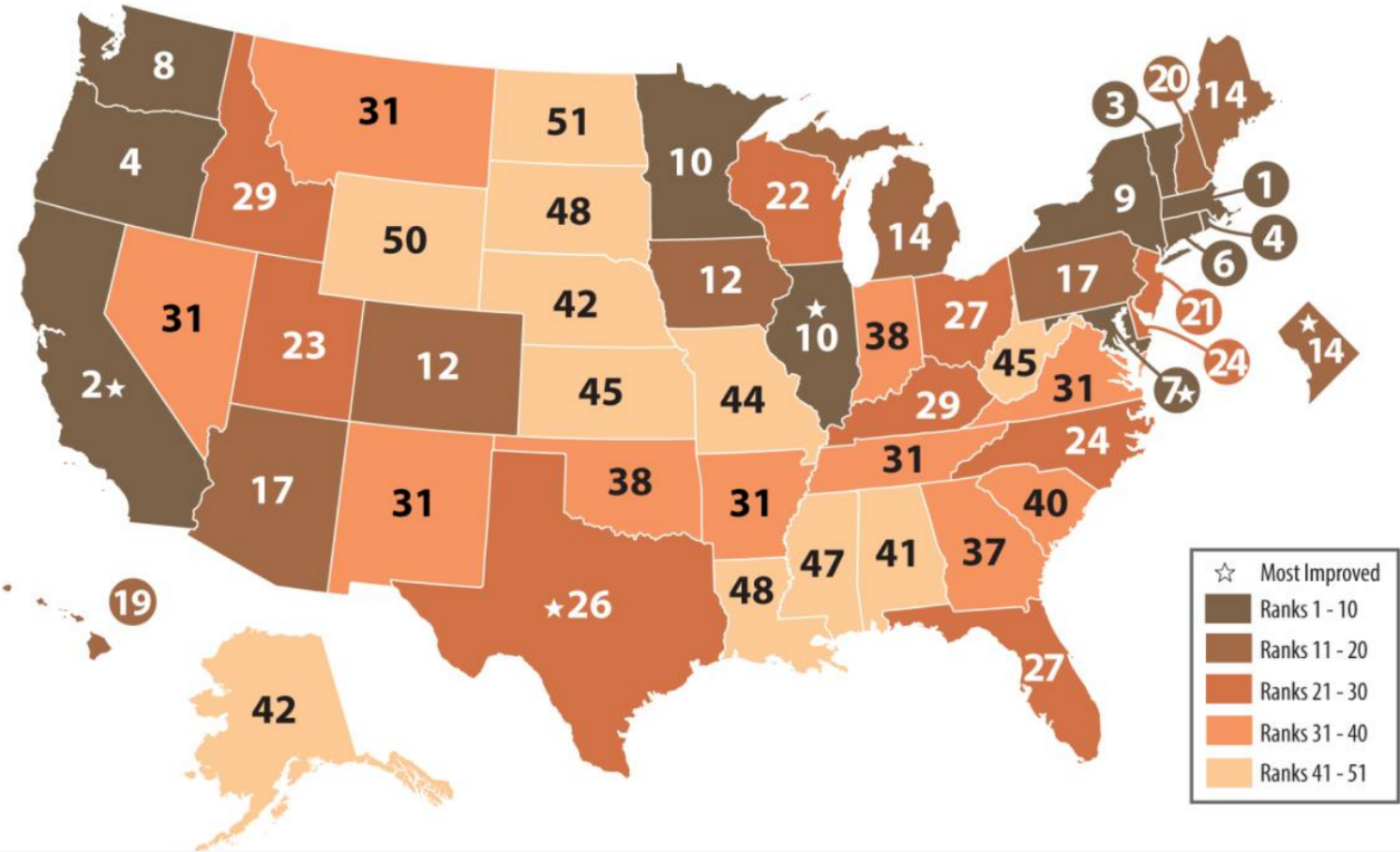




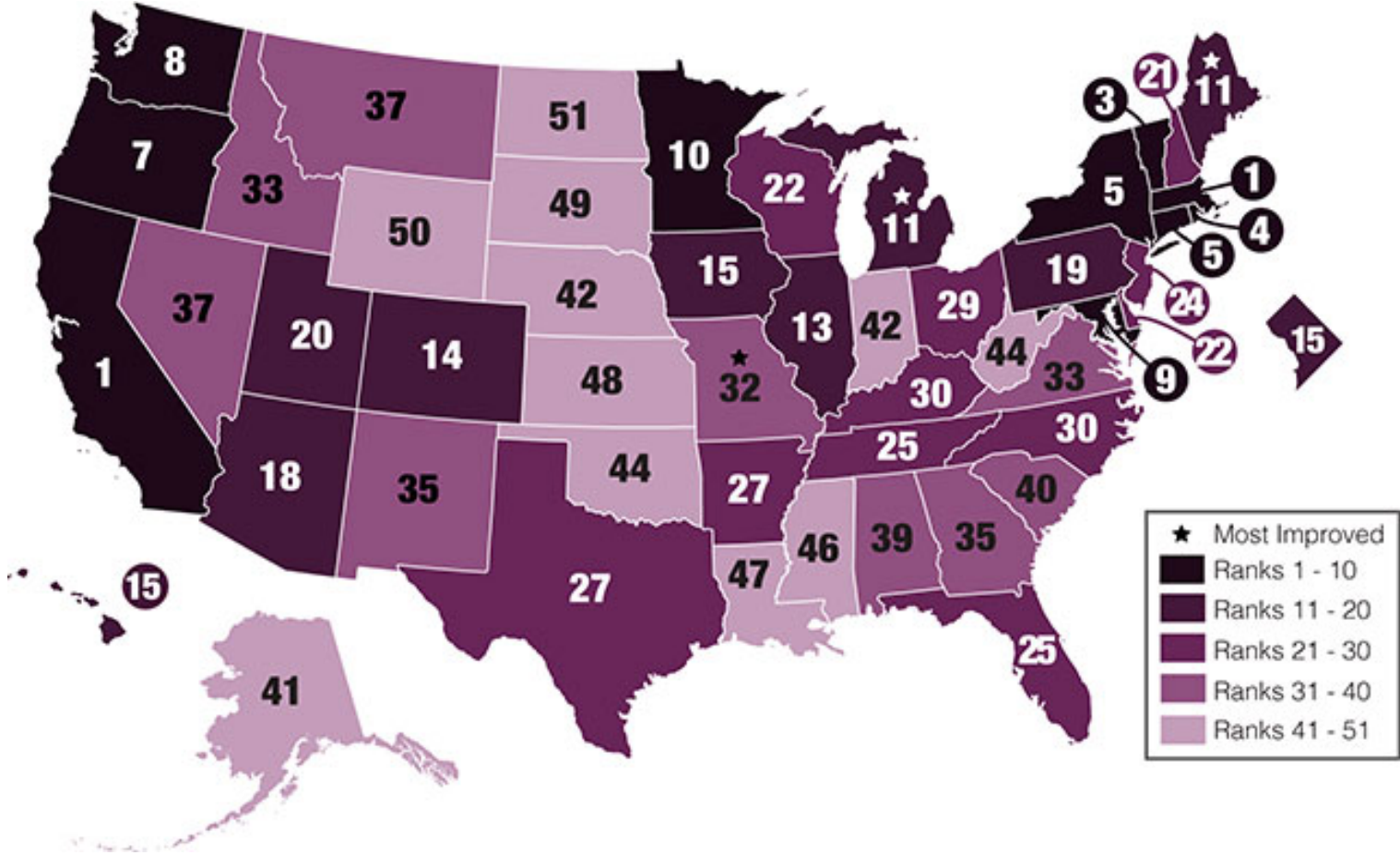
**Economic Development through Energy Efficiency:  
*Energy Efficiency Policy in West Virginia***

