

West Virginia
Energy



DIVISION OF ENERGY



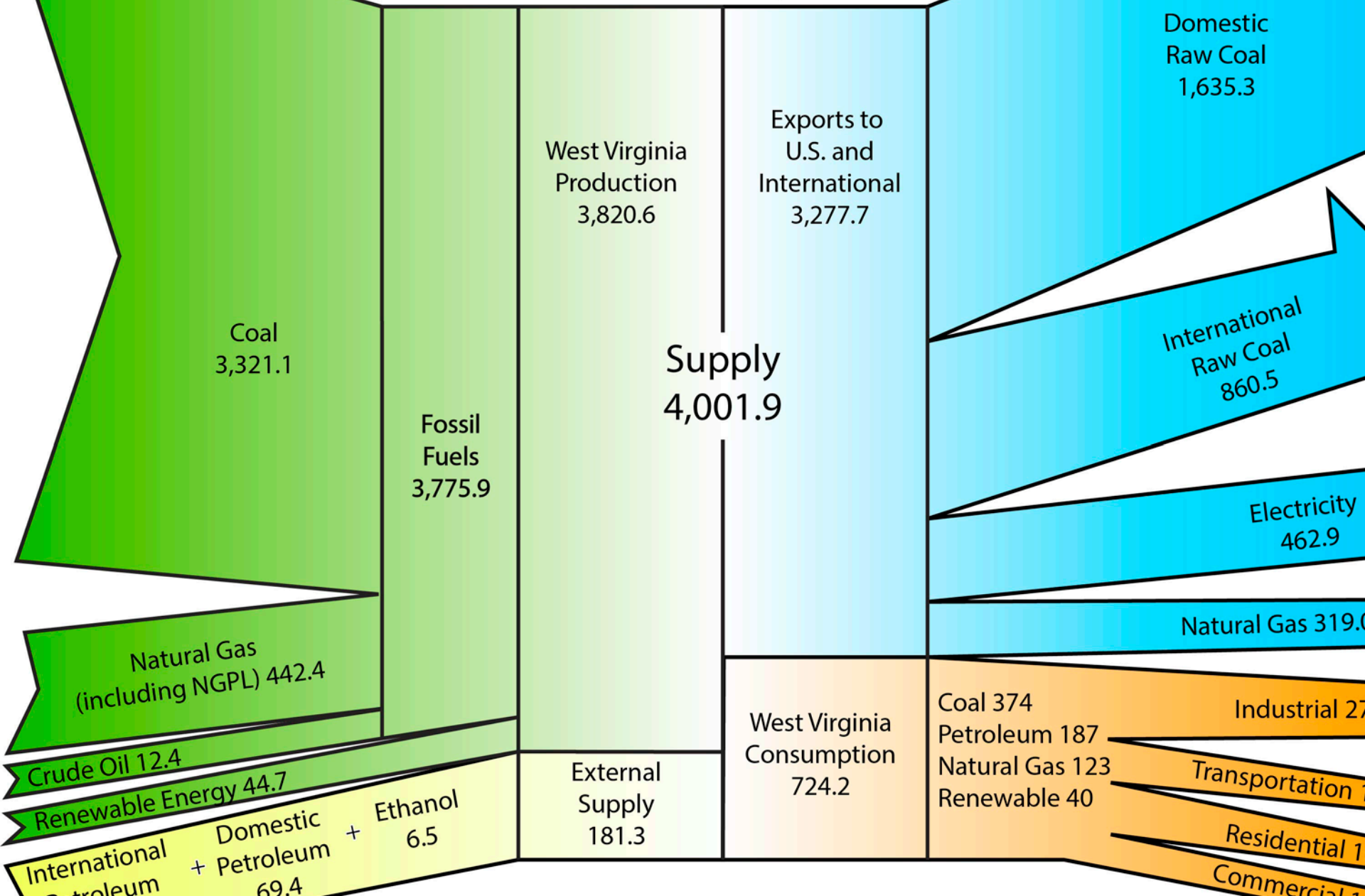
West Virginia
WEST VIRGINIA

Renewable Energy in the State of West Virginia

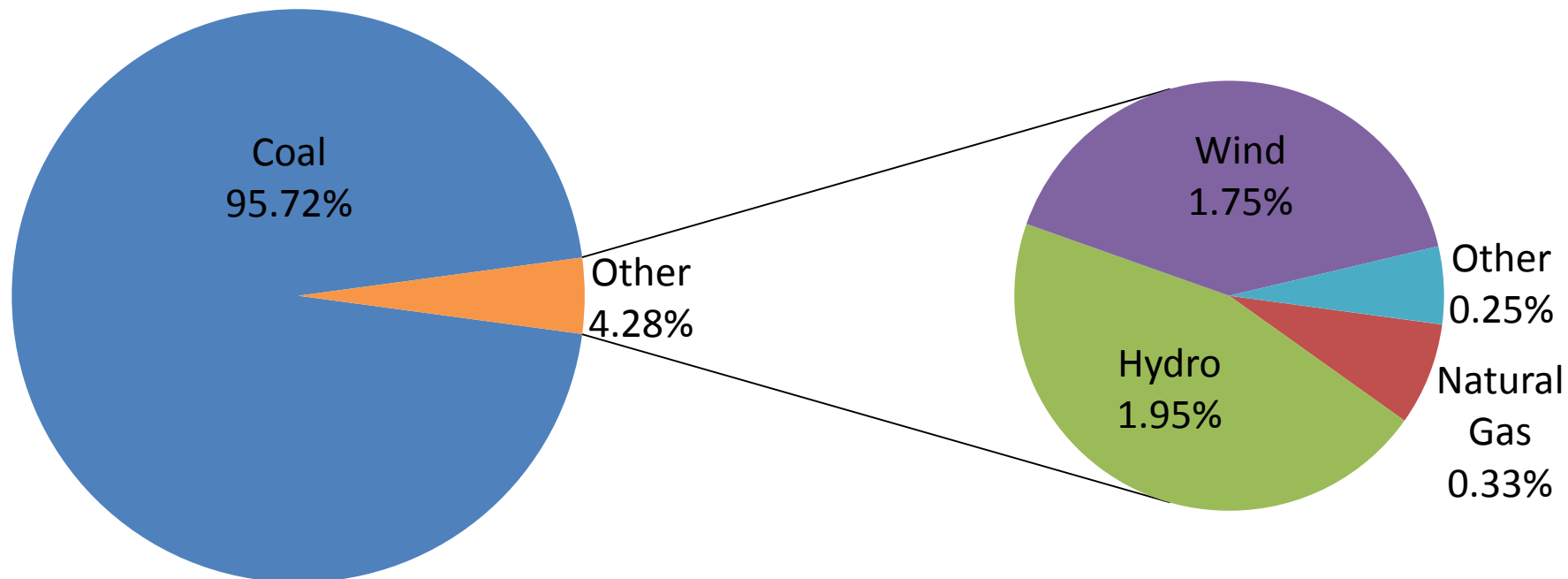
June 5, 2014
Flatwoods, WV

West Virginia Energy Flow 2011 (Trillion BTU)

Based on EIA Production & Consumption Data



West Virginia Net Electric Generation, 2012



Hydro

Licensed West Virginia Hydro Facilities

<i>Name</i>	<i>Capacity (MW)</i>	<i>Licensee</i>	<i>River</i>
London	14.4	Appalachian Power	Kanawha
Marmet	14.4	Appalachian Power	Kanawha
Winfield	14.76	Appalachian Power	Kanawha
Millville	2.84	Allegheny Energy Supply	Shenandoah
Lake Lynn	51.2	Allegheny Energy Supply	Monongahela
Hawks Nest	102	Hawks Nest Hydro	New
Glen Ferris	5.45	Hawks Nest Hydro	New
Dam No. 4	1.9	Allegheny Energy Supply	Potomac
Dam No. 5	1.21	Allegheny Energy Supply	Potomac
Racine	47.5	Ohio Power	Ohio
New Martinsville	35.72	City of New Martinsville	Ohio
Willow Island	35	American Municipal Power	Ohio
Belleville	42	Omega JV5	Ohio
Summersville	80	City of Summersville	Gauley
Jennings Randolph	14	Fairlawn Hydroelectric	Potomac



Hawks Nest Hydro Facility

**Total Capacity:
462.38 MW**

Hydro Cont.

