"Affordable, Reliable and Clean Energy for all Marylanders"

DANIEL LAUF

Manager, Data Analysis

Maryland Energy
ADMINISTRATION

Powering Maryland's Future

What is MEA?

- A small, executive agency that reports directly to the Governor of Maryland.

MEA has two main goals:

- Promote Energy Efficiency and the use of Renewable Technology
- Set Maryland's Energy Policy

Policy Background

Three major policies passed (or amended) during the O'Malley-Brown Administration establishing three of Maryland's current energy-related strategic policy goals:

- EmPOWER Energy Efficiency Act of 2008: Reduce per capita electricity consumption and peak demand by 15% by 2015

- Renewable Portfolio Standard: Generate 20% of electricity from renewable sources (in Maryland) by 2022, with 2% coming from in-State solar sources.

- Greenhouse Gas Reduction Act of 2009: Reduce greenhouse gas emissions by 25% by 2020

Programs

- MEA runs programs to reduce energy consumption and increase the deployment of renewable energy and clean transportation in Maryland.

- Maryland's five major utilities also run programs to reduce consumption under the EmPOWER Energy Efficiency Act of 2008.

- Programs reach all Maryland geographies and multiple building sectors (residential, commercial, agriculture, government)

Programs

Energy Efficiency	Renewable Energy	Transportation

• Multi-sector approach
    • Agriculture
    • Commercial
    • Industrial
    • Residential
    • Local Government
    • State Government
 	
• Varied program types:
    • Low income
    • Community grants
    • EPC Assistance
    • Financing
	• Multi-sector approach
	
	• Technologies include:
	    • Biomass
	    • CHP
	    • Geothermal
	    • Solar PV
	    • Solar Thermal
	    • Wind
	    • Wood Burning Stoves
	    • Innovative Technologies
		• Vehicles and vehicle charging and refueling infrastructure
		• Multi-sector approach
		
		• Technologies include:
		    • Biodiesel
		    • E-85
		    • Electric vehicles
		    • Hybrid vehicles
		    • Idle reduction
		    • Natural gas
		    • Propane
		    • Service station resiliency

In essence, our program offerings are diverse!

MEA's Diverse Audience

- MEA Communicates Data for a Diverse Audience
  - State legislators
  - Media
  - State and federal agencies
  - Researchers and program administrators
  - And, of course, Maryland residents and businesses

Data Challenges

- Transparency
  - Public data should be accessible for those who need it

- Clarity
  - Can't assume our audience has a prior knowledge of energy and environmental issues

- Consistency
  - Data needs to be tracked consistently across programs and stored in a centrally accessible location

- Confidentiality
  - Do not share residential customer addresses or proprietary business information

Three main tools

1. Smart Energy Investment Map

2. Smart Energy Investment Dashboard

3. Maryland's Open Data Portal

Three main tools

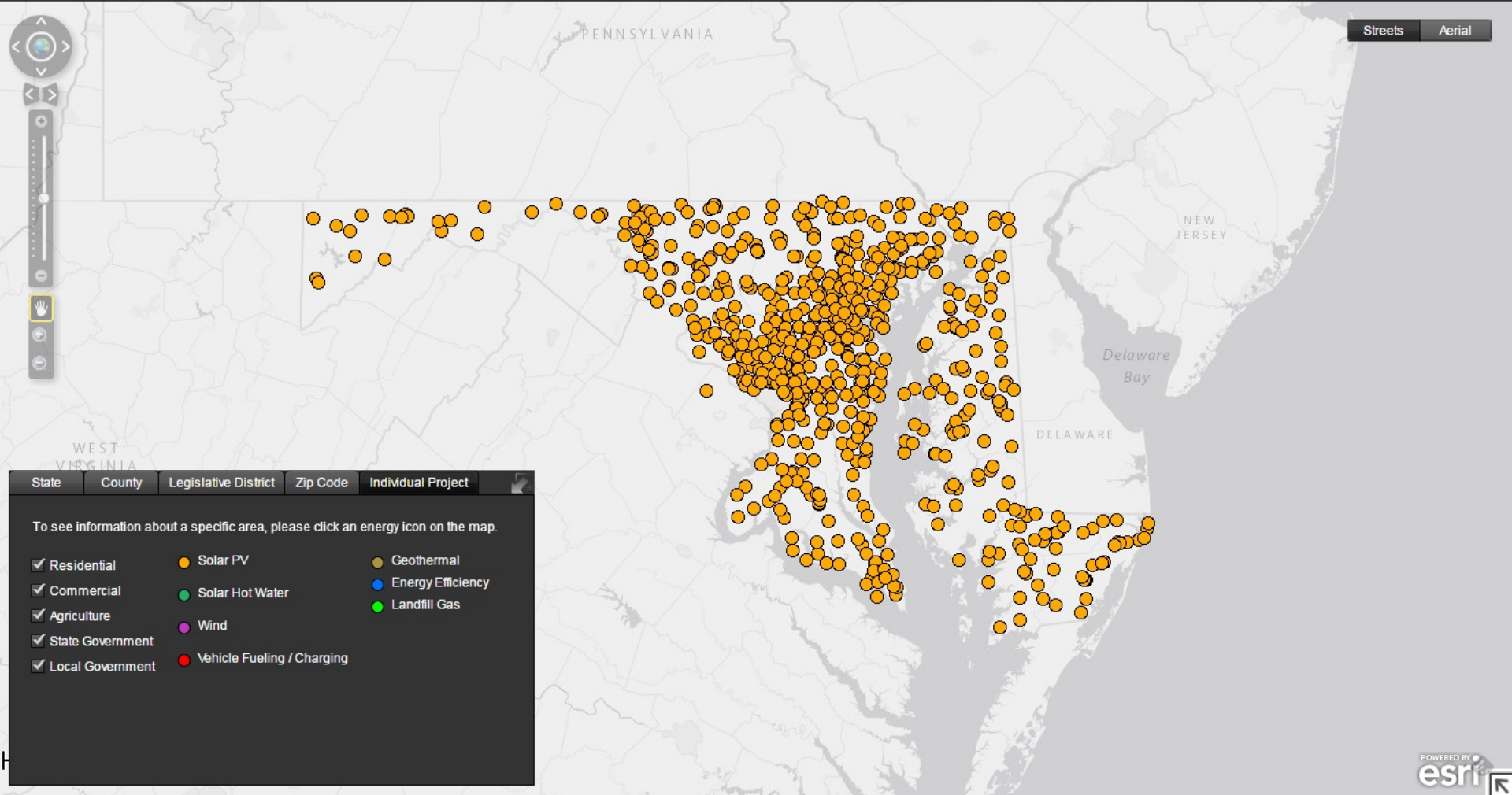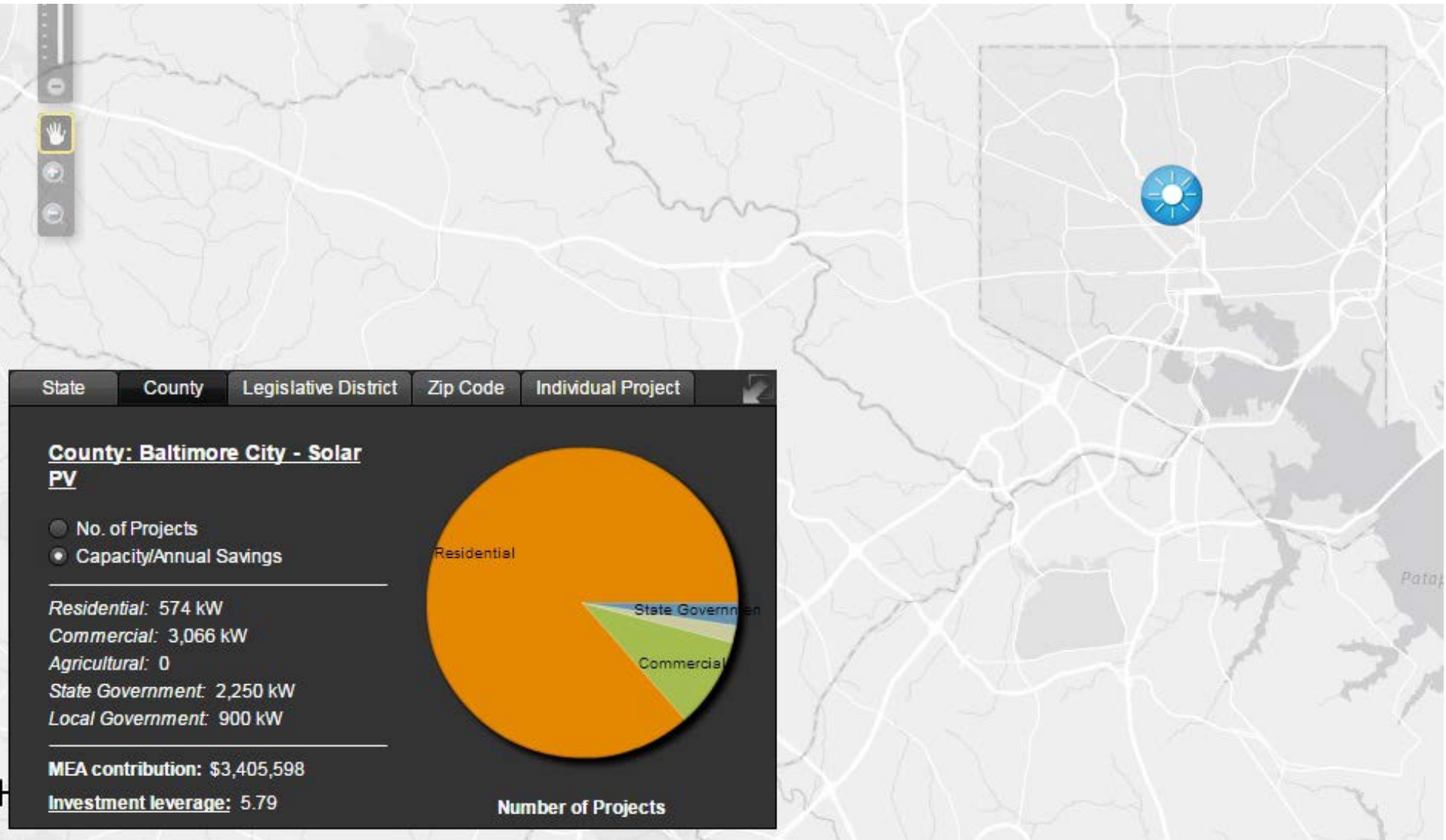1. **Smart Energy Investment Map**