June 13, 2017  
Embassy Suites  
Charleston, West Virginia

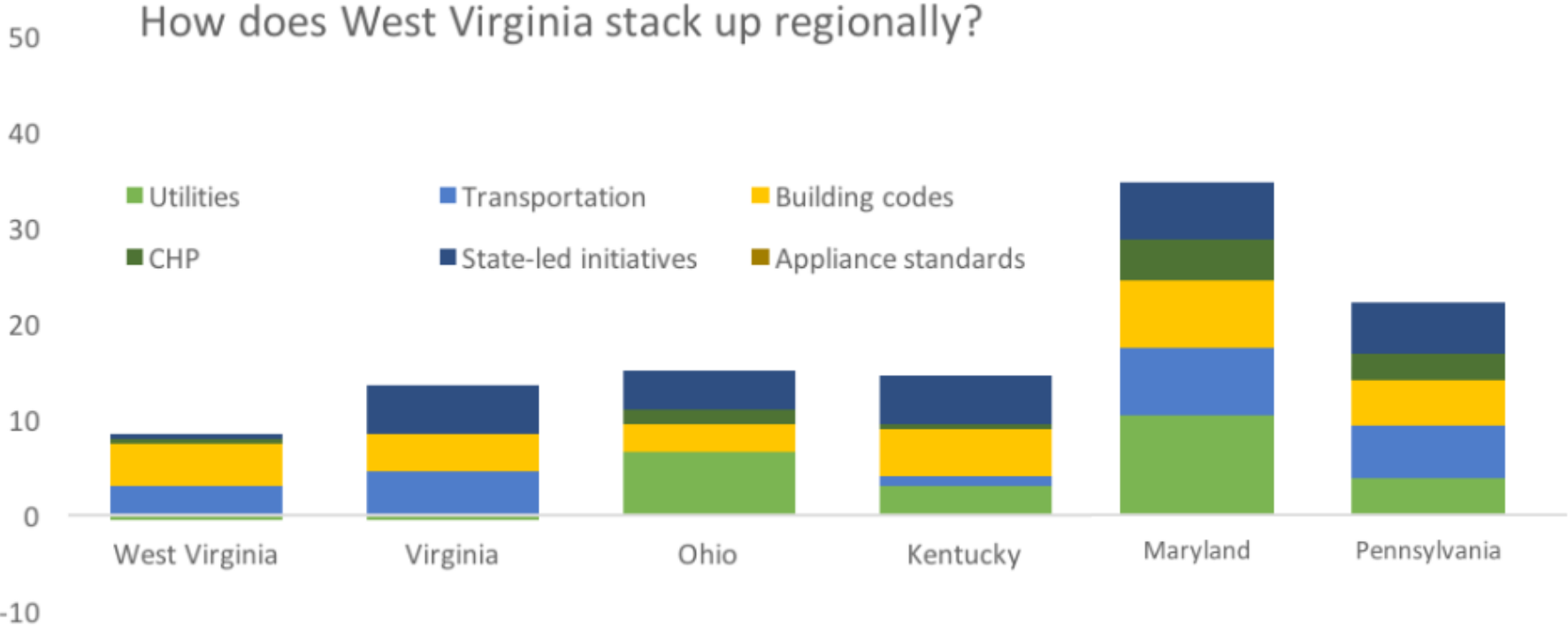
# How does WV compare to other states?



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# How does WV compare to other states?

Policy building blocks to an energy-efficient economy:

- I. Utilities
- II. Building codes
- III. CHP
- IV. State-led initiatives
  - A. Financial incentives
  - B. Benchmarking & Transparency
  - C. “Lead by example”
  - D. R&D

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# Savings as a % of 2015 retail sales

State	2015 net incremental savings (MWh)	% of 2015 retail sales	Score (7 pts.)
Rhode Island	222,822	2.91%	7
Massachusetts	1,472,536	2.74%	7
Vermont	110,642	2.01%	7
California†	5,040,603	1.95%	6.5
Maine†	183,347	1.53%	5
Hawaii‡	144,240	1.52%	5
Connecticut	435,740	1.48%	5
Washington	1,275,447	1.42%	4.5
Arizona†	918,582	1.19%	4
Michigan	1,177,277	1.16%	3.5
Minnesota†	750,672	1.15%	3.5
Illinois	1,553,917	1.13%	3.5
Oregon†	507,502	1.09%	3.5
New York	1,559,665	1.05%	3.5
Maryland	621,090	1.01%	3
Iowa	469,483	1.00%	3
Ohio*†	1,353,109	0.92%	3
Colorado	486,215	0.90%	3
Utah	254,153	0.85%	2.5
Wisconsin	538,678	0.79%	2.5
Indiana²	768,927	0.76%	2.5
Nevada†	257,034	0.72%	2
Idaho³	159,310	0.69%	2
Montana⁴	92,923	0.66%	2
Pennsylvania*	904,238	0.64%	2
North Carolina	827,508	0.62%	2
Missouri†	494,013	0.61%	2
District of Columbia	69,247	0.61%	2

