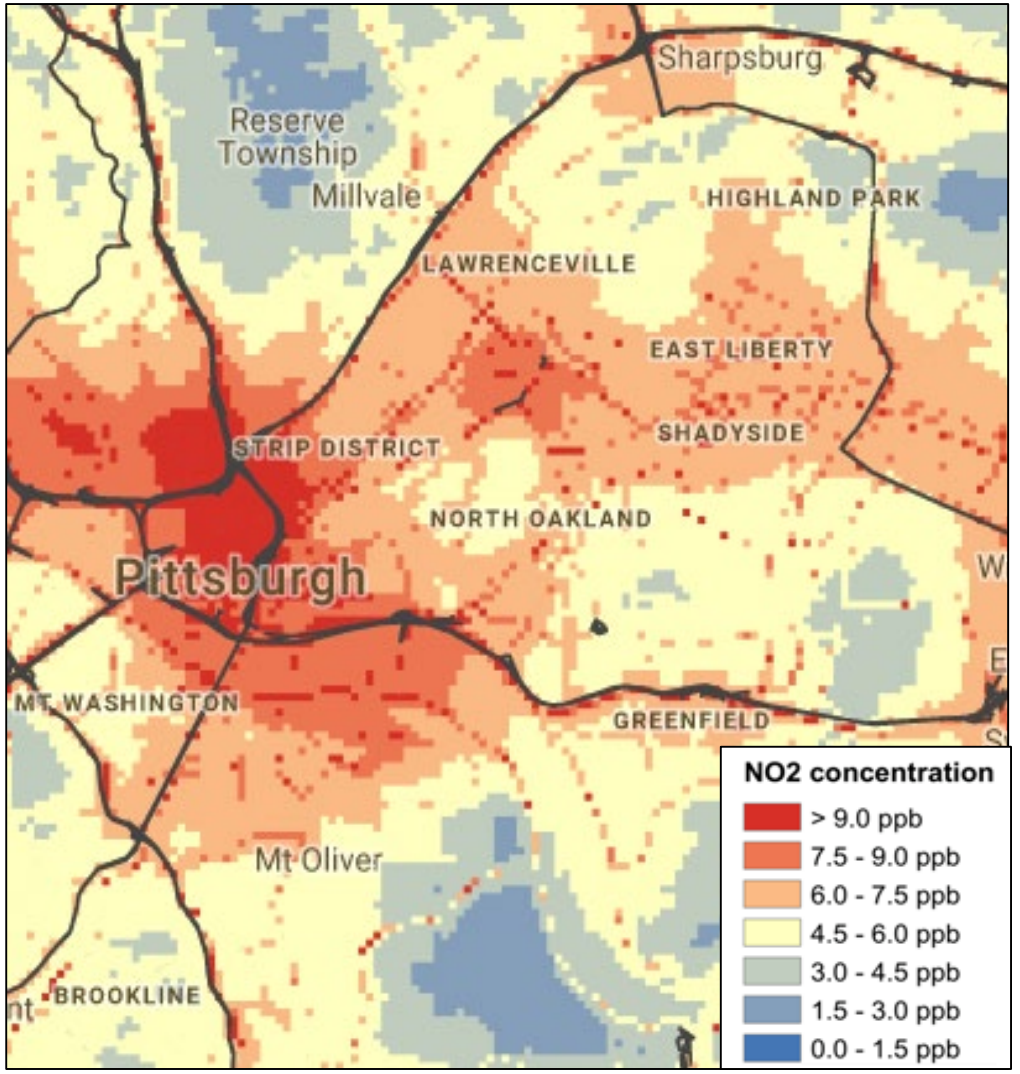
Transportation emissions impact air quality





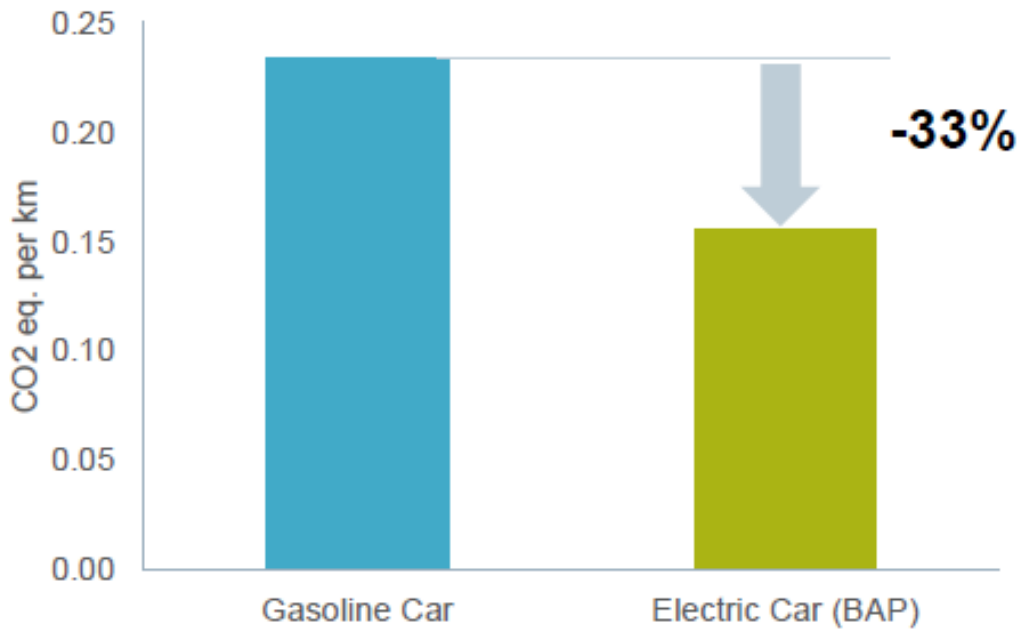
Source: Albert Presto/CMU/Breathe Project

Environmental Impacts
Gasoline Car Vs. Electric Car

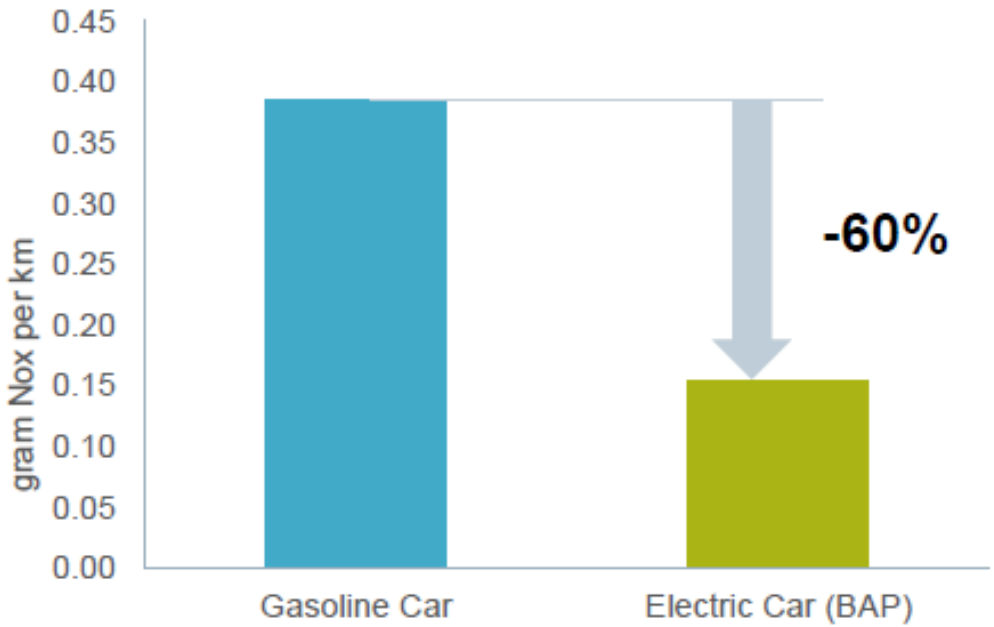
SIEMENS
Ingenuity for life

Electric cars in Pittsburgh would have lower emissions as compared to gasoline cars
33% reduction in CO_2 eq. emissions per km
60% reduction in NOx emissions per km

CO2 eq. emissions per km



NOx emissions per km



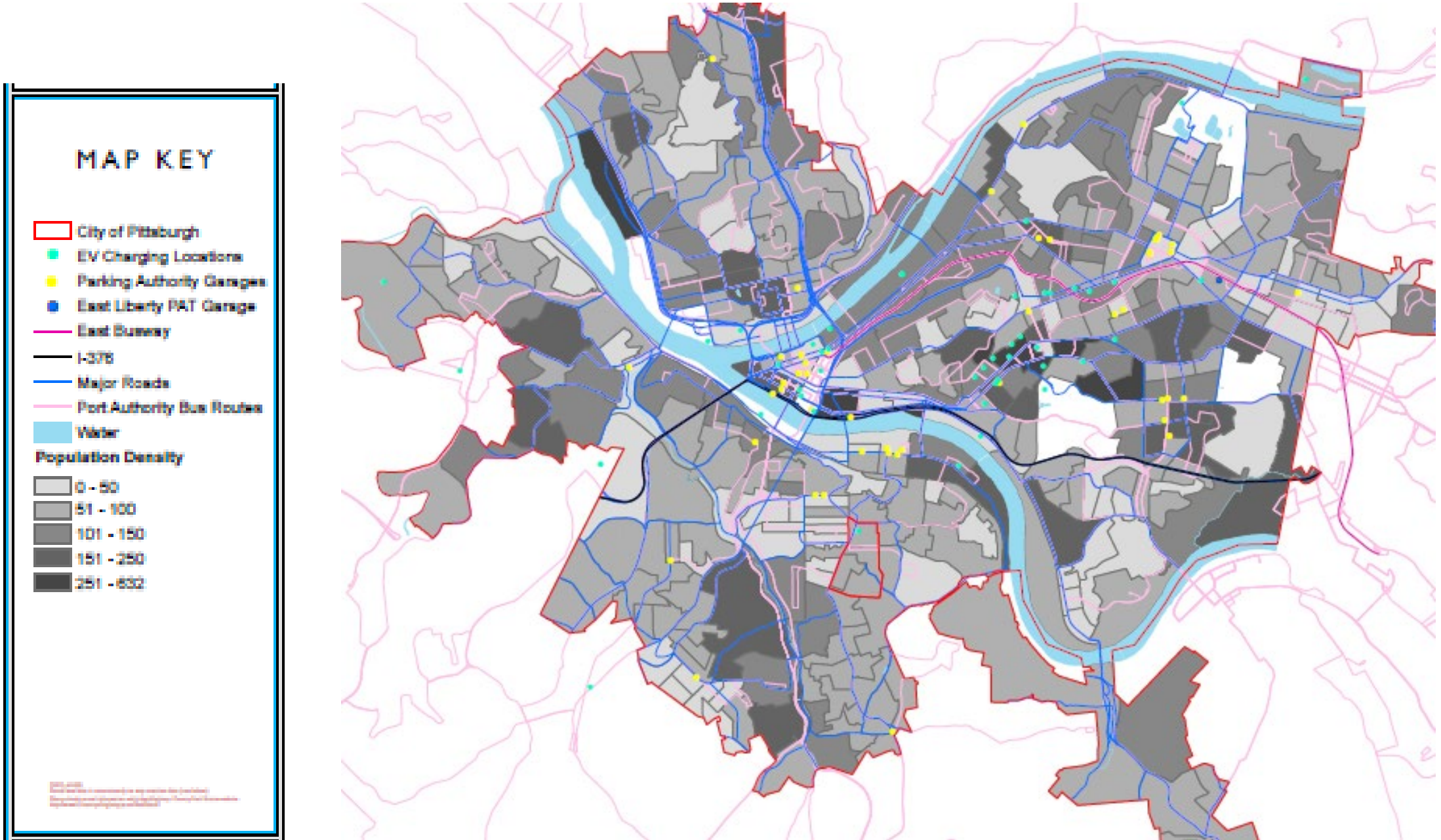
Sources: Results from Siemens' Shared eMobility Calculator

Electrification Goals

EV Task Force formed September, 2018 to enable EV adoption city-wide.

Audience	Needs	Strategy
Municipal Fleet	Purchase and deploy vehicles	Start with sedans and existing infrastructure
	Purchase and deploy charging infrastructure	Couple with renewable energy generation, ensure ease of use
Other Fleets (car share, taxis, private businesses, etc.)	Enable and incentivize charging infrastructure development for fleets operating in City of Pittsburgh	DC fast charging in convenient locations for taxis
		Find opportunities to share fleet charging infrastructure with gov't or residential
Residential	Enable charging opportunities for residents (esp. those without driveways)	Permitting within the right of way, neighborhood hubs for level 2 and DCFC
	Reduce "range anxiety" for long trips	DC fast charging along interstates and main thoroughfares

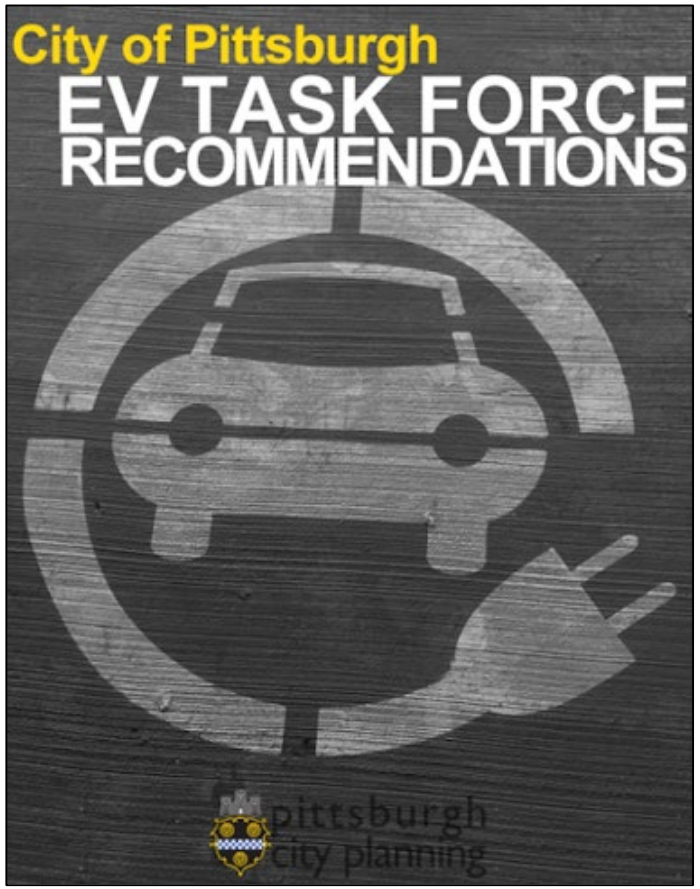
Existing charging infrastructure in Pittsburgh



EV Task Force Recommendations

*EV's include not just passenger cars and trucks, but electric bikes, scooters, busses and industrial/freight trucks.