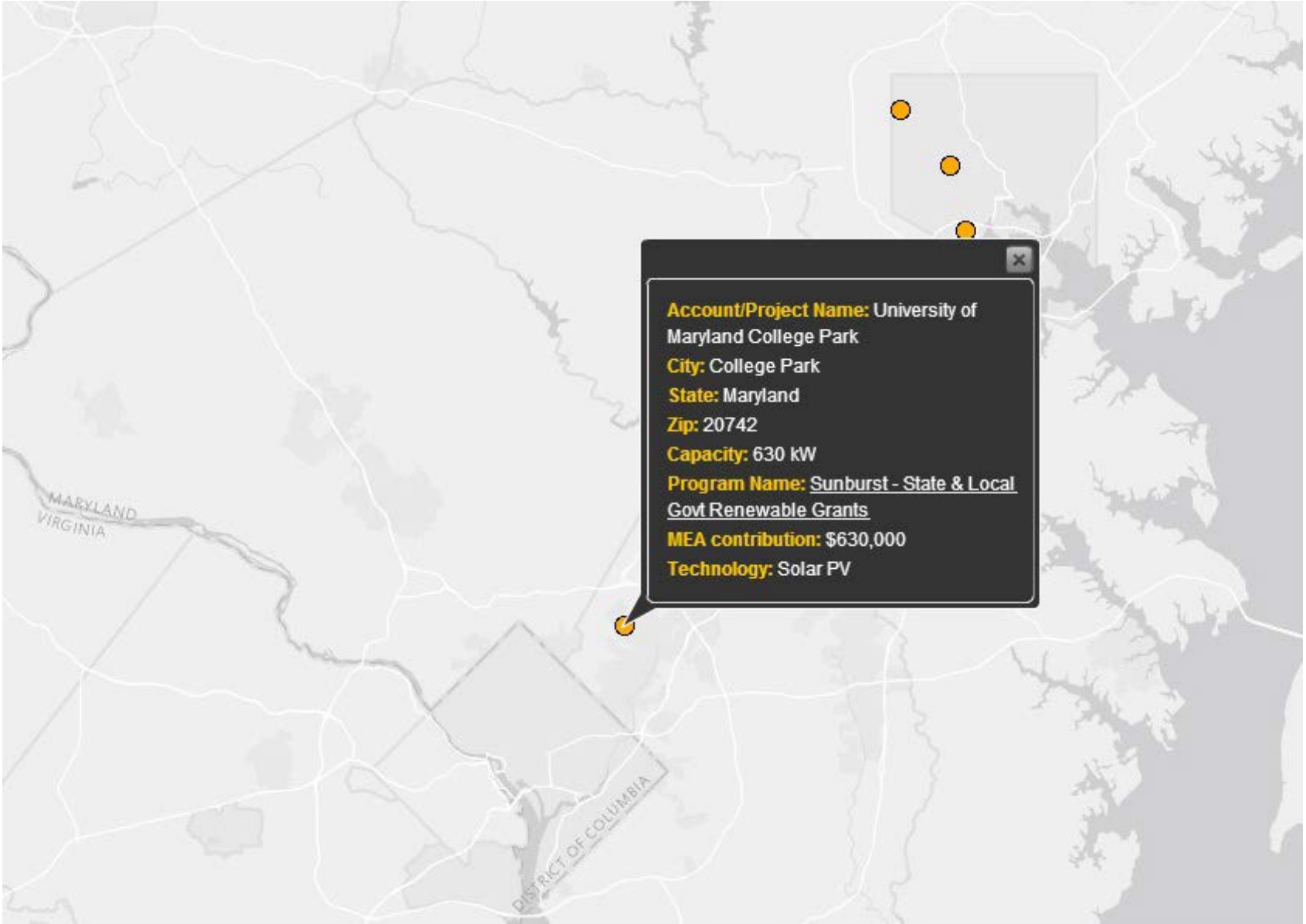2. Smart Energy Investment Dashboard

3. Maryland's Open Data Portal

Smart Energy Investment Map

State | County | Legislative District | Zip Code | Individual Project

County: Baltimore City - Solar PV

○ No. of Projects
◉ Capacity/Annual Savings

Residential: 574 kW
Commercial: 3,066 kW
Agricultural: 0
State Government: 2,250 kW
Local Government: 900 kW

MEA contribution: $3,405,598

Investment leverage: 5.79

Residential

State Government

Commercial

Number of Projects

Account/Project Name: University of Maryland College Park
City: College Park
State: Maryland
Zip: 20742
Capacity: 630 kW
Program Name: Sunburst - State & Local Govt Renewable Grants
MEA contribution: $630,000
Technology: Solar PV

SEIM Challenges

- Map platform not mobile device compatible

- Created for a smaller mix of programs. As MEA's program portfolio expands to include new program models and technologies, it's become more challenging to display everything on one map

Three main tools

1. Smart Energy Investment Map

2. Smart Energy Investment Dashboard

(a sneak peak)

3. Maryland's Open Data Portal

Smart Energy Investment Dashboard

Project Filters

Select filters to view Maryland Energy Administration contributions to the growth of affordable and reliable renewable energy in our state.

Reset Map

Technology

Solar PV Solar Hot Water Geothermal Wood Burning Stove Wind Bioheat Landfill Gas

Sector

Residential Commercial Agriculture Local Government State Government

Investment Stats

Total Projects	13,184
MEA Contribution	$45,860,920
Total Project Cost	$405,999,603
Investment Leverage	11.58

* Residential and Agricultural projects are plotted at the center of their zip codes to ensure recipient privacy.