State	2015 net incremental savings (MWh)	% of 2015 retail sales	Score (7 pts.)
Arkansas	282,000	0.61%	2
New Hampshire†	64,869	0.59%	1.5
New Mexico	128,834	0.56%	1.5
New Jersey†	409,957	0.55%	1.5
South Carolina⁵	435,399	0.54%	1.5
Nebraska*	156,473	0.53%	1.5
Kentucky	266,522	0.36%	1
Oklahoma	190,497	0.32%	1
Mississippi	144,401	0.29%	0.5
South Dakota	28,686	0.24%	0.5
Georgia†	315,625	0.23%	0.5
Tennessee†	185,355	0.19%	0.5
West Virginia	61,349	0.19%	0.5
Delaware†	21,624	0.19%	0.5
Texas†	698,688	0.18%	0.5
Florida*†	262,085	0.11%	0
Wyoming*†	15,515	0.09%	0
Alabama**†	78,067	0.09%	0
Louisiana	66,695	0.08%	0
Virginia*†	71,182	0.06%	0
North Dakota†	1,663	0.01%	0
Alaska**†	409	0.01%	0
Kansas*†	774	0.00%	0
Guam	—	0.00%	0
Puerto Rico	—	—	0
Virgin Islands	—	0.00%	0
<b>US total</b>	<b>26,535,588</b>	<b>0.71%</b>	
<b>Median</b>	<b>255,593</b>	<b>0.61%</b>	

Top ten: **1.18% to 2.91%**  
 (RI, MA, VT, CA, ME, HI, CT, WA, AZ, MI)

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Georgia†	315,625	0.23%	0.5
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West Virginia	61,349	0.19%	0.5
Delaware	22,027	0.18%	0.5
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Top ten: **1.27% to 3.51%**  
 (RI, MA, VT, CA, AZ, HI, MI, CT, MD, OR)

West Virginia:  
 Overall, **0.19%**





# WV Utility Efficiency Programs

	<u>FirstEnergy</u>	<u>AEP</u>
Energy Assessments	low-income residential in-home and online above low-income threshold	In-home assessments for all residential
Lighting rebates	commercial only	Retail/residential and commercial
Other rebates	Programs	HVAC, recycling fridges, custom C&I, C&I equipment rebates
Residential Peak Reduction	none	\$40/year for a/c

# Other States' Utility Efficiency Programs

Offered by FirstEnergy and/or AEP in other states:

- Private contractor home energy assessments (Appalachian Power in VA)
- Home Performance with Energy Star (Potomac Edison in MD)
- Residential new construction (AEP I&M, Potomac Edison in MD)
- “Community Energy Savers” – local government partnerships for government, businesses, and residents to become more energy efficient (AEP OH)
- Education program for kids (AEP OH)
- Agricultural program (AEP OH)
- “Retrocommissioning lite” (AEP IN & MI Power)
- Public efficient street lights (AEP I&M)
- C&I Demand Management (“Work Energy Management”) (AEP I&M)

# Integrated Resource Plans (IRPs)

# Integrated Resource Plans

- Helps utility customers by requiring utilities to plan ahead for meeting its needs.
- Puts efficiency and other demand resources on equal footing with generation.
- If efficiency (or any resource) is more cost-effective, IRPs allow the utility to utilize the best option.

# Integrated Resource Plans

- Passed in 2014
- Required the PSC issue an order describing what should be in the utilities' IRPs and that the utilities issue their IRPs by the end of 2015.
  - **Did not require the PSC to approve the plans.**
- Both major utilities issued their IRPs.
  - AEP- ongoing support for energy efficiency programs.
  - FirstEnergy
    - Did no analysis on the cost-effectiveness of EE programs.
    - Plan to discontinue their meager EE programs after 2018.
    - Tipped its hand about a potential rate increase for WV customers to bail out a plant that an Ohio subsidiary owns.
- The PSC essentially had to accept the plans as submitted.