- **Residential on-Street charging pilots to determine policy**
  - Typologies based on density and parking permits
    - City-owned
    - Resident permitted to use cords or install in right of way
- **Commercial district on-street charging**
- **EV readiness in new construction**
- **Neighborhood e-charging hubs**
- **Coupling with on-site renewable energy**



THANKS!

Rebecca Kiernan
Resilience Planner
rebecca.kiernan@pittsburghpa.gov

ONEPGH
RESILIENT PITTSBURGH

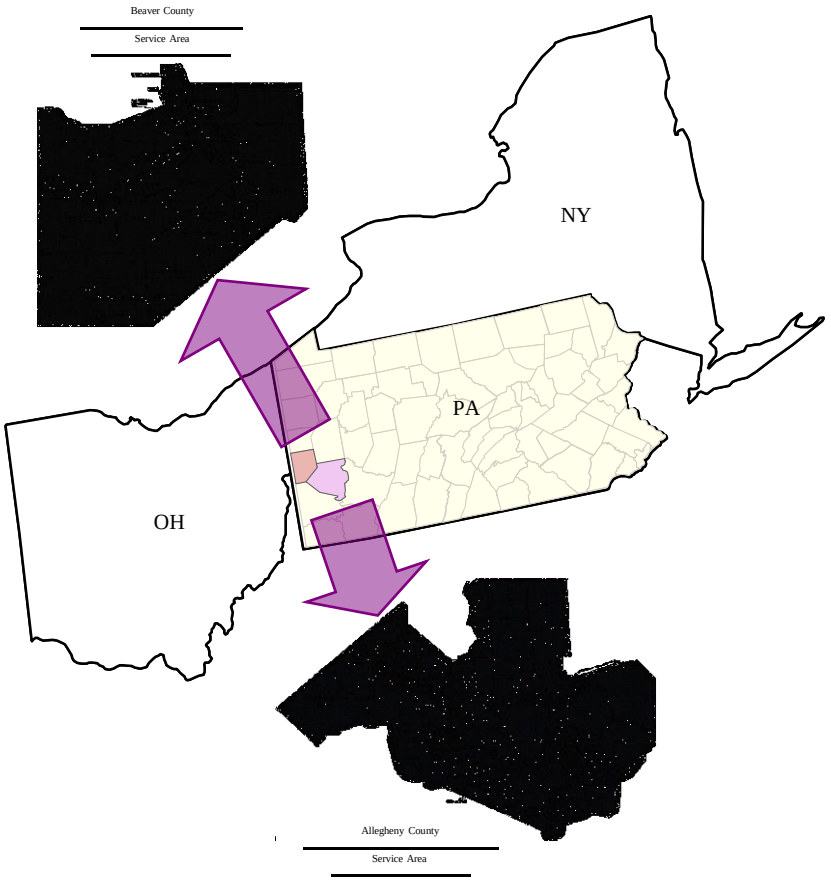
Energy and the Consumer

Krysia Kubiak

DUQUESNE LIGHT CO.

DLC Introduction

- Western PA Service Territory
  - Allegheny County
  - Beaver County
- 817 Square Miles
- 600,641 Customers
  - Residential
  - Commercial
  - Industrial
- All Time Peak Load
  - 3,054 MW (June 2012)
- Peak Load 2018
  - 2,796 MW (September)

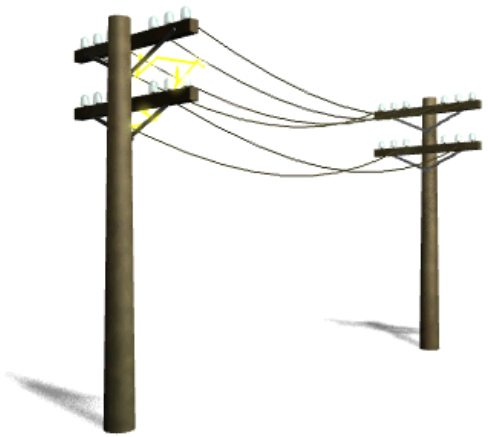


DUQUESNE LIGHT CO.

DLC Introduction

DLC operates as a privately owned **Non-Vertically Integrated** utility

What does that mean?



- ✓ We do not own generation.
- ✓ We maintain and operate the poles and wires.
- ✓ We provide customers with reliable, safe, and affordable electricity.

Nearby Power Station

Beaver Valley

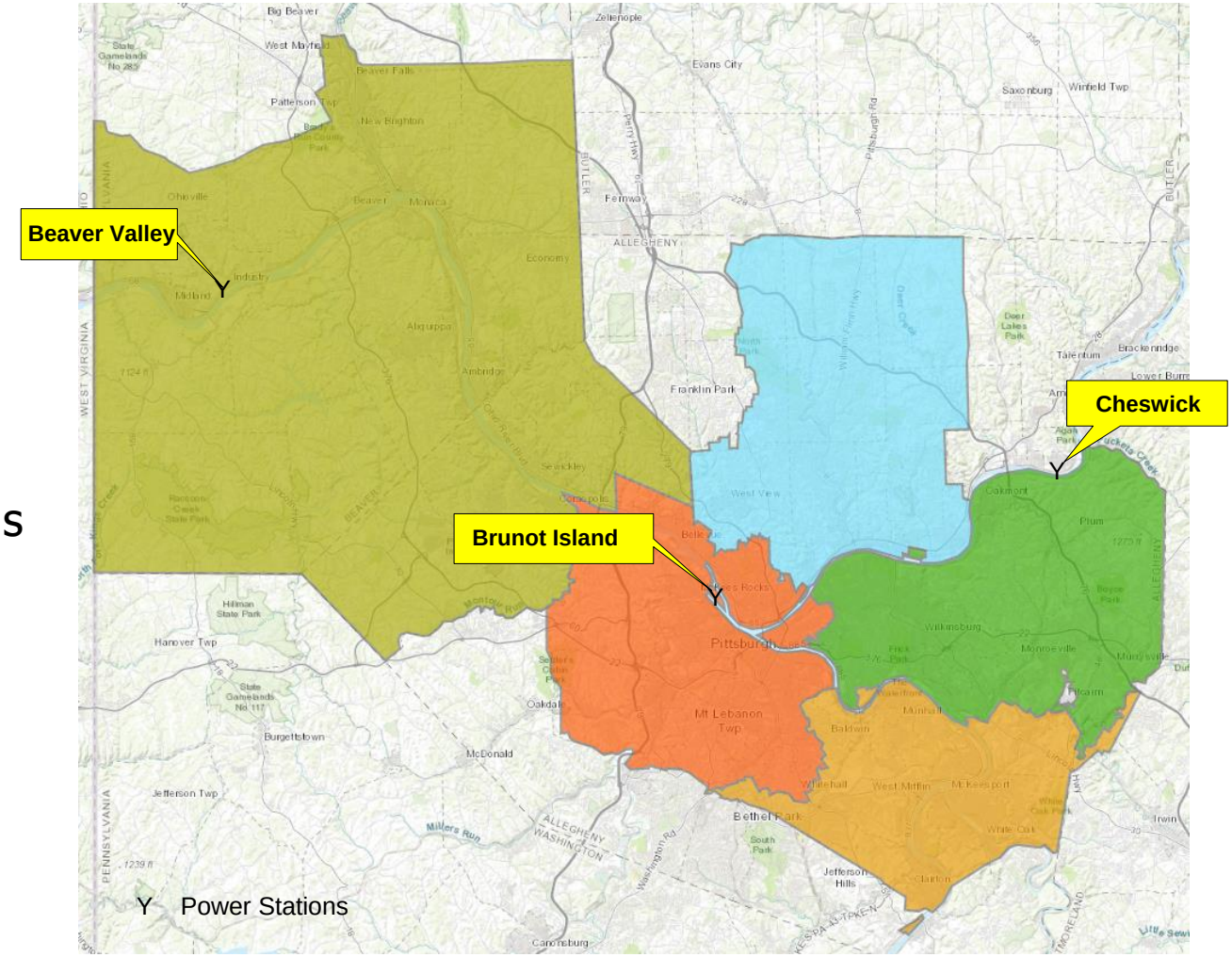
of Units: 2
Capacity: 1,800 MW
Fuel: Nuclear

Brunot Island

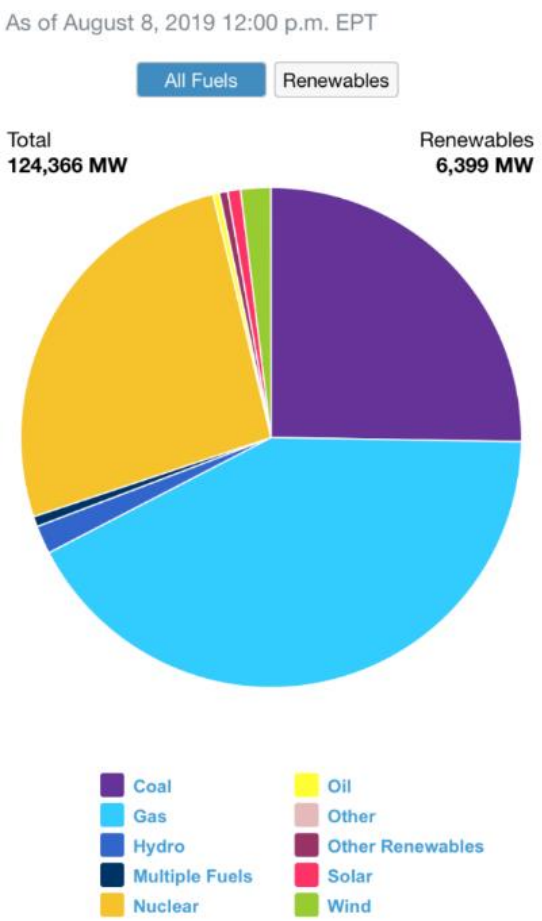
of Units: 5
Capacity: 290 MW
Fuel: Natural Gas
Black Start: Diesel

Cheswick

of Units: 1
Capacity: 590 MW
Fuel: Coal

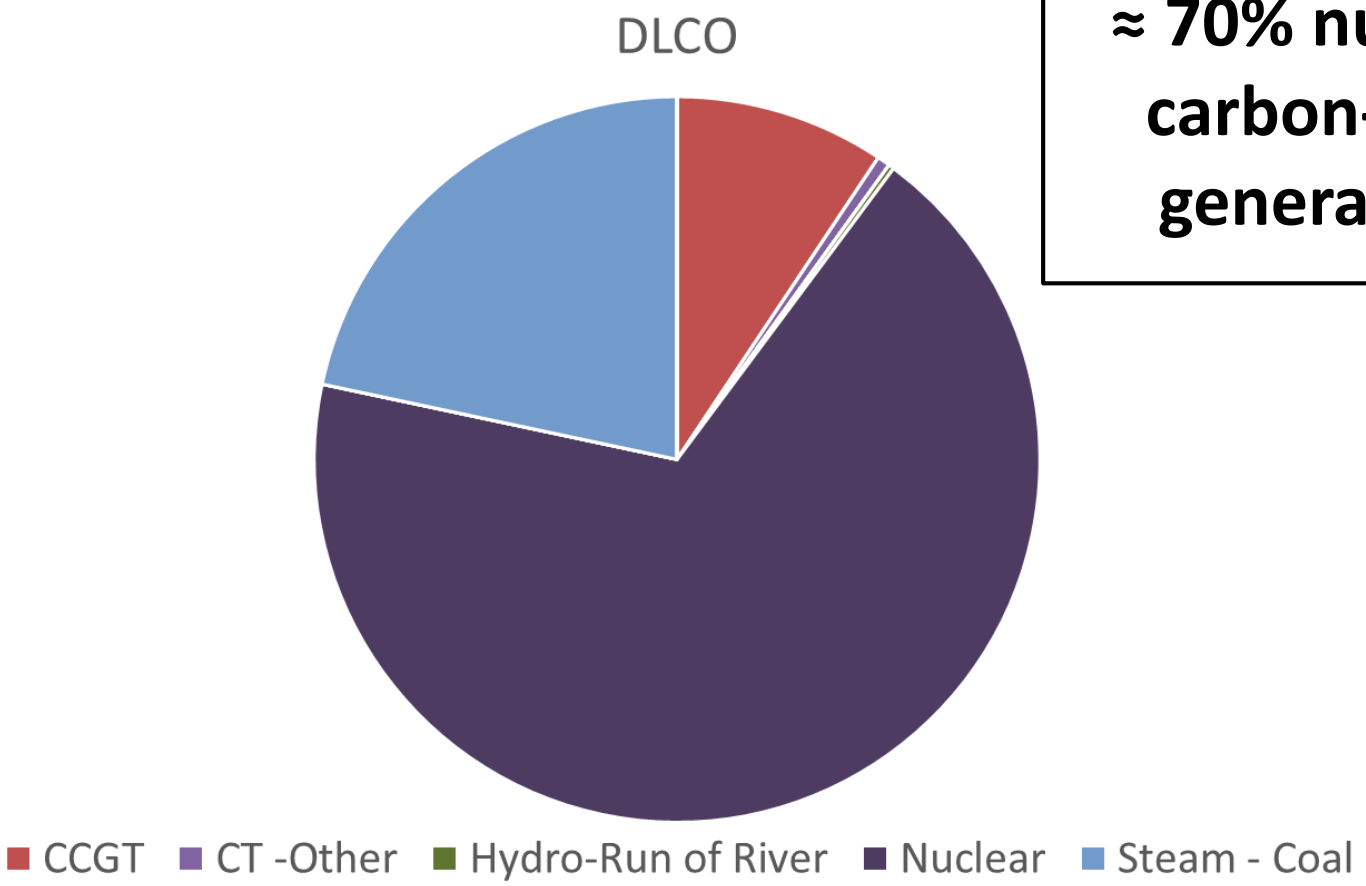


The Grid – PJM Fuel Mix



The Grid – Region Fuel Mix

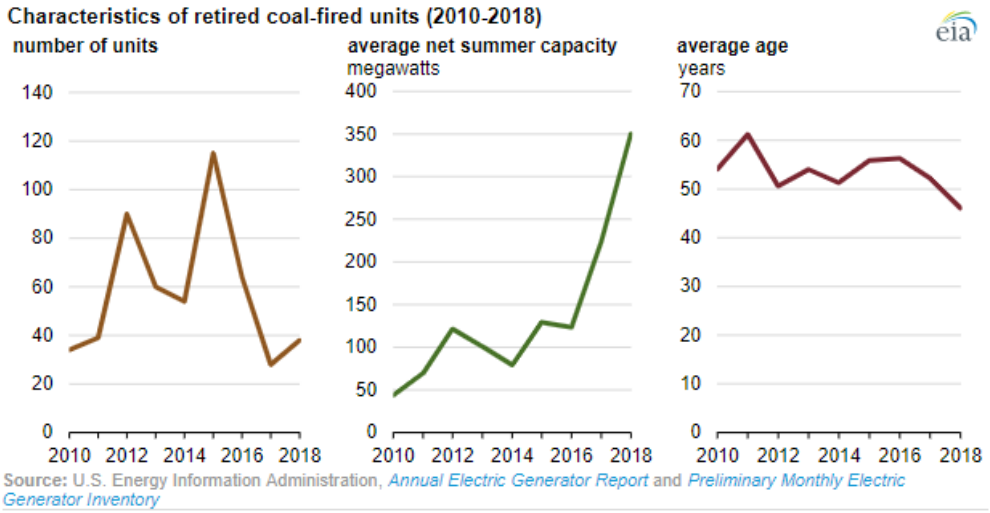
Installed Capacity for DLC Zone - As of June 30, 2018, provided by PJM