Technology Type

Contribution / Projects

Wind · Geothermal · Solar PV

Contribution By Region

N/A

Activity By Program

$28M · $14M · $4.5M · $2.5k · $0.0

Residenti Clean Commerci Bioheatin EECBG

Contribution / Projects

Activity By Sector

$28M · $16M · $1.3M · $900k · $79k

Residenti Commerci State Agricultur Local

Contribution / Projects

Map labels: 45, 5, 206, 50, 214, 77, 1567, 402, 934, 41, 102, 336, 1743, 252, 122, 2510, 1660, 114, 17, 746, 245, 27, 267, 67, 205, 205, 101, 376, 87, 31, 31, 31

Map dropdown: Maryland ✓, Counties, Leg. Dist., Cong. Dist., Zip Codes, Individual Projects ✓

Project Filters

Select filters to view Maryland Energy Administration contributions to the growth of affordable and reliable renewable energy in our state.

Reset Map

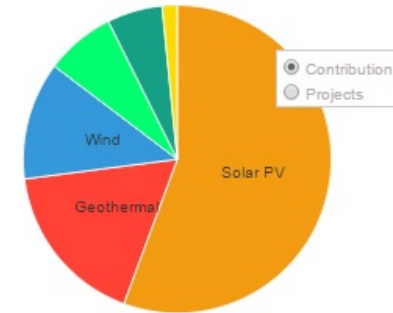**Technology**

Solar PV | Solar Hot Water | Geothermal
Wood Burning Stove | Wind | Bioheat
Landfill Gas

Sector

Residential | Commercial | Agriculture
Local Government | State Government

Investment Stats

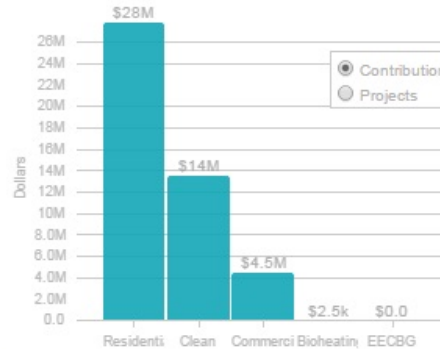|	
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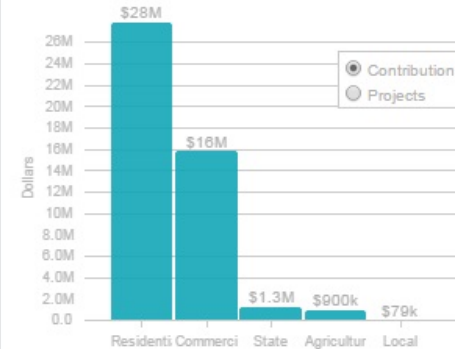* Residential and Agricultural projects are plotted at the center of their zip codes to ensure recipient privacy.
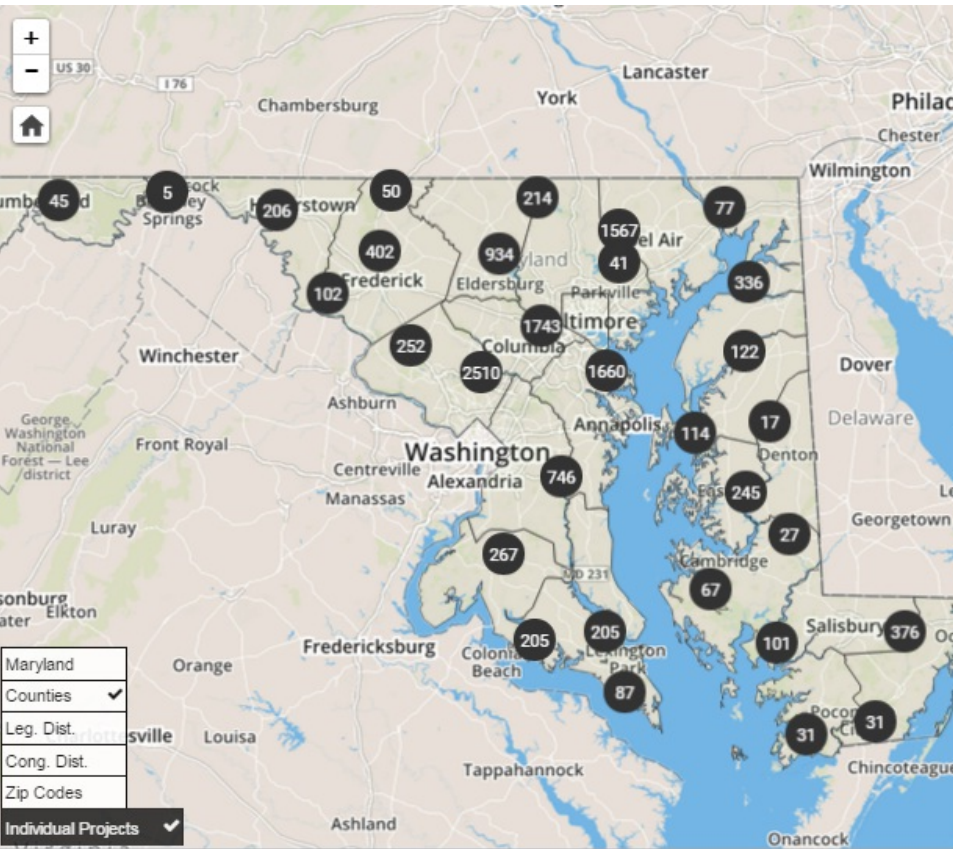
Technology Type

- Contribution
- Projects

Wind
Geothermal
Solar PV

Contribution By Region

- MEA Contribution
- All Contributions

MEA Contribution

Dollars: 5.5M, 5.0M, 4.5M, 4.0M, 3.5M, 3.0M, 2.5M, 2.0M, 1.5M, 1.0M, 500k, 0.0

Montgomery, Garrett, Baltimore, Anne Arundel, Howard, Frederick, Harford, Washington, Prince George's, Worcester, Carroll, Wicomico, Charles, Calvert, Baltimore City, Cecil, St. Mary's, Kent, Queen Anne's, Talbot, Somerset, Dorchester, Caroline, Allegany

Activity By Program

- Contribution
- Projects

$28M
$14M
$4.5M
$2.5k
$0.0

Dollars: 28M, 26M, 24M, 22M, 20M, 18M, 16M, 14M, 12M, 10M, 8.0M, 6.0M, 4.0M, 2.0M, 0.0

Residenti, Clean, Commerci, Bioheatin, EECBG

Activity By Sector

- Contribution
- Projects

$28M
$16M
$1.3M
$900k
$79k

Dollars: 28M, 26M, 24M, 22M, 20M, 18M, 16M, 14M, 12M, 10M, 8.0M, 6.0M, 4.0M, 2.0M, 0.0

Residenti, Commerci, State, Agricultur, Local

Map labels: Maryland, Counties, Leg. Dist., Cong. Dist., Zip Codes, Individual Projects

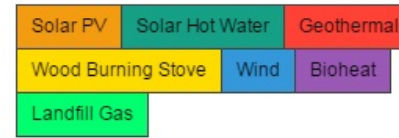**Project Filters**

Select filters to view Maryland Energy Administration contributions to the growth of affordable and reliable renewable energy in our state.
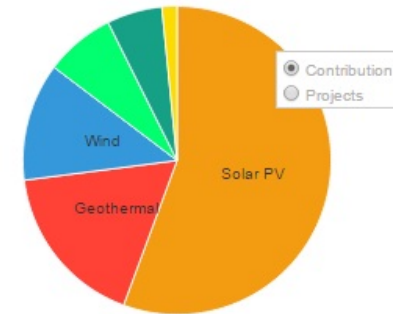
Reset Map

Technology

✔ Solar PV | Solar Hot Water | Geothermal
Wood Burning Stove | Wind | Bioheat
Landfill Gas

Sector

Residential | Commercial | Agriculture
Local Government | State Government

Map markers: 23, 3, 10, 77, 395, 155, 332, 100, 330, 51, 6, 1380, 173, 188, 1600, 698, 70, 3, 62, 269, 72, 116, 55, 53, 70, 36, 35, 13, 33

Map layer options: Maryland, Counties ✔, Leg. Dist., Cong. Dist., Zip Codes, **Individual Projects** ✔

Investment Stats

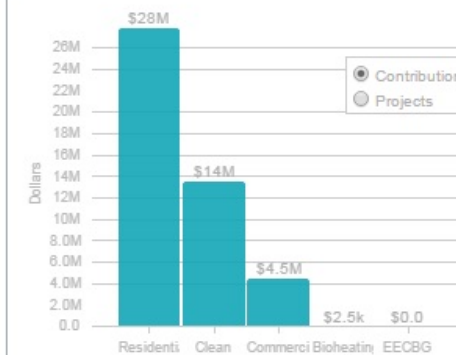|	
Total Projects	6,505
MEA Contribution	$25,518,401
Total Project Cost	$262,911,798
Investment Leverage	11.94

* Residential and Agricultural projects are plotted at the center of their zip codes to ensure recipient privacy.