Issued Preliminary Permits in West Virginia

<i>Name</i>	<i>Capacity (MW)</i>	<i>Licensee</i>	<i>River</i>
Mount Storm Pumped Storage	350	Mount Storm Hydro	Closed-Loop
Stonewall Jackson	0.3	Mahoning Hydropower	West Fork
New Cumberland Locks & Dam	49.8	FFP Project 121	Ohio



New Cumberland Locks and Dam

Total Preliminary Permit Capacity:
400.1 MW

Wind

West Virginia Wind Farms

Currently Operating

<i>Name</i>	<i>Capacity (MW)</i>	<i>Operator</i>	<i>County</i>
Beech Ridge	100.5	Invenergy Services	Greenbrier
Laurel Mountain	97.6	AES Wind Generation	Randolph
Mountaineer Wind Energy	66	FPL Energy	Tucker
NedPower Mount Storm	264	Shell Wind Energy	Grant
Pinnacle	55	Edison Mission Energy	Mineral

Permitted

<i>Name</i>	<i>Capacity (MW)</i>	<i>Operator</i>	<i>County</i>
New Creek	160	AES Wind Generation	Grant

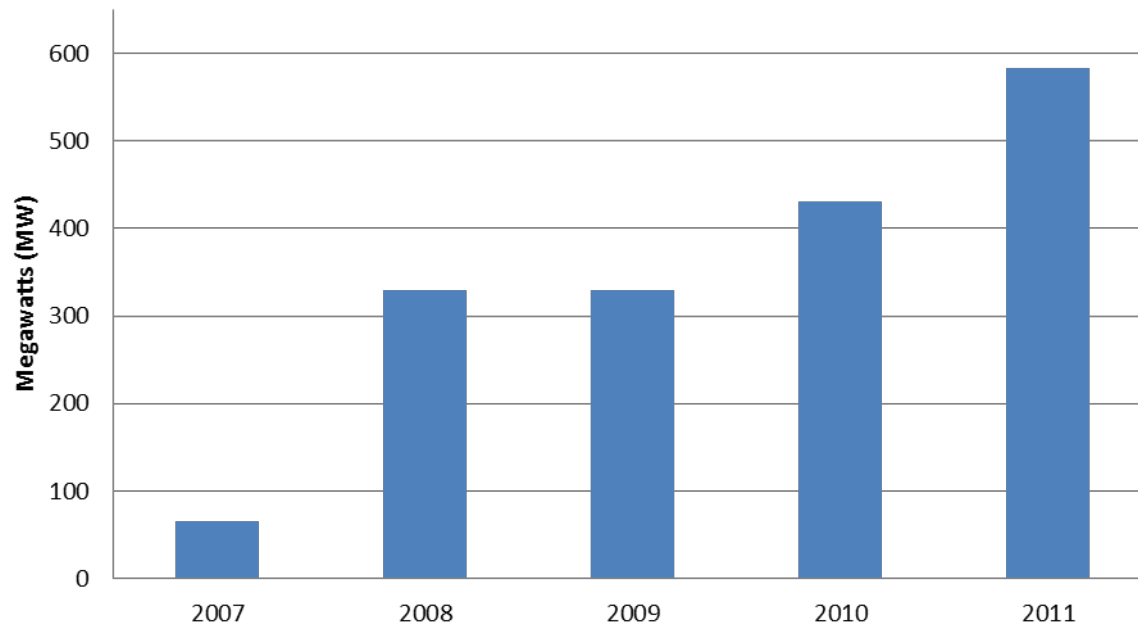


NedPower Mount Storm

Operating Capacity:
583.1 MW

Wind Capacity

WV Wind Electric Generating Capacity
2007-2011



Source: <https://gats.pjm-eis.com/myModule/rpt/myrpt.asp?r=501>

West Virginia has the largest wind capacity in the south east.

Solar

Examples of state and local government installations supported by WV Division of Energy

- Morgan County Courthouse
- Town of Man
- Village of Beech Bottom
- Hurricane Municipal Waste Water Treatment
- Mt. View High School
- University High School
- Cameron High School
- West Virginia DEP Headquarters