≈ 70% nuclear carbon-free generation

Decrease Coal

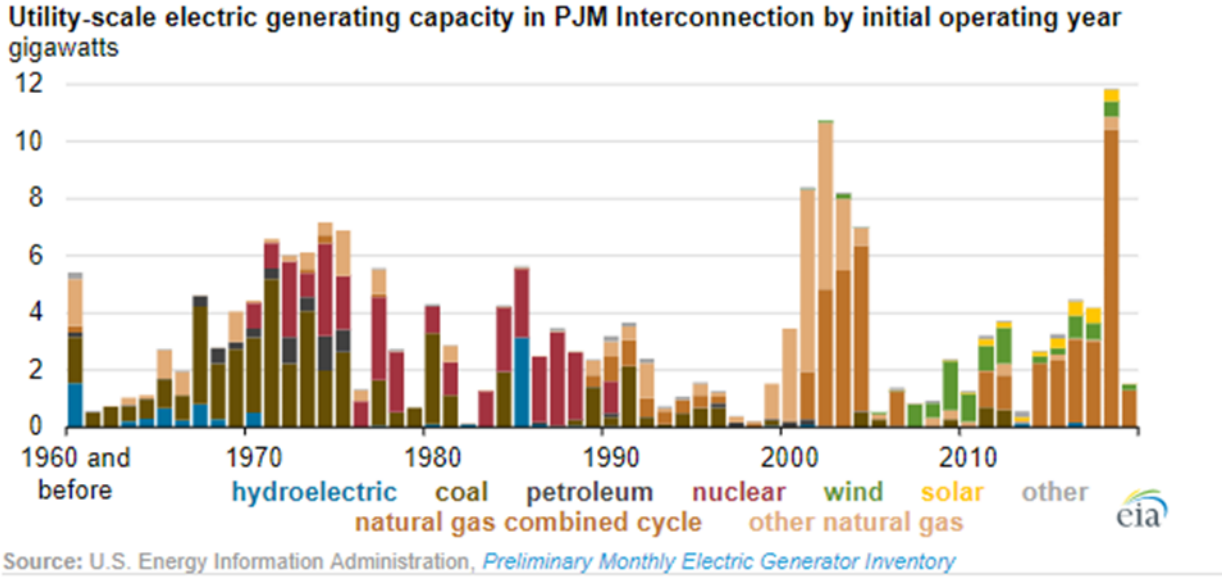
Decommissioning Coal-Fired Power Plants



1

Changes to the Grid

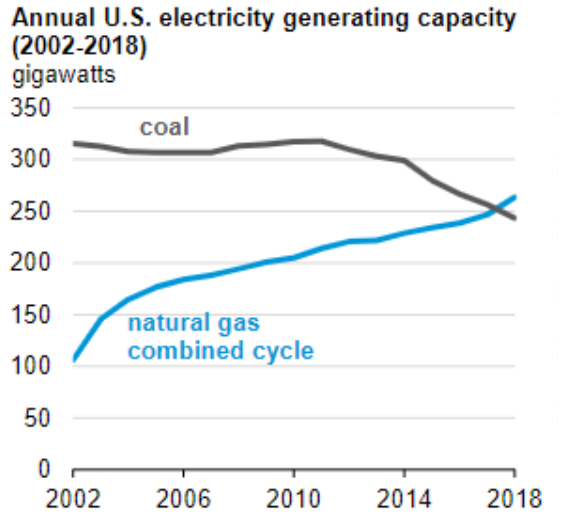
Decreasing emissions



2

DUQUESNE LIGHT CO.

1. https://www.eia.gov/todayinenergy/detail.php?id=40212
2. https://www.eia.gov/todayinenergy/detail.php?id=40753



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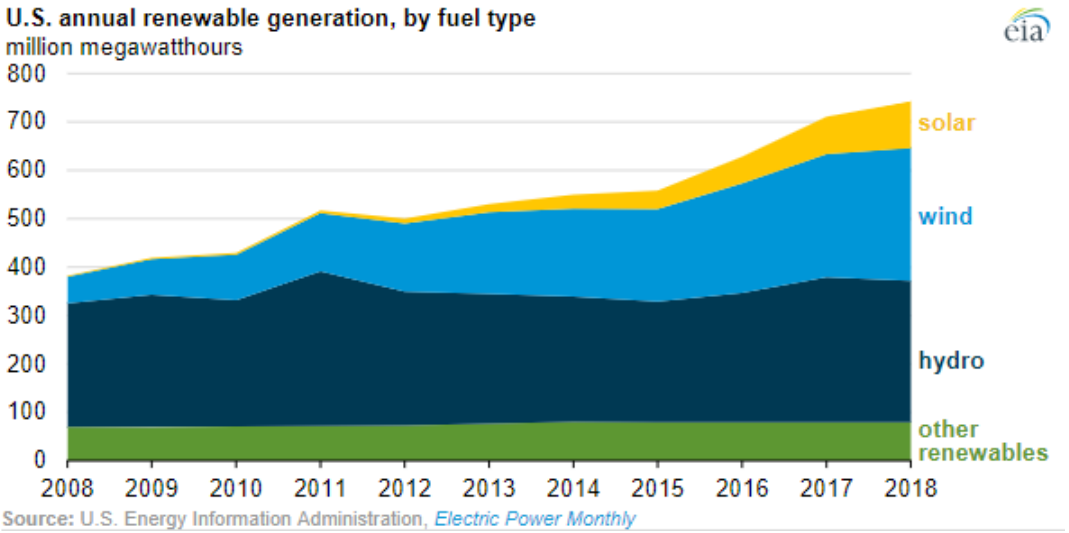


2

2018: Renewables provided 17.6% of electricity generation

DUQUESNE LIGHT CO.

1. https://www.eia.gov/todayinenergy/detail.php?id=39012
2. https://www.eia.gov/todayinenergy/detail.php?id=38752

Combined Cycle Natural Gas

- Fuel conversion efficiency of 50% or more
  - burn about half the amount of fuel as a conventional power plant to generate the same amount of electricity
- Less fuel per kWh causing lower GHG emissions than traditional coal power plant
  - Emits about half the amount of CO2 compared to coal

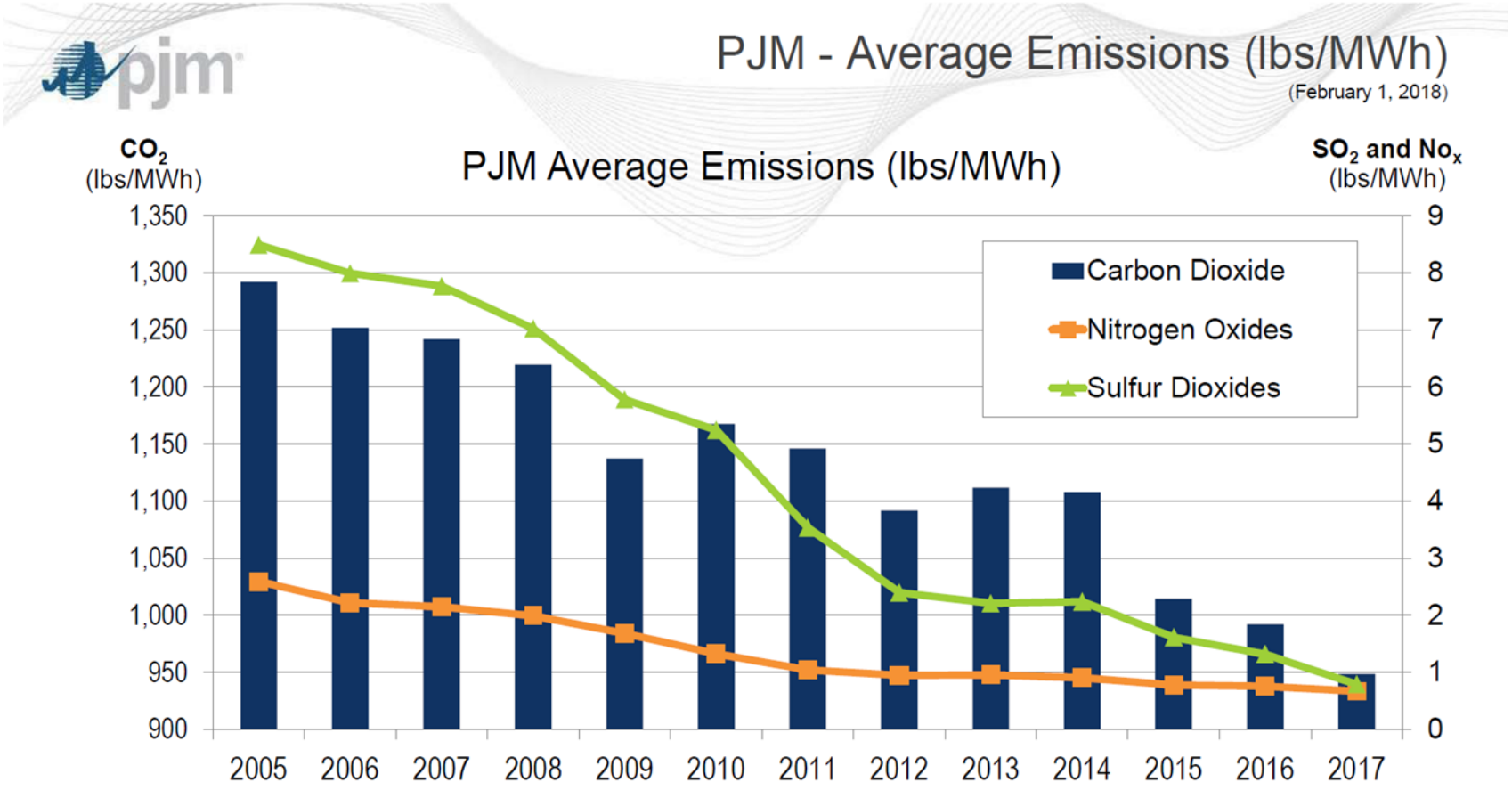
Pounds of CO2 emitted per million British thermal units (Btu) of energy for various fuels [1]

Coal (anthracite)	228.6
Coal (bituminous)	205.7
Coal (lignite)	215.4
Coal (subbituminous)	214.3
Diesel fuel and heating oil	161.3
Gasoline (without ethanol)	157.2
Propane	139.0
Natural gas	117.0

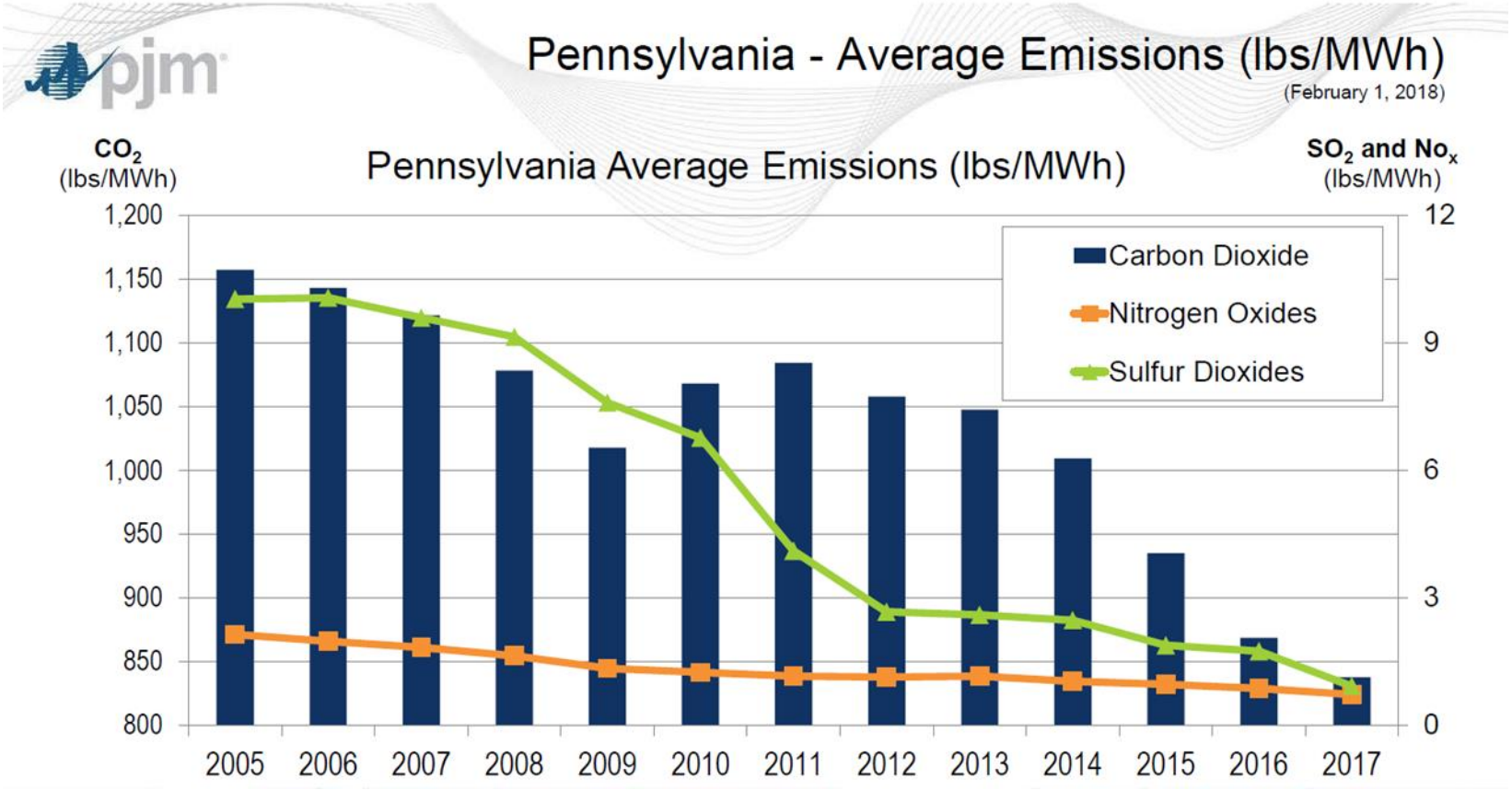
DUQUESNE LIGHT CO.