Technology Type
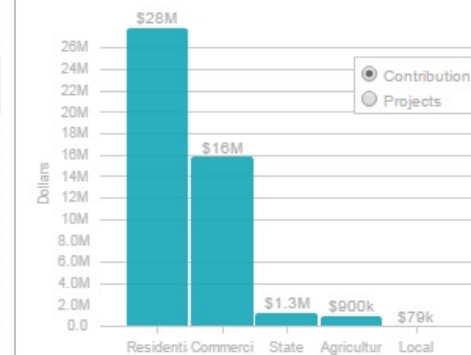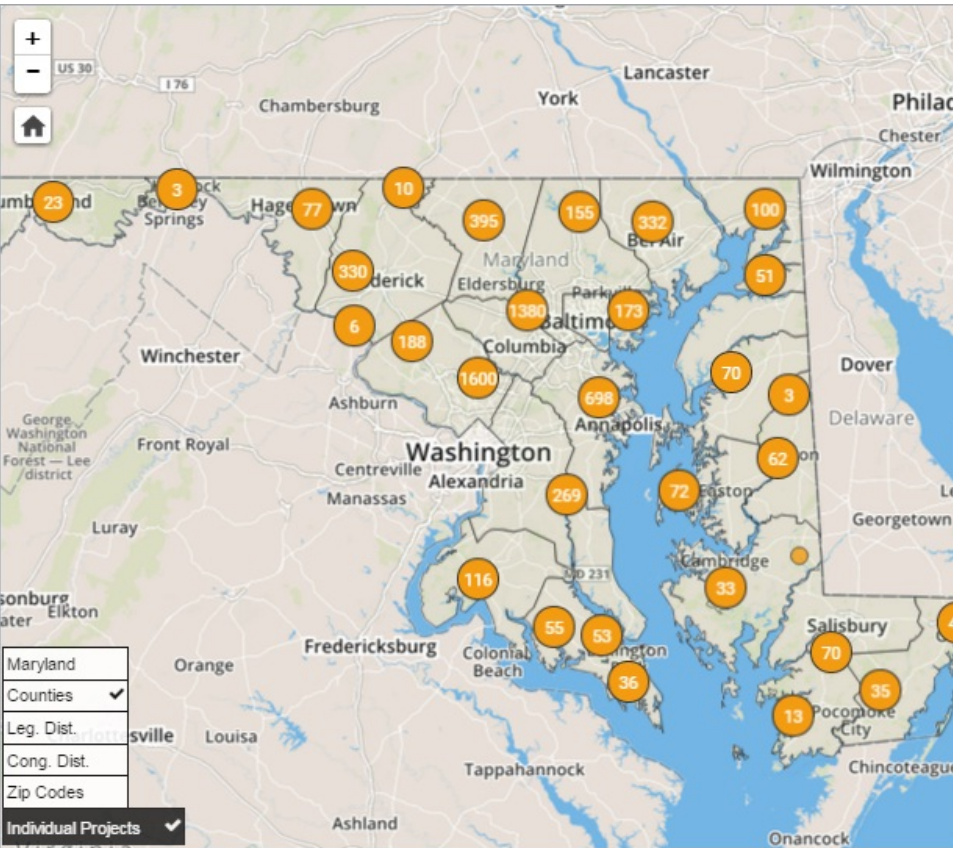
○ Contribution
○ Projects

Solar PV

Contribution By Region

○ MEA Contribution
○ All Contributions

■ MEA Contribution

Regions (x-axis): Montgomery, Howard, Anne Arundel, Baltimore, Washington, Frederick, Prince George's, Harford, Carroll, Baltimore City, Charles, Kent, Cecil, Worcester, Somerset, Wicomico, St. Mary's, Queen Anne's, Calvert, Caroline, Talbot, Dorchester, Allegany, Garrett

y-axis: 0.0, 500k, 1.0M, 1.5M, 2.0M, 2.5M, 3.0M, 3.5M, 4.0M, 4.5M

Activity By Program

○ Contribution
○ Projects

$16M (Residential), $5.2M (Clean), $4.1M (Commercial), $0.0 (EECBG)

y-axis: Dollars, 0.0, 2.0M, 4.0M, 6.0M, 8.0M, 10M, 12M, 14M, 16M

Activity By Sector

○ Contribution
○ Projects

$16M (Residential), $7.1M (Commercial), $1.3M (State), $880k (Agriculture), $79k (Local)

y-axis: Dollars, 0.0, 2.0M, 4.0M, 6.0M, 8.0M, 10M, 12M, 14M, 16M

Project Filters

Select filters to view Maryland Energy Administration contributions to the growth of affordable and reliable renewable energy in our state.
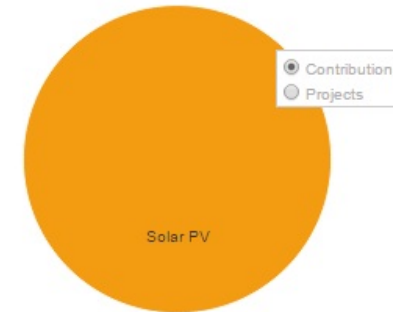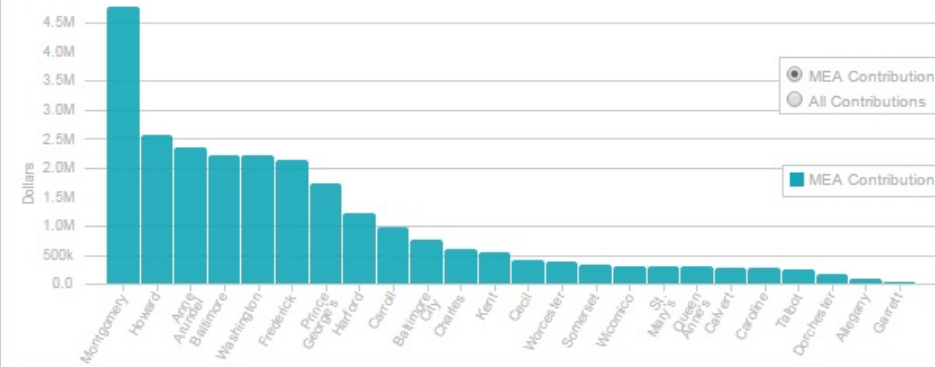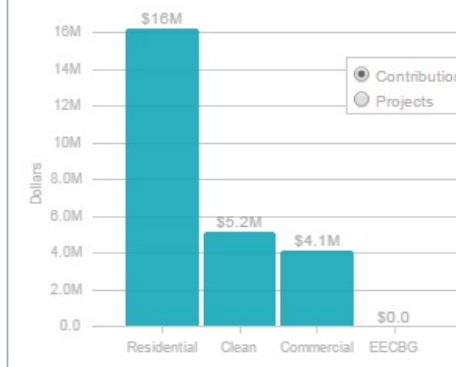
Reset Map

Technology

✓ Solar PV | Solar Hot Water | Geothermal
Wood Burning Stove | Wind | Bioheat
Landfill Gas

Sector

Residential | Commercial | Agriculture
Local Government | State Government

Investment Stats

Total Projects	557
MEA Contribution	$3,078,205
Total Project Cost	$29,402,855
Investment Leverage	12.37

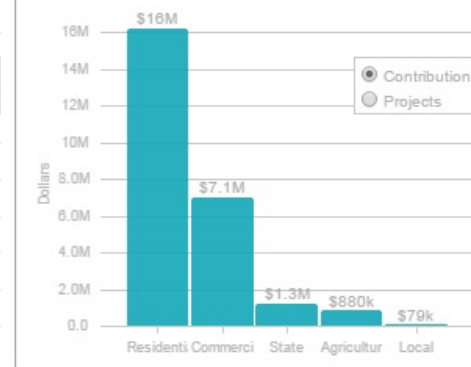* Residential and Agricultural projects are plotted at the center of their zip codes to ensure recipient privacy.