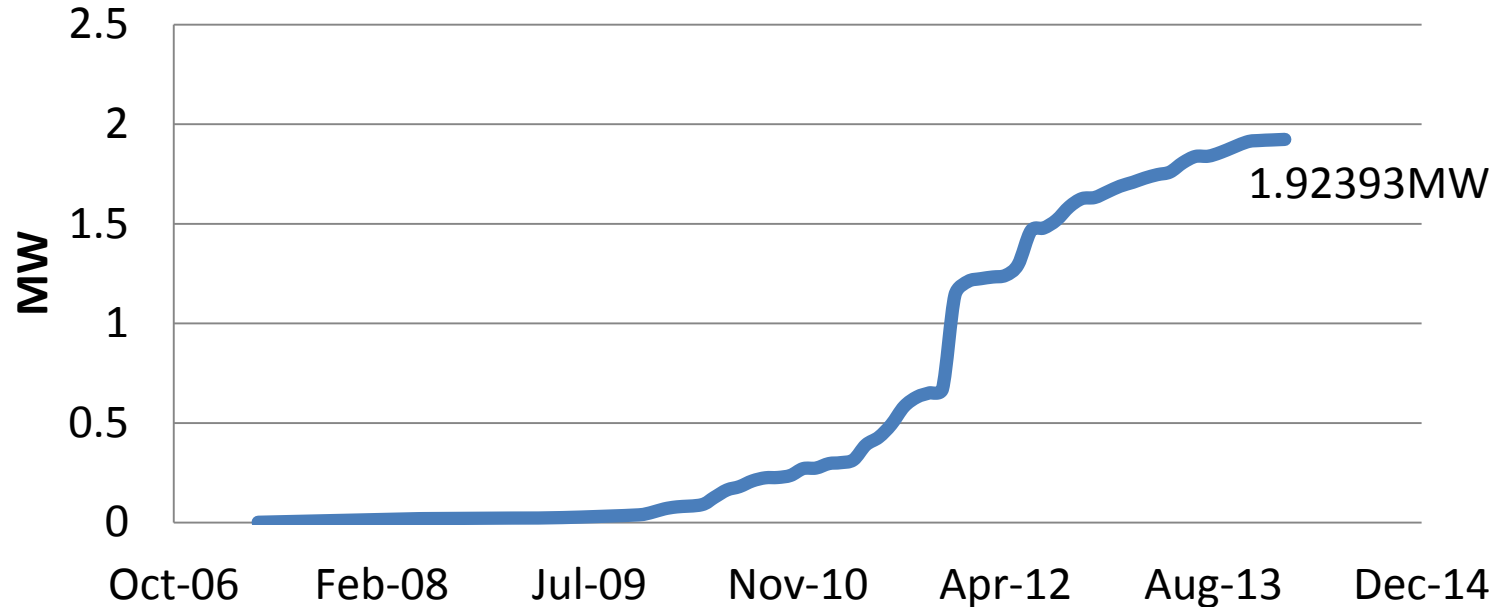
Morgan County Courthouse



DEP Headquarters

Solar Capacity

**West Virginia Solar Capacity Growth
(May 2007 - February 2014)
Source: PJM GATS Database**



Solar Conference

- Hosted by Shepherd University in Shepherdstown, WV.
- Highlights solar activity in West Virginia.
- Presentations are made by WV solar installation companies who discuss state-of-the-art technologies and the benefits of solar installations.



Geothermal HVAC

- Utilizing consistent underground temperatures for facility heating/cooling.
- State and local government installations supported by WV Division of Energy
 - Spring Mills Primary
 - Buckhannon City Hall
 - Franklin Town Office

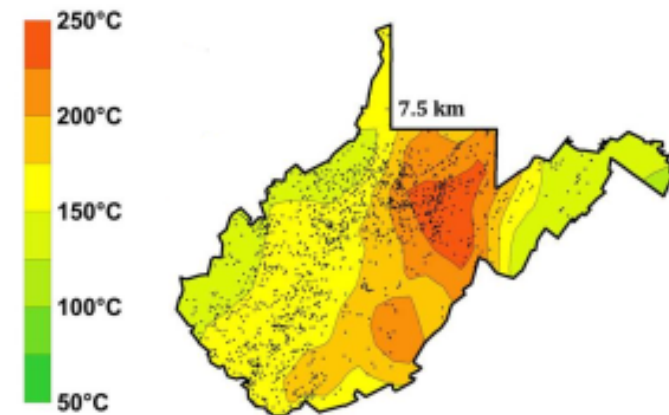


Buckhannon Geothermal Installation

Geothermal Conference

- Held May 22, 2012 at Days Hotel and Conference Center in Flatwoods, WV.
- Highlighted the significance of WV geothermal resources identified by Southern Methodist University and Google.
- The conference main focus was to lay out the steps involved in evaluating and developing these geothermal resources.

Temperature-at-Depth of 7.5 km



Biomass

- Test Plots of Grasses
 - Energy Parks (Switchgrass)
 - Biodegradable Plastics (Arundo Donax)
- West Virginia wood pellet producers:
 - Appalachian Wood Pellets
 - Hamer Pellet Fuel Company
 - Lignetics of West Virginia
- Charleston Landfill Gas Project
 - Summer Capacity: 2.2 MW
- Biochar and syngas production from poultry litter



Arundo Donax



Biomass & CHP Workshop

- Held June 25, 2013 at the Erickson Alumni Center in Morgantown, WV.
- Focused on the opportunities for the bioenergy industry in the region.
- The workshop discussed topics such as types of facilities that benefit from CHP and how pellet producers can take advantage of emerging markets.



THANK YOU