1. www.eia.gov/tools/faqs/faq.php?id=73&t=11

PJM Emissions



Pennsylvania Emissions



DLC and Renewable Energy

As of July 2019

Total Connected Net Metered Customers – 2,721

Total Connect Net Meter Capacity – 24.133 MW

Promoting PA Local Solar Act sponsored by Sen. Jay Costa

"In the near future, I will introduce legislation that expands access to solar power in Pennsylvania through a localized renewable program, while also assuring adequate ratepayer protections."

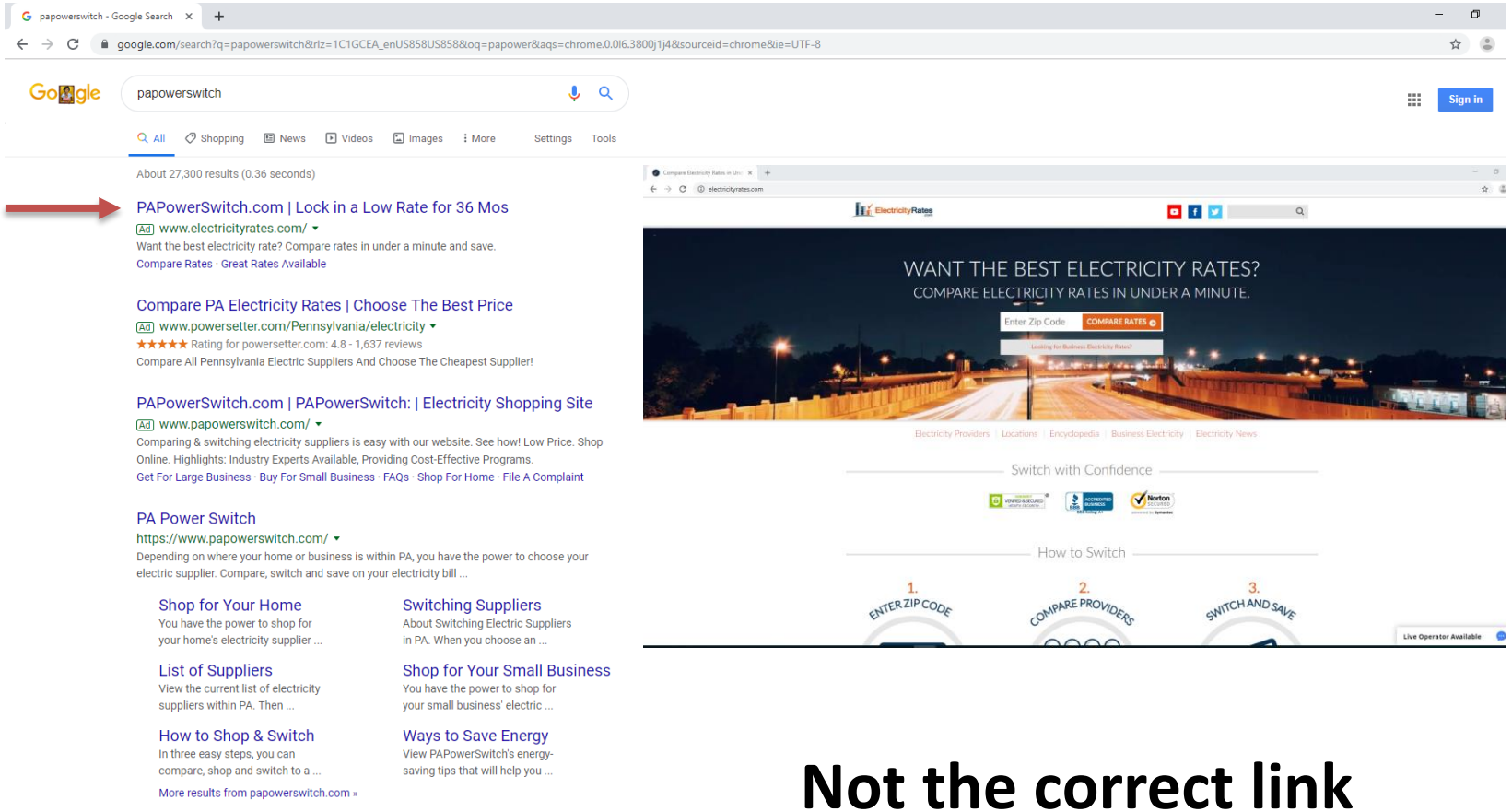
Last year, DLC sourced credits representing 281,270 MWh of electricity from renewable sources*

** This number accounts for Tier I and solar energy credits, sourced between June 1, 2017-May 31, 2018. DLC sourced another 334,141 MWh worth of energy credits from Tier II "alternative" energy sources.*

Renewable Energy Purchasing

PA Power Switch

Visit papowerswitch.com



Not the correct link

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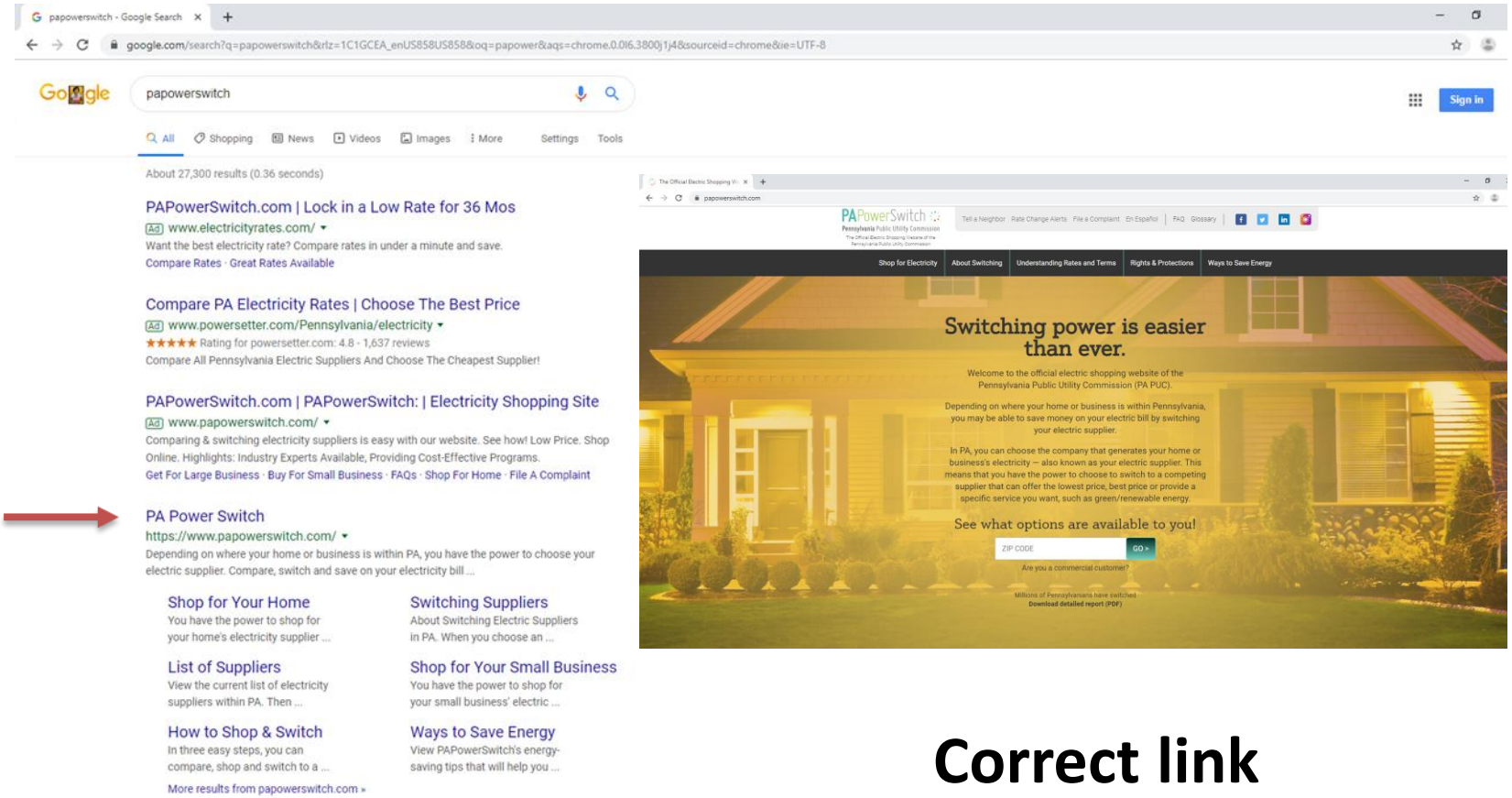
Renewable Energy Purchasing