Technology Type

○ Contribution
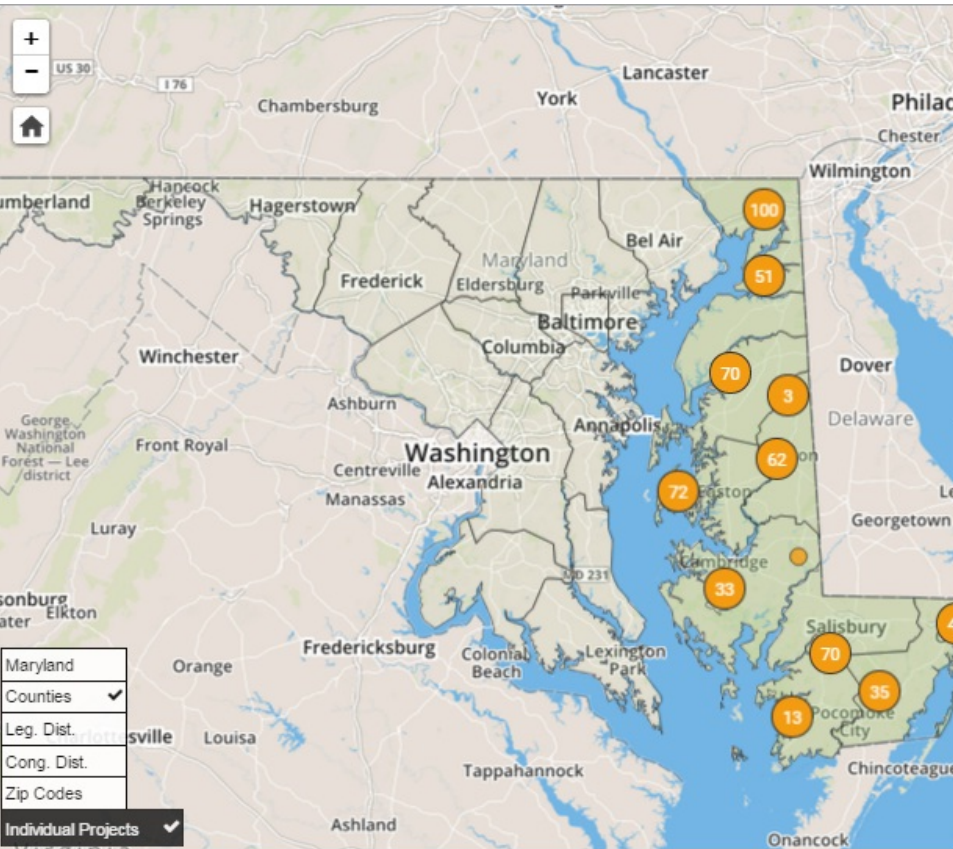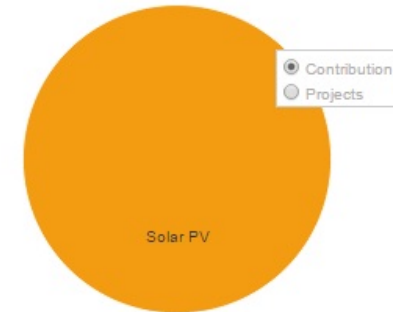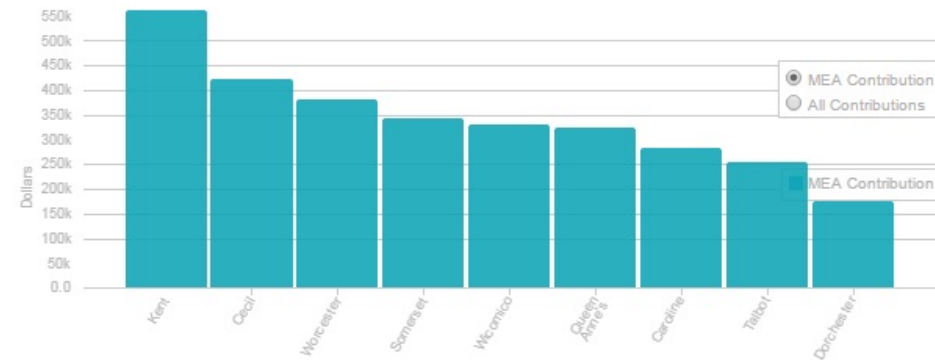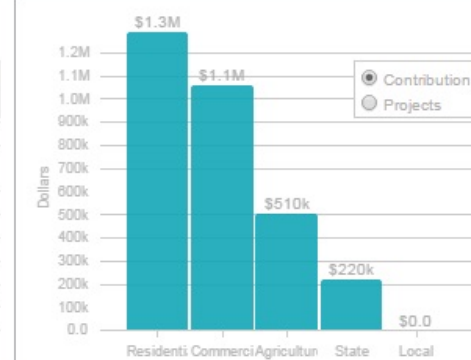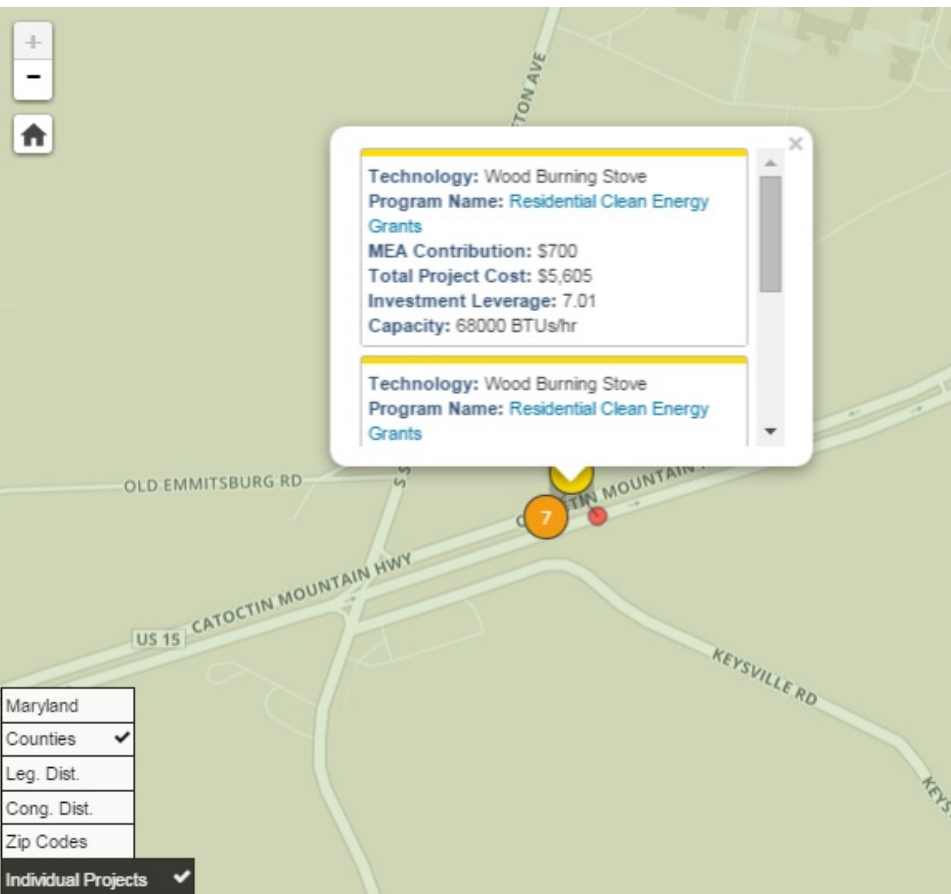○ Projects