PA Power Switch

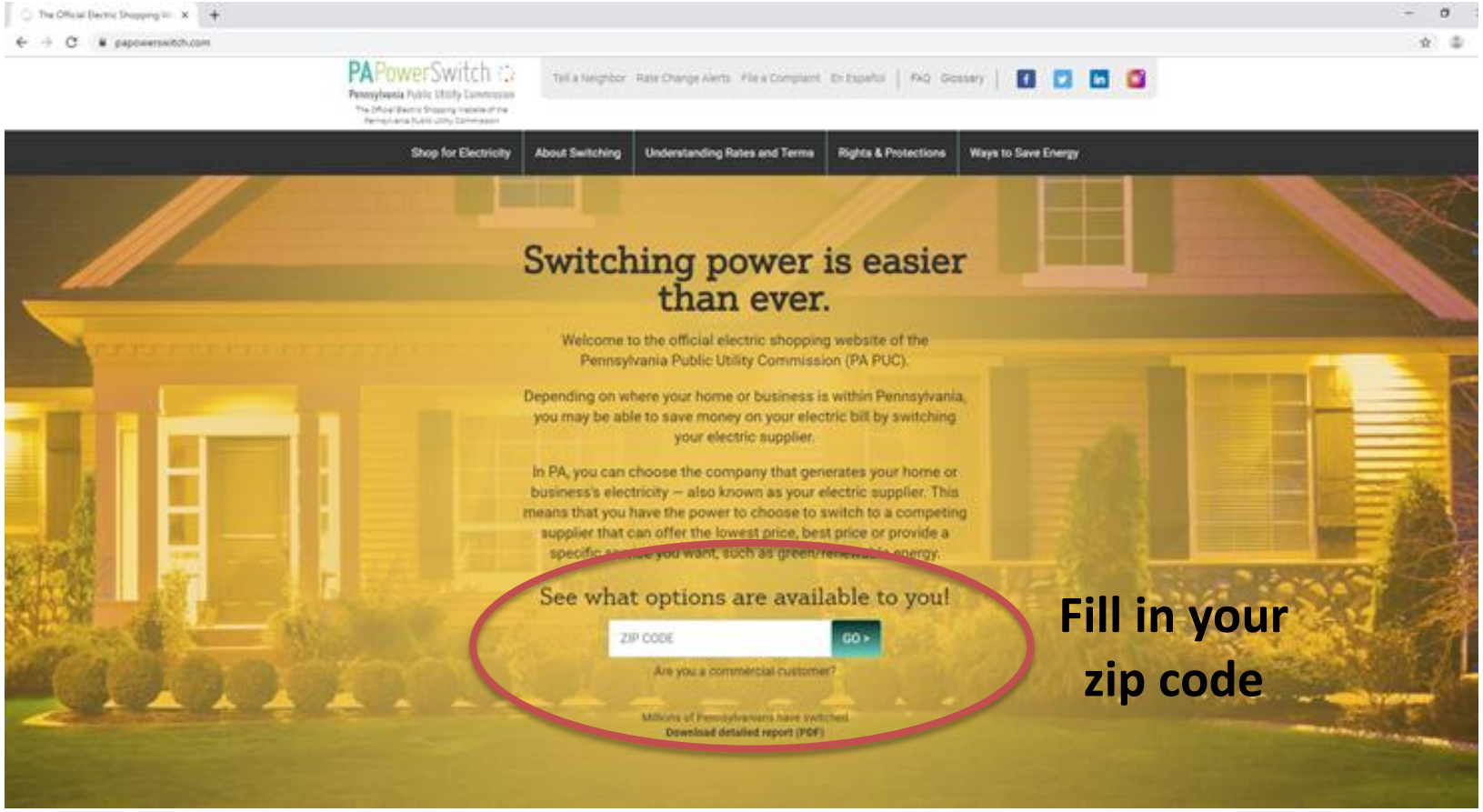
Visit papowerswitch.com



Correct link

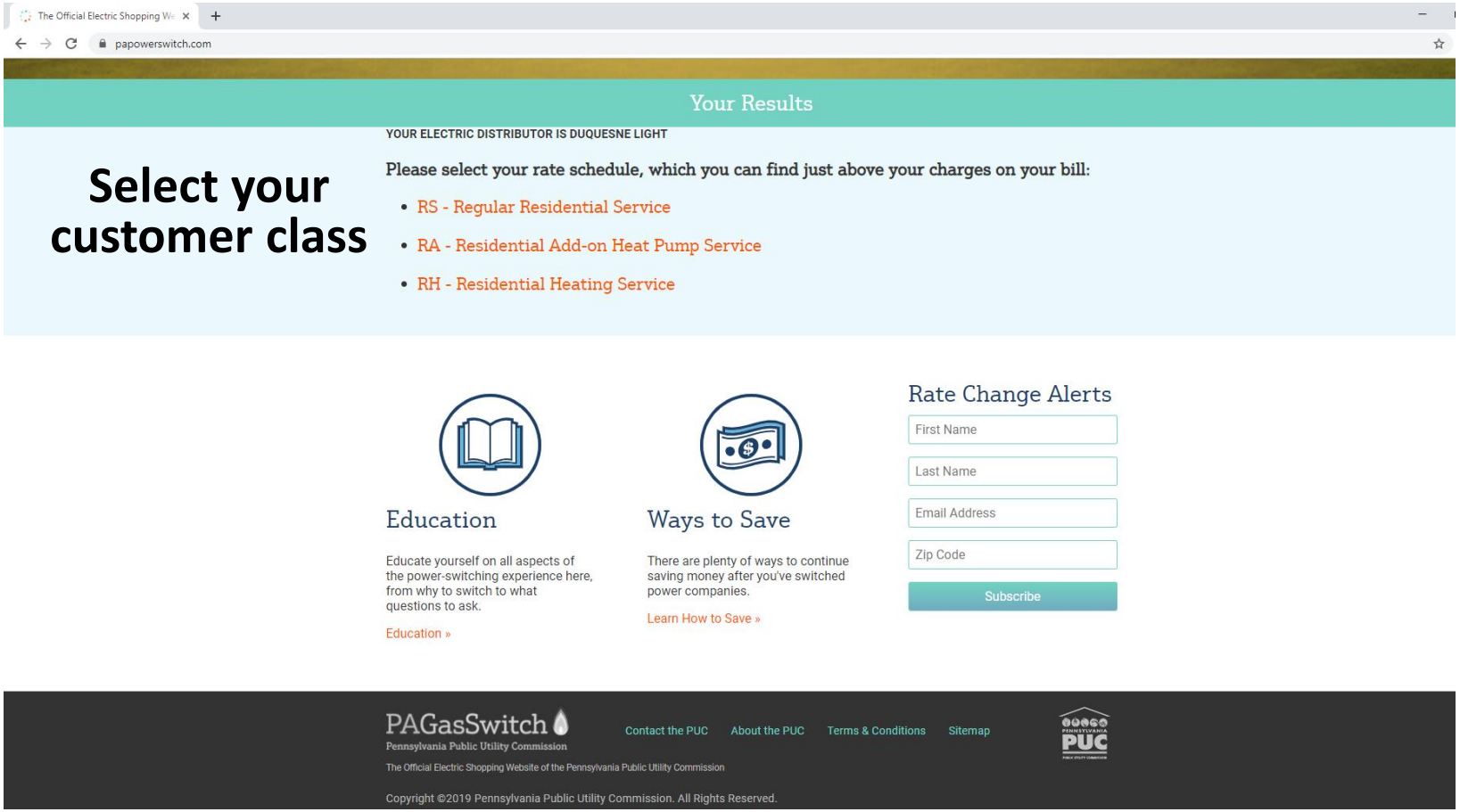
PA Power Switch

*Duquesne Light does not endorse any specific supplier



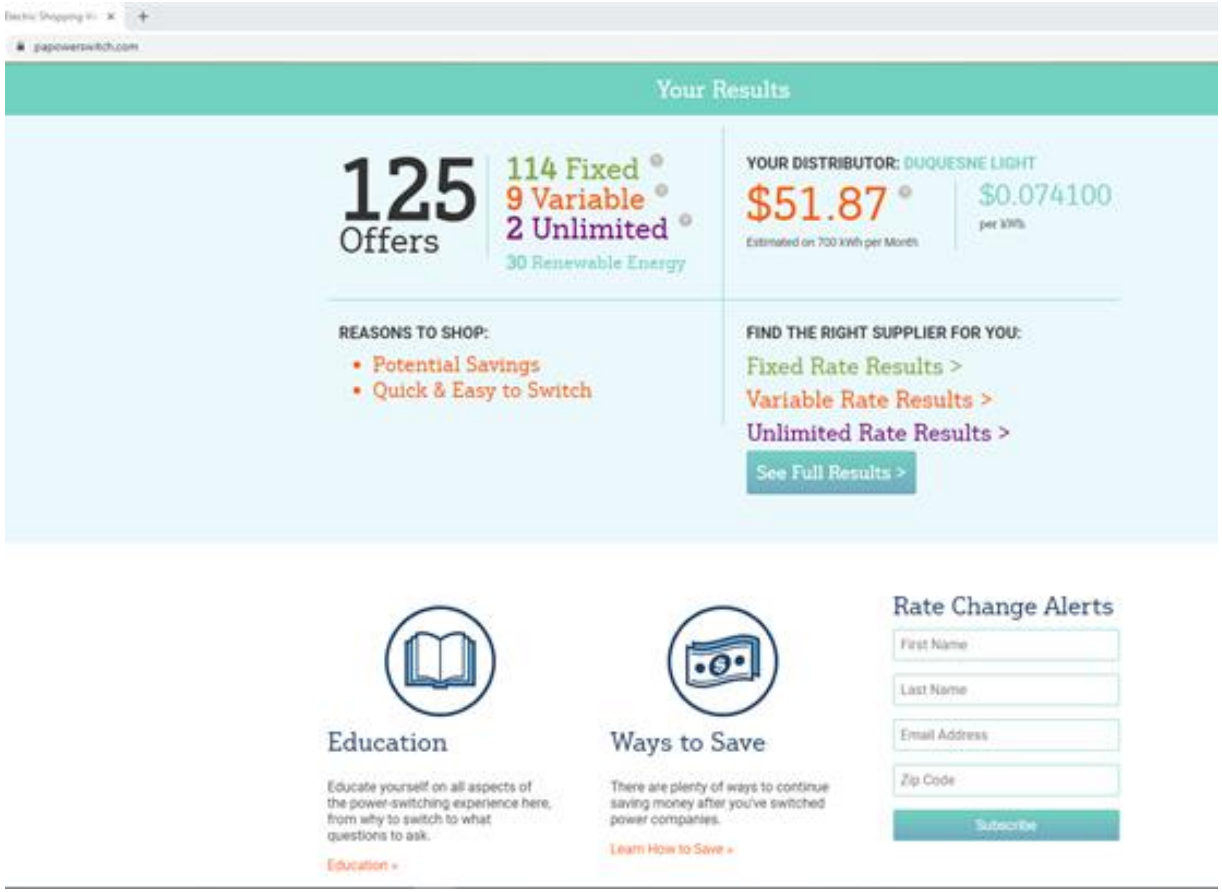
PA Power Switch

*Duquesne Light does not endorse any specific supplier



PA Power Switch

*Duquesne Light does not endorse any specific supplier



Estimated price for usage

DLC price to compare

Click “See Full Results” to see different offers available in you area

Stable Electricity Pricing

DLC Past Pricing

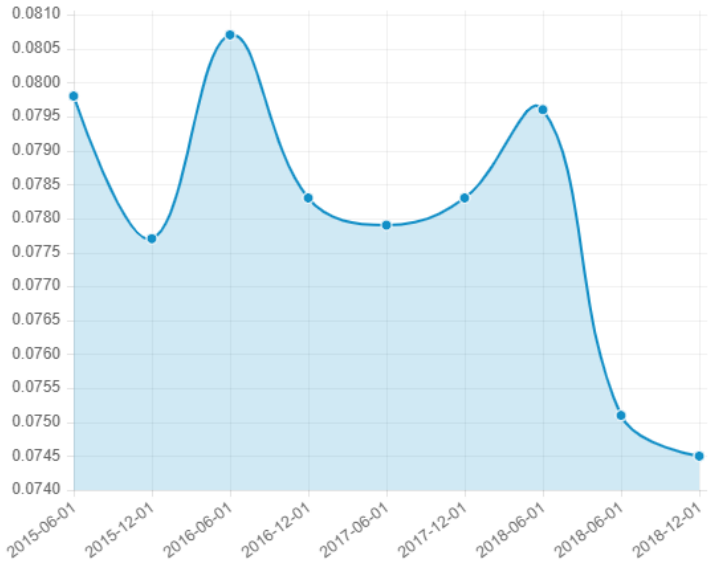
Duquesne Light
1-888-393-7100

$0.074100
per kWh

$51.87
Estimated per Month

Your Individual Price to Compare depends on your actual usage.
For more information, please visit Duquesne Light's website.

Rate Schedule: RS - Regular Residential Service



Fluctuates less than 1¢ over 3.5 years

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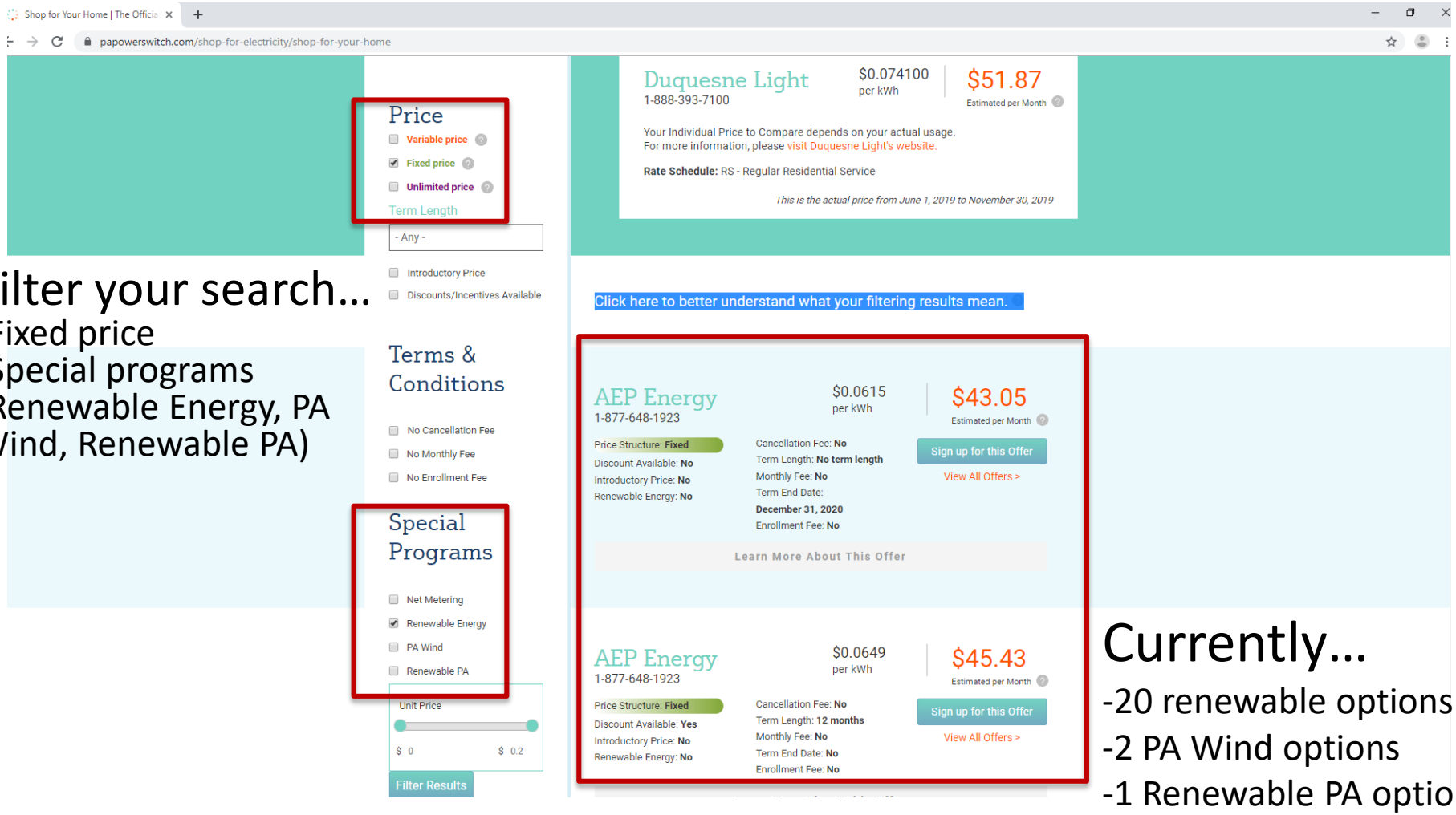
PA Power Switch

*Duquesne Light does not endorse any specific supplier



Filter your search…

-Fixed price
-Special programs (Renewable Energy, PA Wind, Renewable PA)

Currently…

-20 renewable options
-2 PA Wind options
-1 Renewable PA option

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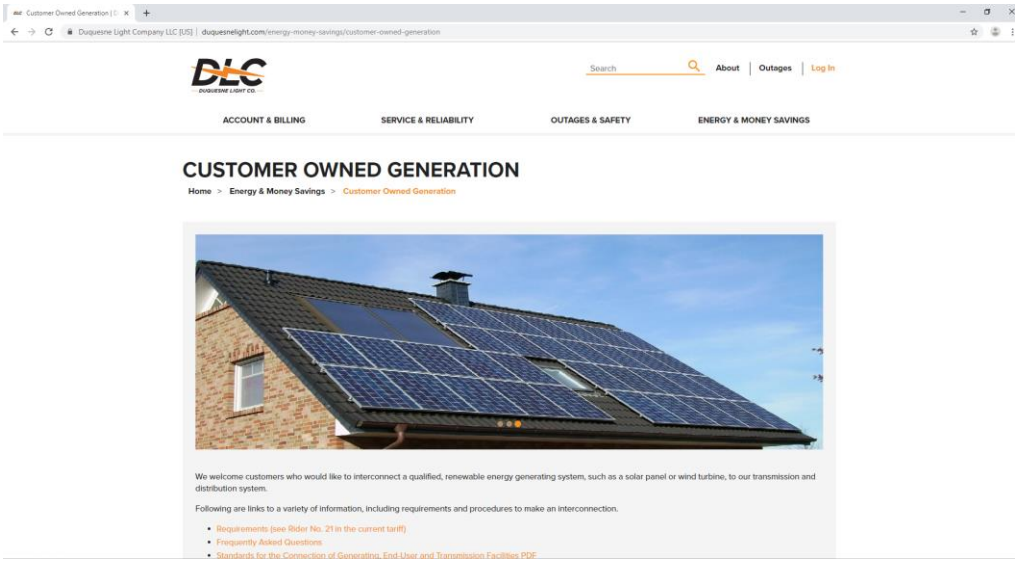
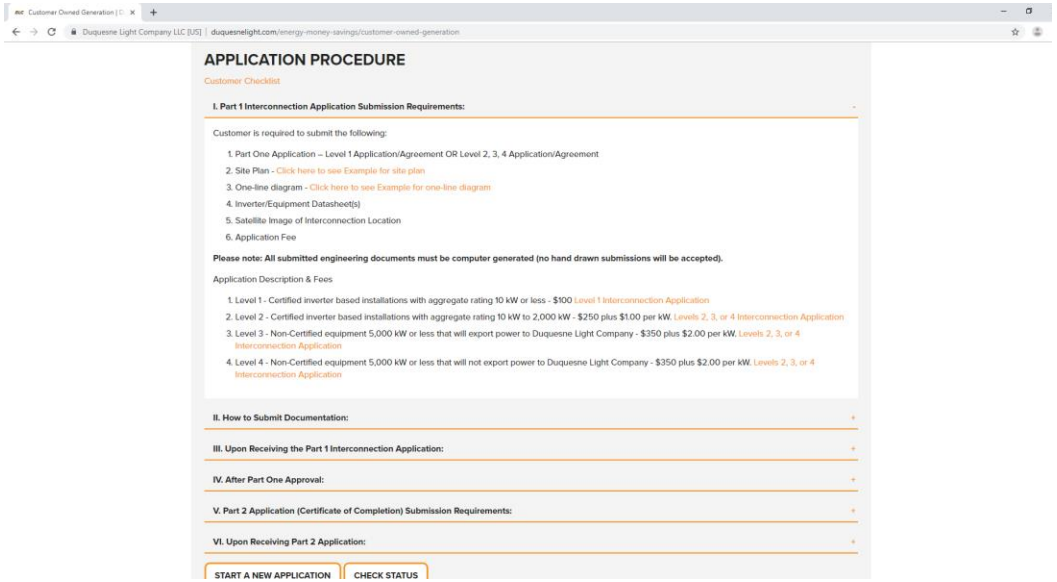
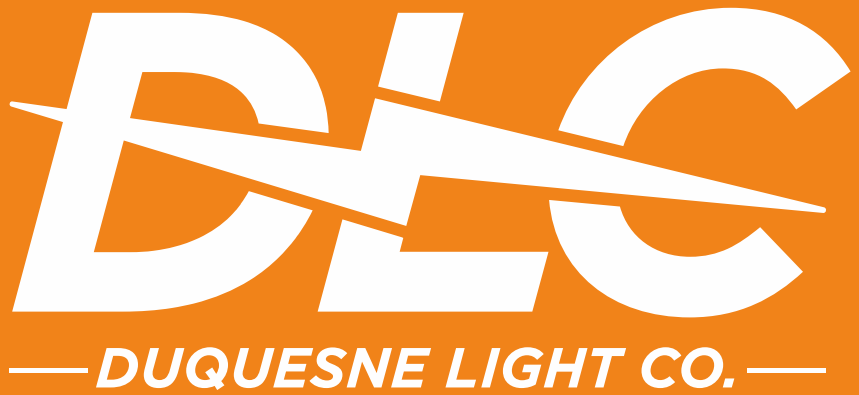

Customer Owned Generation
Duquesne Light Company LLC [US] | duquesnelight.com/energy-money-savings/customer-owned-generation
Search
About
Outages
Log In
ACCOUNT & BILLING
SERVICE & RELIABILITY
OUTAGES & SAFETY
ENERGY & MONEY SAVINGS
CUSTOMER OWNED GENERATION
Home > Energy & Money Savings > Customer Owned Generation
We welcome customers who would like to interconnect a qualified, renewable energy generating system, such as a solar panel or wind turbine, to our transmission and distribution system.
Following are links to a variety of information, including requirements and procedures to make an interconnection.
Requirements (see Rider No. 21 in the current tariff)
Frequently Asked Questions
Standards for the Connection of Generating, End-User and Transmission Facilities PDF


Customer Owned Generation
Duquesne Light Company LLC [US] | duquesnelight.com/energy-money-savings/customer-owned-generation
APPLICATION PROCEDURE
Customer Checklist
I. Part 1 Interconnection Application Submission Requirements:
Customer is required to submit the following:
1. Part One Application – Level 1 Application/Agreement OR Level 2, 3, 4 Application/Agreement
2. Site Plan - Click here to see Example for site plan
3. One-line diagram - Click here to see Example for one-line diagram
4. Inverter/Equipment Datasheet(s)
5. Satellite Image of Interconnection Location
6. Application Fee
Please note: All submitted engineering documents must be computer generated (no hand drawn submissions will be accepted).
Application Description & Fees
1. Level 1 - Certified inverter based installations with aggregate rating 10 kW or less - $100 Level 1 Interconnection Application
2. Level 2 - Certified inverter based installations with aggregate rating 10 kW to 2,000 kW - $250 plus $1.00 per kW. Levels 2, 3, or 4 Interconnection Application
3. Level 3 - Non-Certified equipment 5,000 kW or less that will export power to Duquesne Light Company - $350 plus $2.00 per kW. Levels 2, 3, or 4 Interconnection Application
4. Level 4 - Non-Certified equipment 5,000 kW or less that will not export power to Duquesne Light Company - $350 plus $2.00 per kW. Levels 2, 3, or 4 Interconnection Application
II. How to Submit Documentation:
III. Upon Receiving the Part 1 Interconnection Application:
IV. After Part One Approval:
V. Part 2 Application (Certificate of Completion) Submission Requirements:
VI. Upon Receiving Part 2 Application:
START A NEW APPLICATION
CHECK STATUS


DLC
DUQUESNE LIGHT CO.

Energize Oakland

August 14, 2019

DUQUESNE LIGHT CO.

Contents

- Phase III Requirements
- Residential Programs
- Residential Web Portal “My Electric Use”
- Residential Marketplace
- DLC Electric Vehicles Web Portal
- Contact

Act 129 Phase III Regulatory Requirements

- Energy Consumption Reduction of 440,916 MWh
- 5 Year Phase III Period: June 1, 2016 – May 31, 2021
- Includes MW or Peak Demand Requirement of 42 MW
- Low Income Target of 5.5% which is 24,250 MWh
- GNI Carve out Target is 3.5% which is 15,432 MWh

Note: On June 11, 2015, the Commission entered an Implementation Order at Docket No. M-2014-2424864 for Phase III program planning along with a Clarification Order issued on August 20, 2015 which contained the regulatory requirements and savings goals.

Residential Programs

Residential Programs

- Phase III Plan retained successful energy efficiency programs:
  - Downstream and Upstream Rebates
  - Conservation Kits
  - Giveaways
  - Whole House Retrofit
  - Appliance Recycling
  - Home Energy Report
  - Low Income Energy Efficiency
    - Low Income Multifamily Housing Retrofit
    - Low Income Home Energy Reporting
    - Low Income Whole House Retrofit

On-line Energy Audit

Welcome to EnergyInsights which will show you where your home's energy dollars are going, and tips on how you can save.

Active Duquesne Light residential customers who click on Detailed Analysis button and complete the EnergyInsights Audit will receive a free Energy Efficiency Kit through the mail.

ONE TIME OFFER

- The Kit contains 8 LED lamps and 2 nightlights.
- The Kit will be delivered in 6-8 weeks.
- The Kit will be delivered to your Duquesne Light service address, not to an alternative mailing address you may have listed on your account.

Learn how to cut your energy bill!

A FREE, easy-to-use online tool to give you a Detailed Analysis of your home energy use in less than three minutes or an Instant Analysis of your most recent Duquesne Light bill.

Enter your account number to get started...

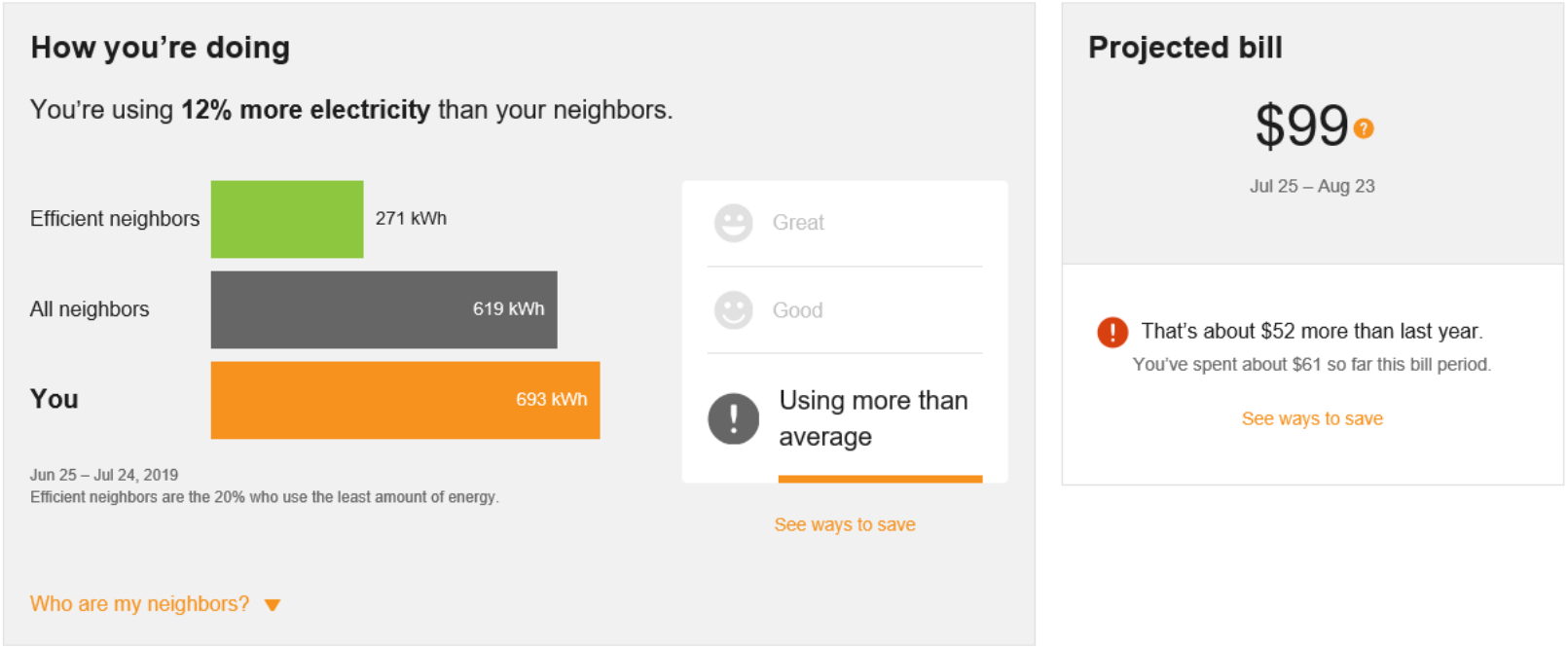
Then Choose...