Solar PV

Map legend:
Maryland
Counties ✓
Leg. Dist.
Cong. Dist.
Zip Codes
Individual Projects ✓

Map markers: 100, 51, 70, 3, 62, 72, 33, 70, 35, 13

Contribution By Region

○ MEA Contribution
○ All Contributions

MEA Contribution

Dollars: 0.0 – 550k

Regions: Kent, Cecil, Worcester, Somerset, Wicomico, Queen Anne's, Caroline, Talbot, Dorchester

Activity By Program

○ Contribution
○ Projects

Dollars: 0.0 – 1.2M

$1.3M (Residential), $920k (Commercial), $870k (Clean), $0.0 (EECBG)

Activity By Sector

○ Contribution
○ Projects

Dollars: 0.0 – 1.2M

$1.3M (Residential), $1.1M (Commercial), $510k (Agriculture), $220k (State), $0.0 (Local)

Map popup:

Technology: Wood Burning Stove
Program Name: Residential Clean Energy Grants
MEA Contribution: $700
Total Project Cost: $5,605
Investment Leverage: 7.01
Capacity: 68000 BTUs/hr

Technology: Wood Burning Stove
Program Name: Residential Clean Energy Grants

Map labels: OLD EMMITSBURG RD, CATOCTIN MOUNTAIN HWY, US 15, KEYSVILLE RD, TON AVE, MOUNTAIN

Maryland
Counties ✓
Leg. Dist.
Cong. Dist.
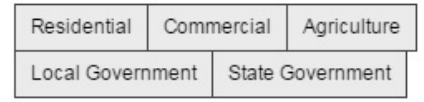Zip Codes
Individual Projects ✓

Project Filters

Select filters to view Maryland Energy Administration contributions to the growth of affordable and reliable renewable energy in our state.
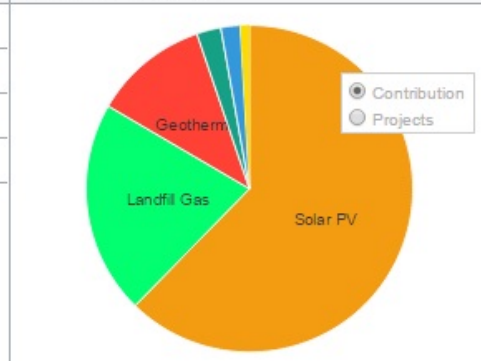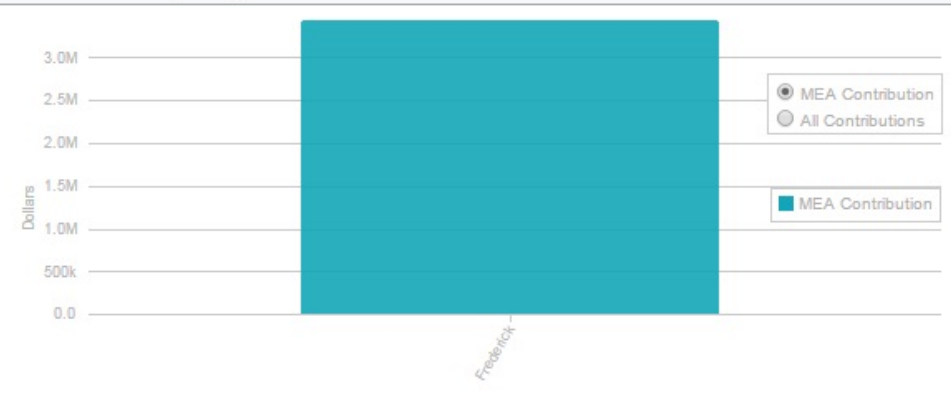
Reset Map

Technology

- ✓ Solar PV
- ✓ Solar Hot Water
- ✓ Geothermal
- ✓ Wood Burning Stove
- ✓ Wind
- ✓ Bioheat
- ✓ Landfill Gas

Sector

| Residential | Commercial | Agriculture |
| Local Government | State Government | |

Investment Stats

Total Projects	694
MEA Contribution	$3,435,730
Total Project Cost	$21,631,799
Investment Leverage	12.04

Technology Type

○ Contribution
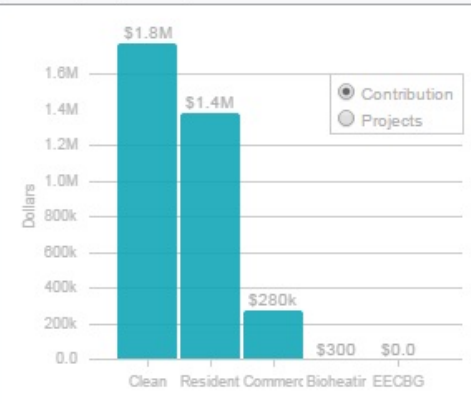○ Projects

(Pie chart: Solar PV, Geotherm..., Landfill Gas)

* Residential and Agricultural projects are plotted at the center of their zip codes to ensure recipient privacy.

Contribution By Region

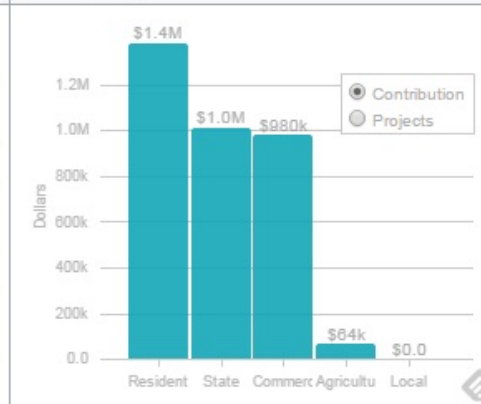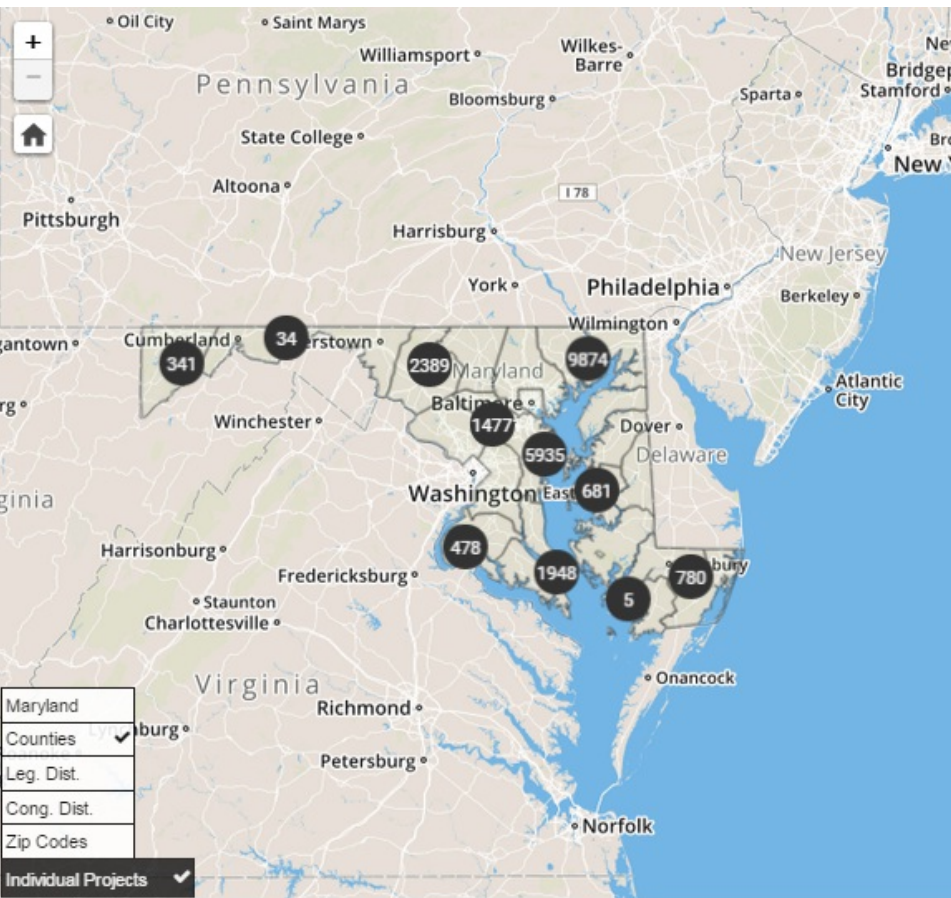○ MEA Contribution
○ All Contributions