DETAILED HOME ANALYSIS | INSTANT BILL ANALYSIS

Residential Web Portals

Residential Web Portal – My Electric Use

Dashboard



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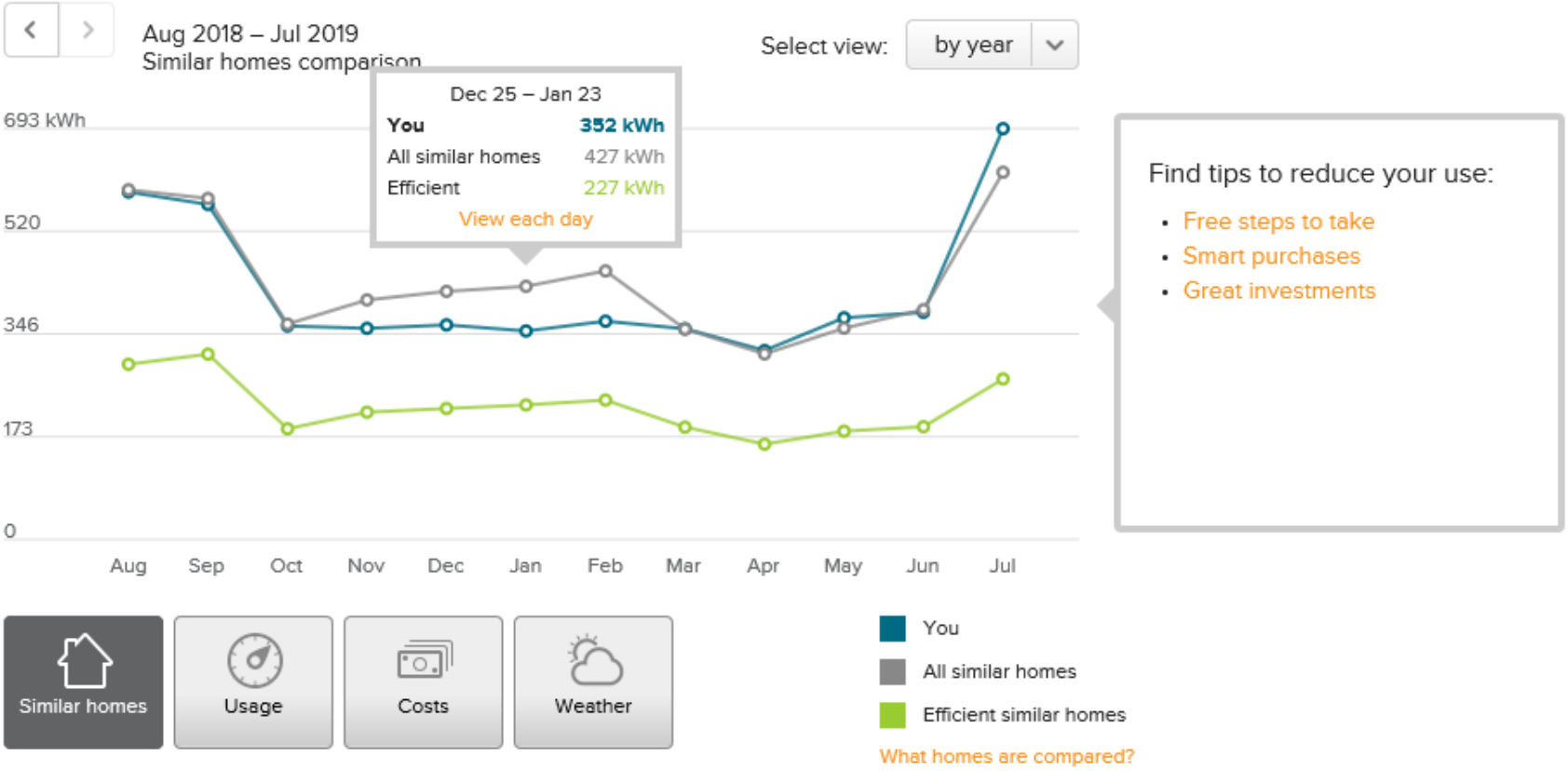
Residential Web Portal – My Electric Use

Similar Home Comparison



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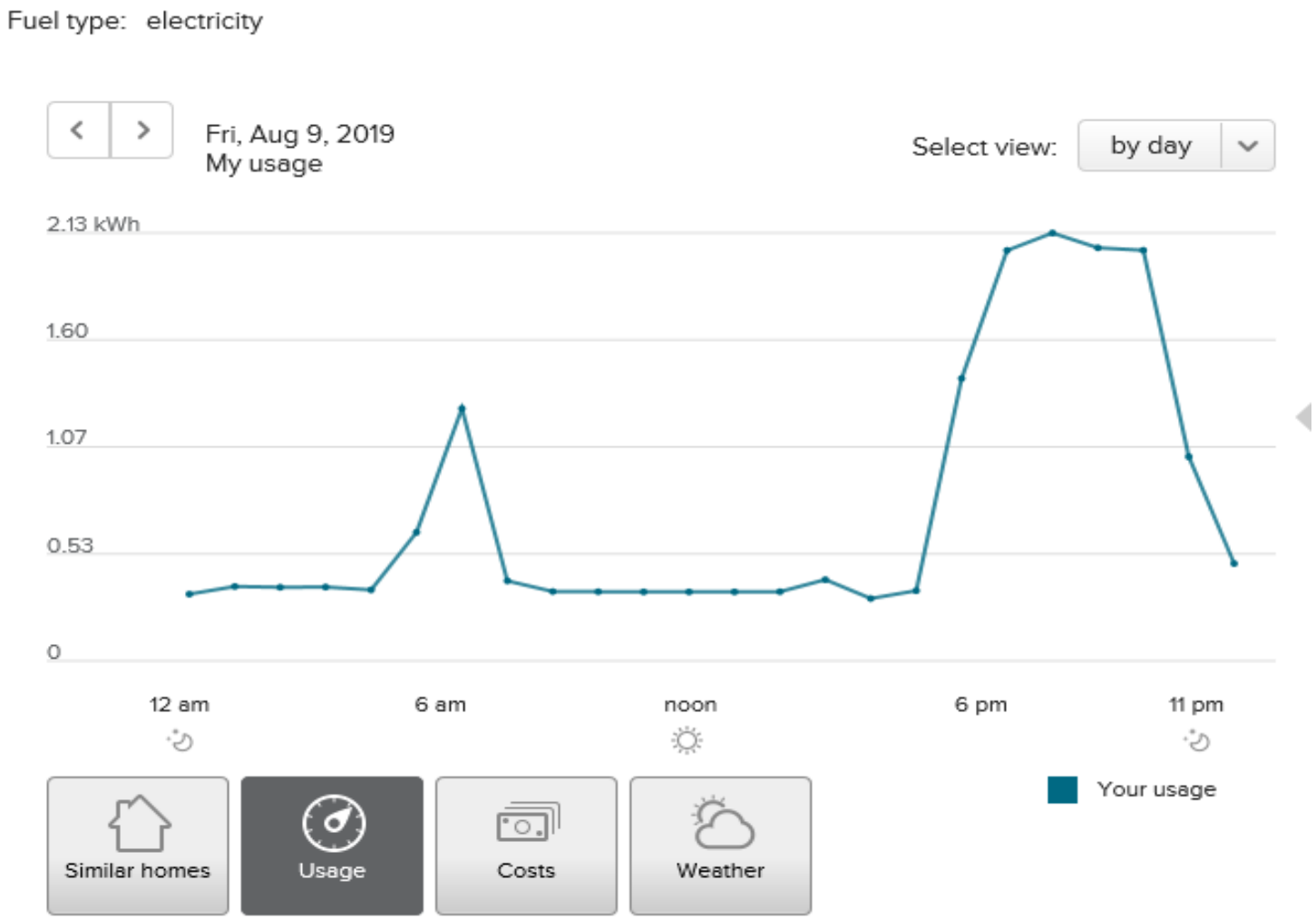
Residential Web Portal – My Electric Use

Hourly Usage



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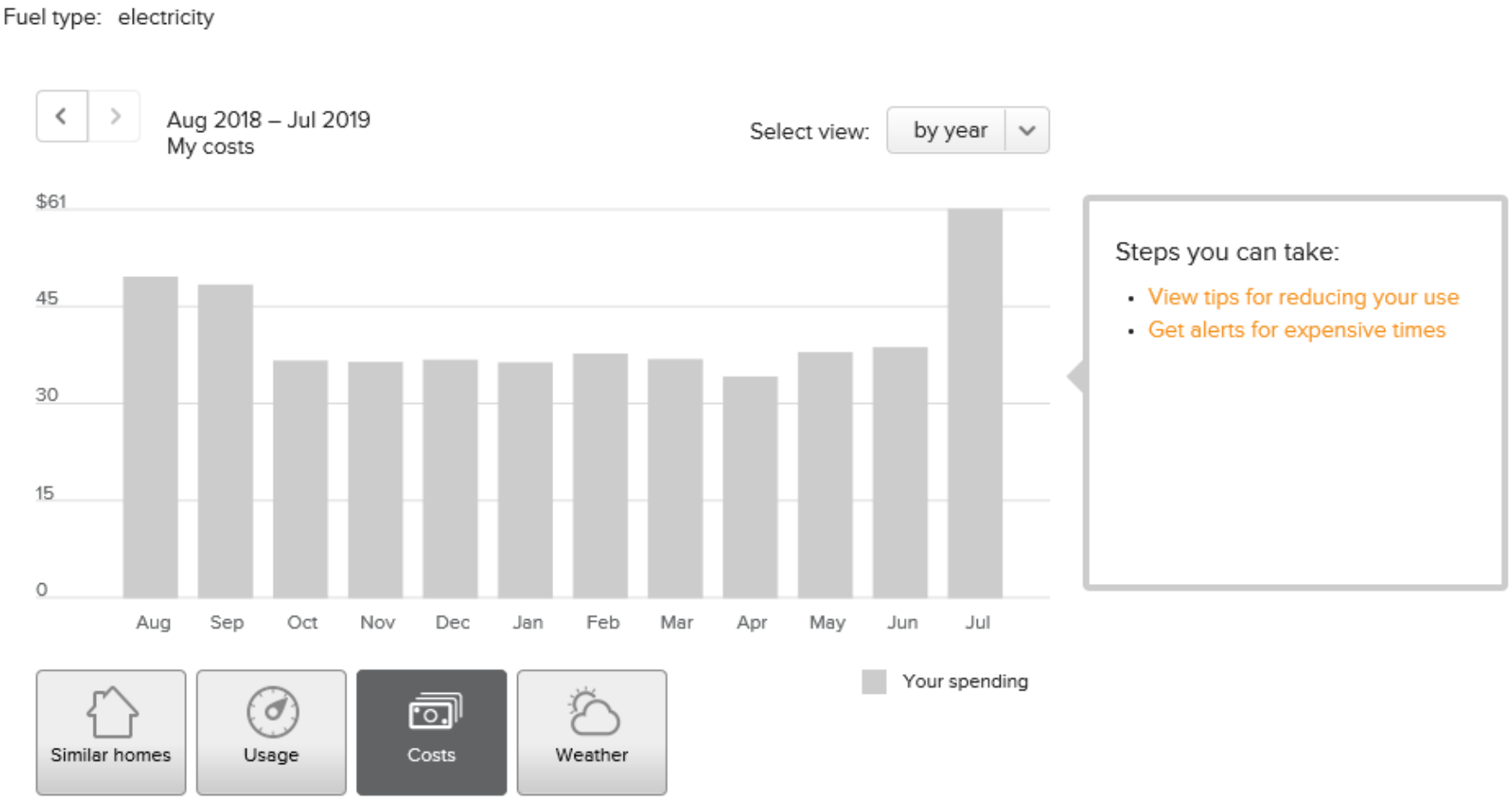
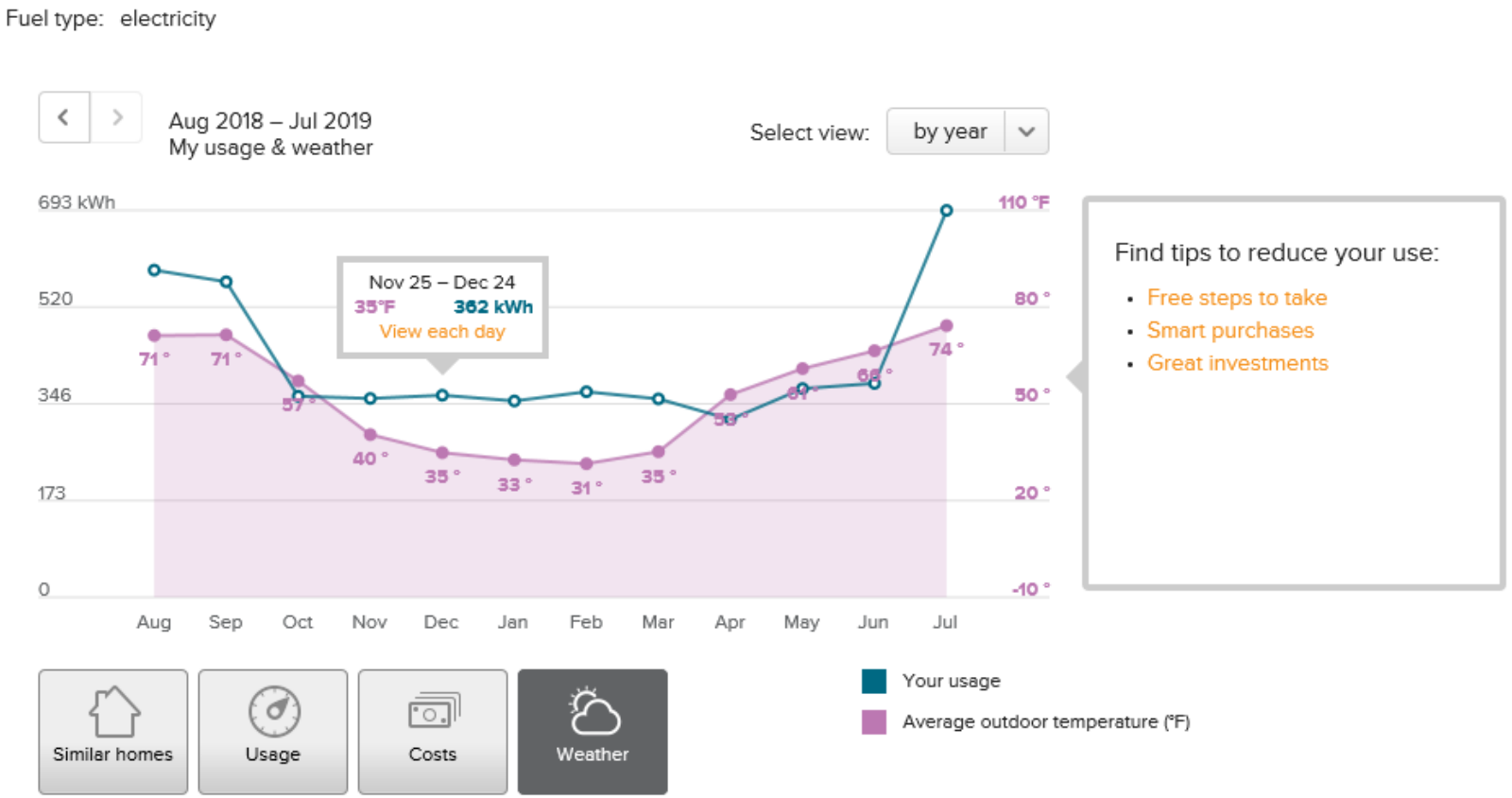
Residential Web Portal – My Electric Use

Cost Comparison



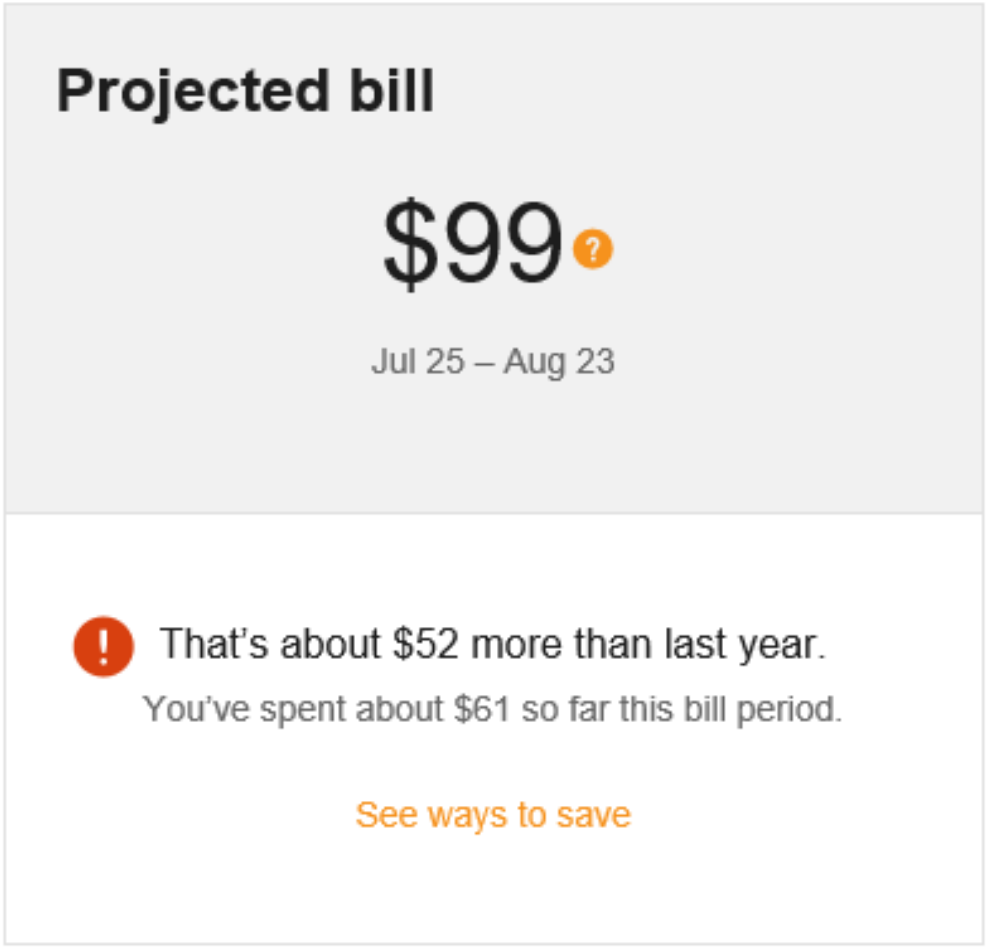
Residential Web Portal – My Electric Use

Weather Impact



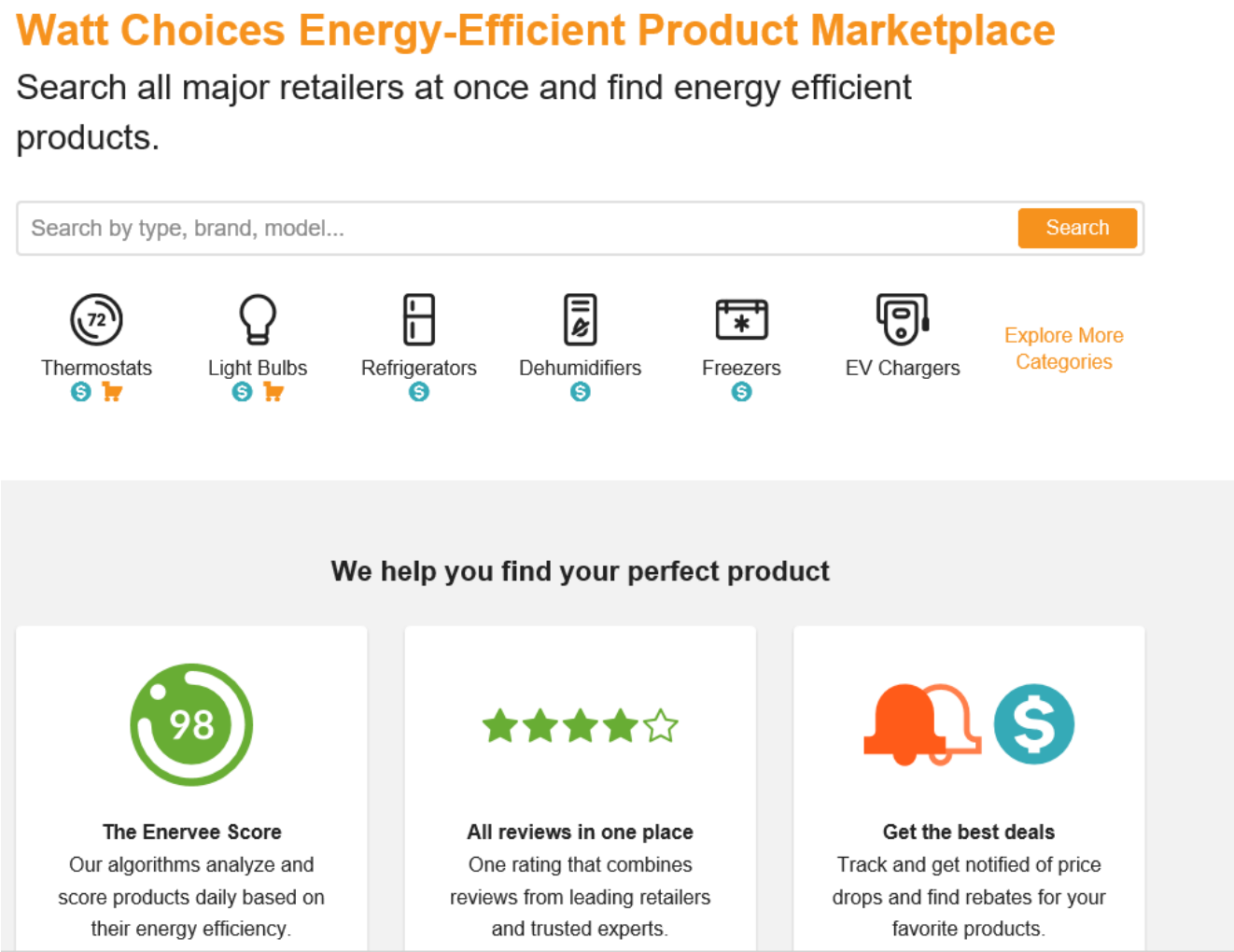
Residential Web Portal – My Electric Use

Projected Bill and Estimated Bill to Date



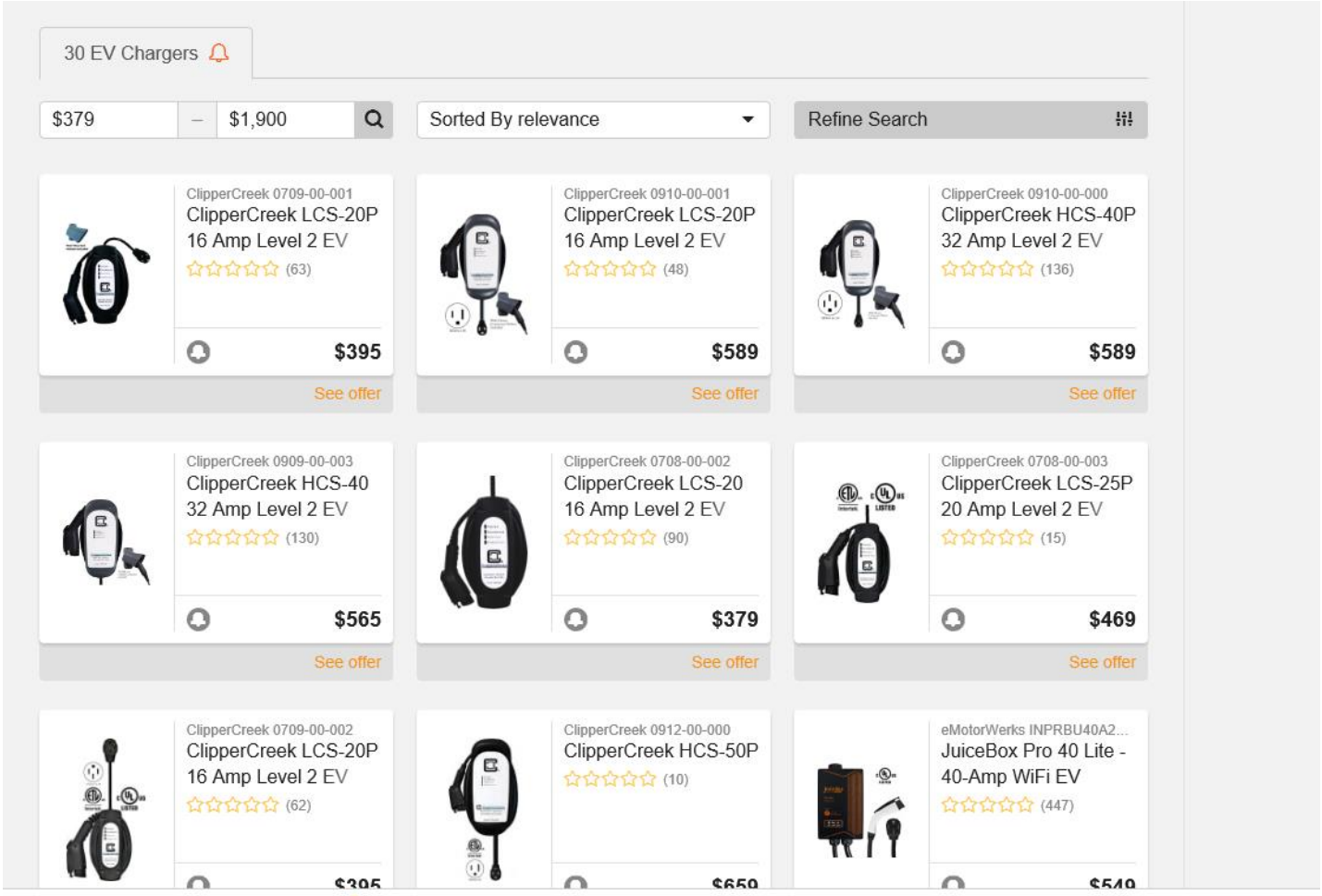
Residential Web Portal - Marketplace

Home Page



Residential Web Portal - Marketplace

Next Level



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Residential Web Portal – Electric Vehicles

Home Page

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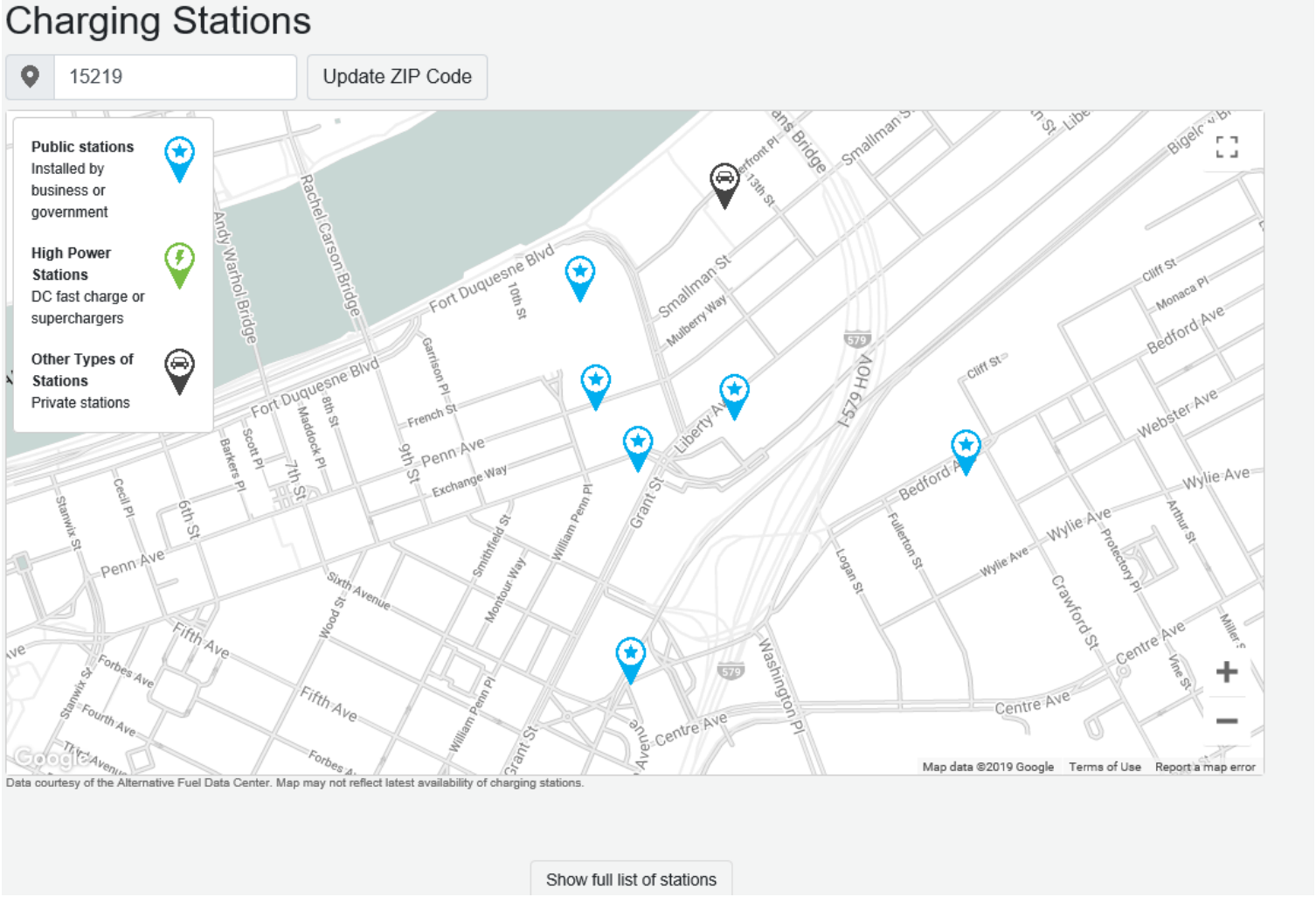
Residential Web Portal – Electric Vehicles

Charging Station Locations



Contacts

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- ddefide@duqlight.com