■ MEA Contribution

(Bar chart: Frederick)

Activity By Program

○ Contribution
○ Projects

(Bar chart: Clean $1.8M, Resident $1.4M, Commerc $280k, Bioheatir $300, EECBG $0.0)

Activity By Sector

○ Contribution
○ Projects

(Bar chart: Resident $1.4M, State $1.0M, Commerc $980k, Agricultu $64k, Local $0.0)

Project Filters

Select filters to view Maryland Energy Administration contributions to the growth of affordable energy efficiency in our state.

Reset Map

Sector

| Residential | Commercial | Agriculture |
| Local Government | State Government |

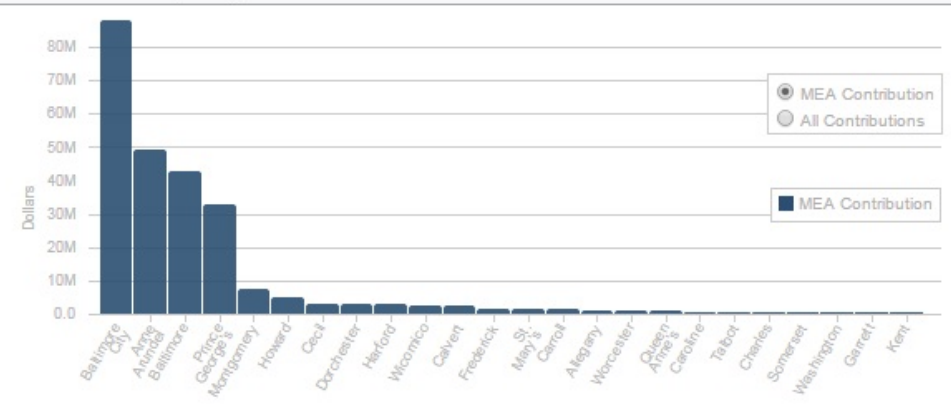**Program**

All ▼

Investment Stats

Total Projects	37,462
MEA Contribution	$257,414,677
Total Project Cost	$317,814,729
Investment Leverage	0.36
Electricity Savings	181,754,307 kWh

* Investment Leverage for energy efficiency is low due to financing programs, for which investment leverage is not calculated.
* Residential and Agricultural projects are plotted at the center of their zip codes to ensure recipient privacy.
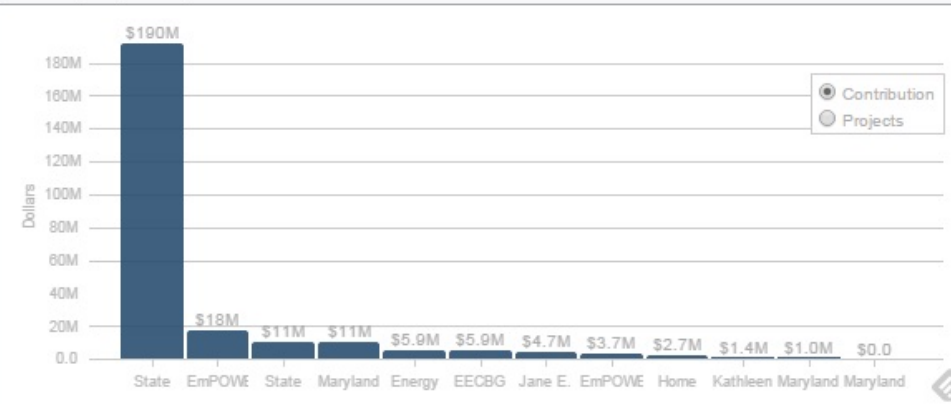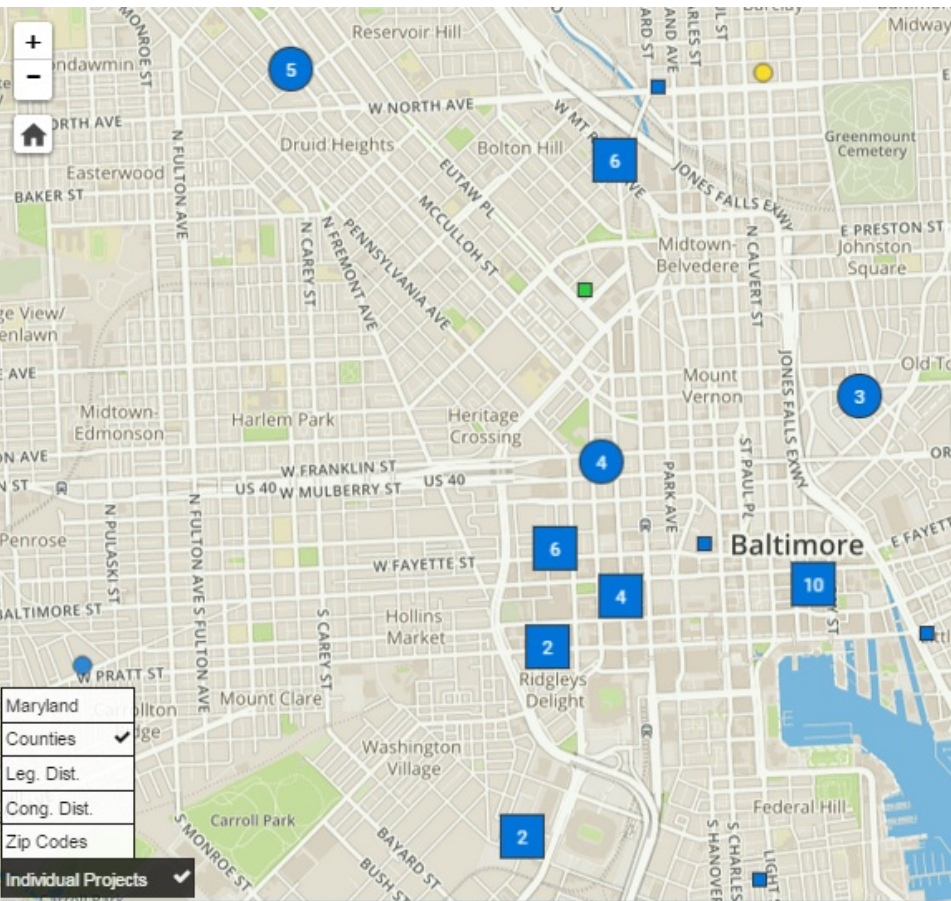
Activity By Sector
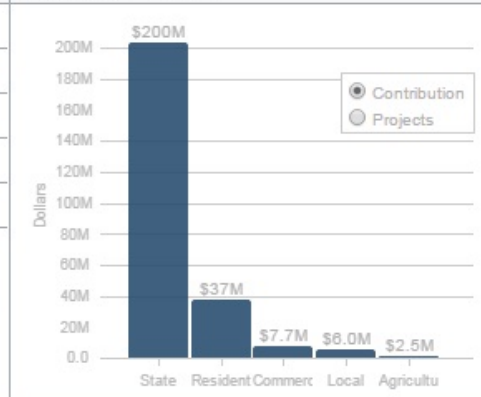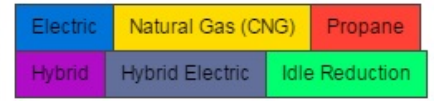

Contribution By Region

Activity By Program

Project Filters

Select filters to view Maryland Energy Administration contributions to the growth of affordable and reliable clean transportation in our state.
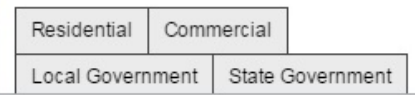
Reset Map

● **Vehicle Technology**

Electric	Natural Gas (CNG)	Propane
Hybrid	Hybrid Electric	Idle Reduction

■ **Charging/Fueling Station Technology**

Electric	E85	Natural Gas (CNG)
Back-up Generator		

Sector

Residential	Commercial
Local Government	State Government

Investment Stats

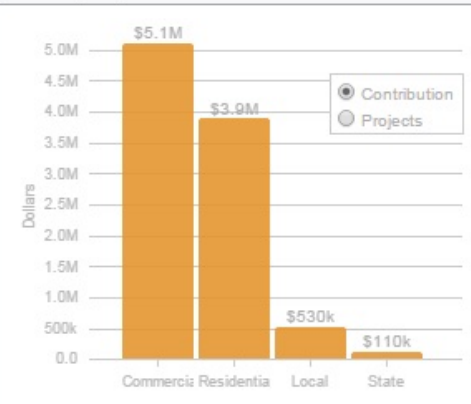| Total Projects	3,195
MEA Contribution	$9,638,232
Total Project Cost	$110,938,970
Investment Leverage	11.14

* Residential and Agricultural projects are plotted at the center of their zip codes to ensure recipient privacy.

Vehicle Technology

○ Contribution
● Projects

Electric

Contribution By Region

- ● MEA Contribution
- ○ All Contributions

■ MEA Contribution

(Y-axis: Dollars — 0.0 to 2.2M)

Regions (X-axis): Baltimore City, Montgomery, Prince George's, Howard, Baltimore, Anne Arundel, Frederick, Harford, Somerset, Talbot, Carroll, Dorchester, Calvert, St. Mary's, Charles, Cecil, Caroline, Washington, Wicomico, Worcester, Queen Anne's, Allegany, Kent, Garrett

Activity By Sector

○ Contribution
○ Projects

(Y-axis: Dollars — 0.0 to 5.0M)

Commercial	$5.1M
Residential	$3.9M
Local	$530k
State	$110k

Charging/Fueling Station Technology

○ Contribution
● Stations

Electric

Map labels

Maryland
Counties ✓
Leg. Dist.
Cong. Dist.
Zip Codes
Individual Projects ✓

Map markers: 5, 6, 3, 4, 6, 4, 10, 2, 2

Baltimore
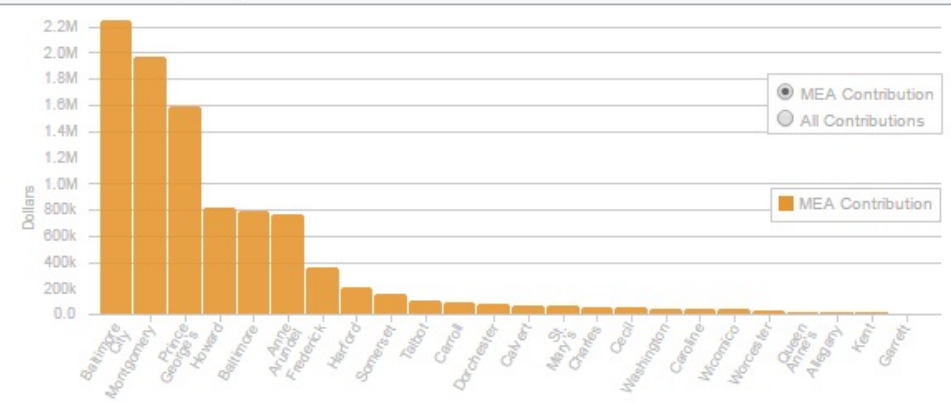
Three main tools

1. Smart Energy Investment Map

2. Smart Energy Investment Dashboard

3. Maryland's Open Data Portal

Open Data

- Central location for Maryland's public data
- Run by Department of Information Technology
- Provides Marylanders with an unprecedented level of access to state data, increasing transparency and accountability
- State agencies upload datasets, create graphical illustrations, and generate maps
- Provides MEA the ability to embed charts and maps in our website

- Clean Burning Wood Stove Map: http://1.usa.gov/1MtXaug

Department of Information Technology
OPEN DATA PORTAL
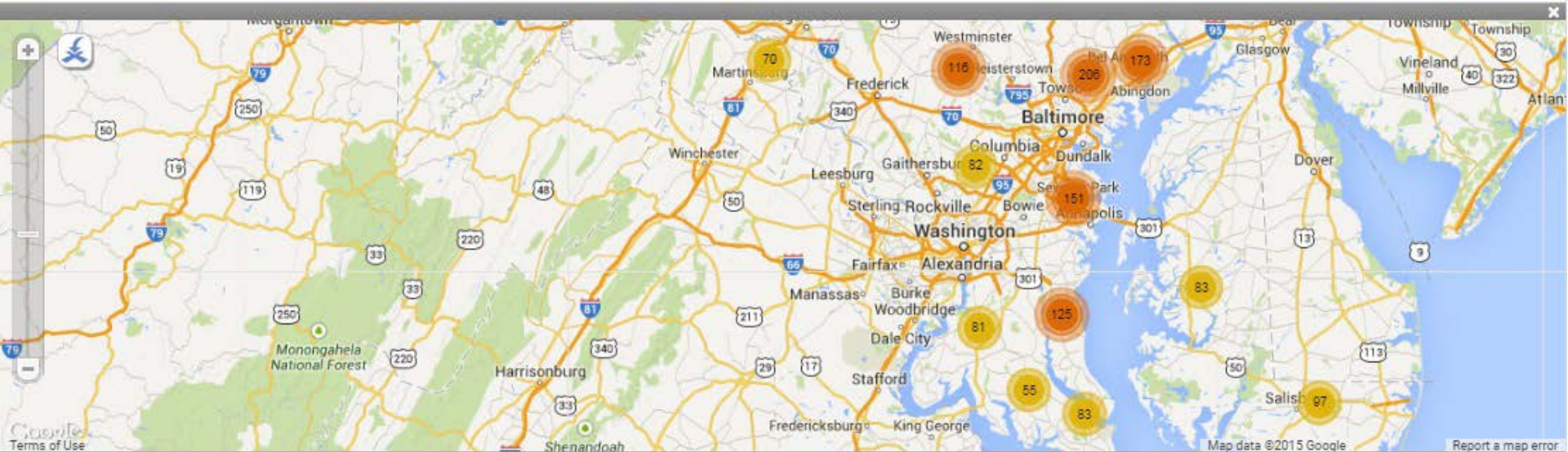
SOCIAL MEDIA DIRECTORY

Clean Burning Wood Stove Grants: Map
Based on Clean Burning Wood Stove Grants
To help Maryland homeowners invest in clean energy, the Maryland Energy Administration provides ▸

Find in this Dataset

Manage | More Views | Filter | Visualize | Export | Discuss | Embed | About

		Program Name		Stove Type		Capacity (BTU/hr)		Award Amount		Total Project Cost
1	≣	Residential Renewable Grants		Wood Stove		74.3		$400.00		
2	≣	Residential Renewable Grants		Pellet Stove		1,200		$700.00		
3	≣	Residential Renewable Grants		Pellet Stove		1,500		$600.00		
4	≣	Residential Renewable Grants		Pellet Stove		1,800		$700.00		

Contact Us | Privacy | Accessibility

SOCIAL MEDIA DIRECTORY

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Toll Free: 877.634.6361

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Helpful Links

- Smart Energy Investment Map
  - http://energy.maryland.gov/map/index.html

- Smart Energy Investment Dashboard
  - Coming soon!

- Maryland's Open Data Portal
  - https://data.maryland.gov/

Questions?

Thank You!

DANIEL LAUF
Manager, Data Analysis
dan.lauf@maryland.gov