# How does WV compare to other states?

Policy building blocks to an energy-efficient economy:

I. Utilities

**II. Building codes**

III. CHP

IV. State-led initiatives

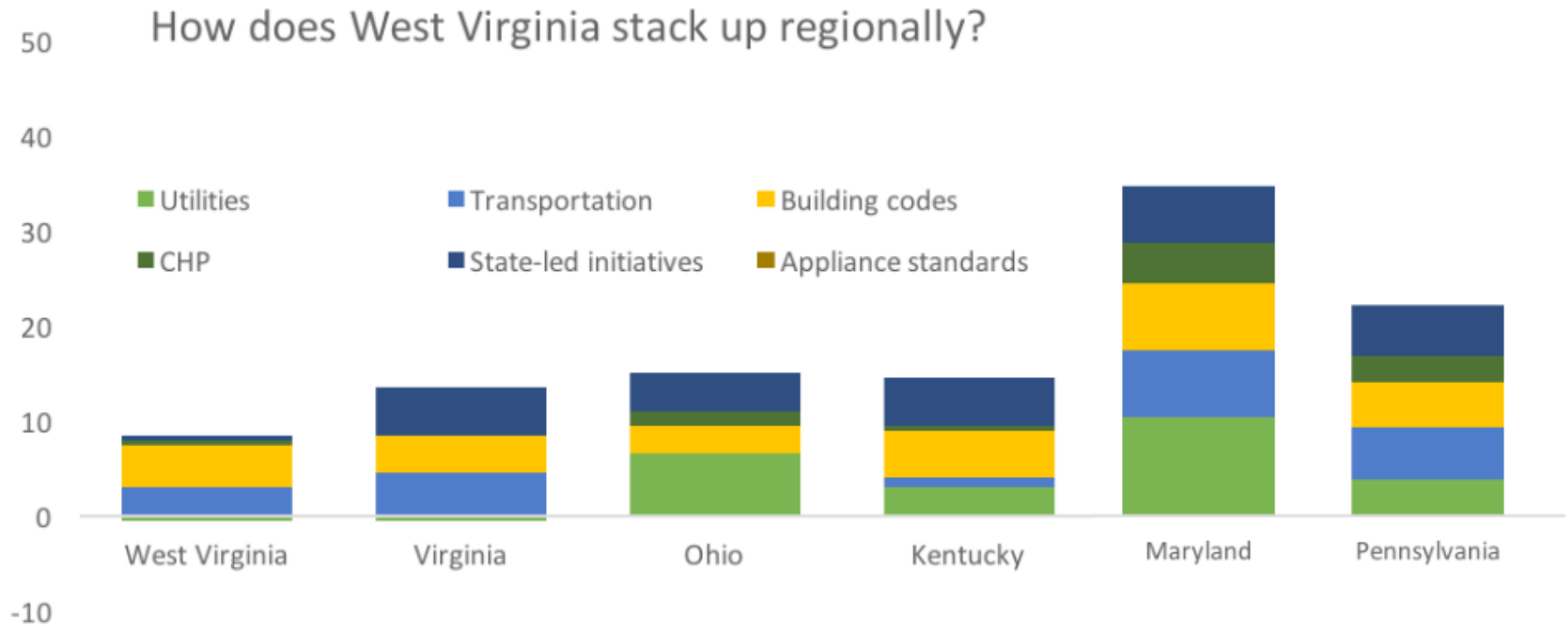
A. Financial incentives

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D. R&D

# How do WV building codes stack up?



# How do WV building codes stack up?

WV rank: 25<sup>th</sup> (tied with PA)

Other states: MD = 8<sup>th</sup>, KY = 19<sup>th</sup>, PA = 25<sup>th</sup>, VA = 27<sup>th</sup>, OH = 37<sup>th</sup>

Residential: International Energy Conservation Code (IECC) 2009

Commercial: ASHRAE 90.1-2007

## **Residential**

2015 IECC : MD

2012 IECC : VA (with weakened amendments)

2009 IECC : KY, WV, OH, PA

## **Commercial**

2015 IECC : MD

2012 IECC/ASHRAE 90.1-2010: KY, VA, OH

2009 IECC/ASHRAE 90.1-2007: PA, WV



# How does WV compare to other states?

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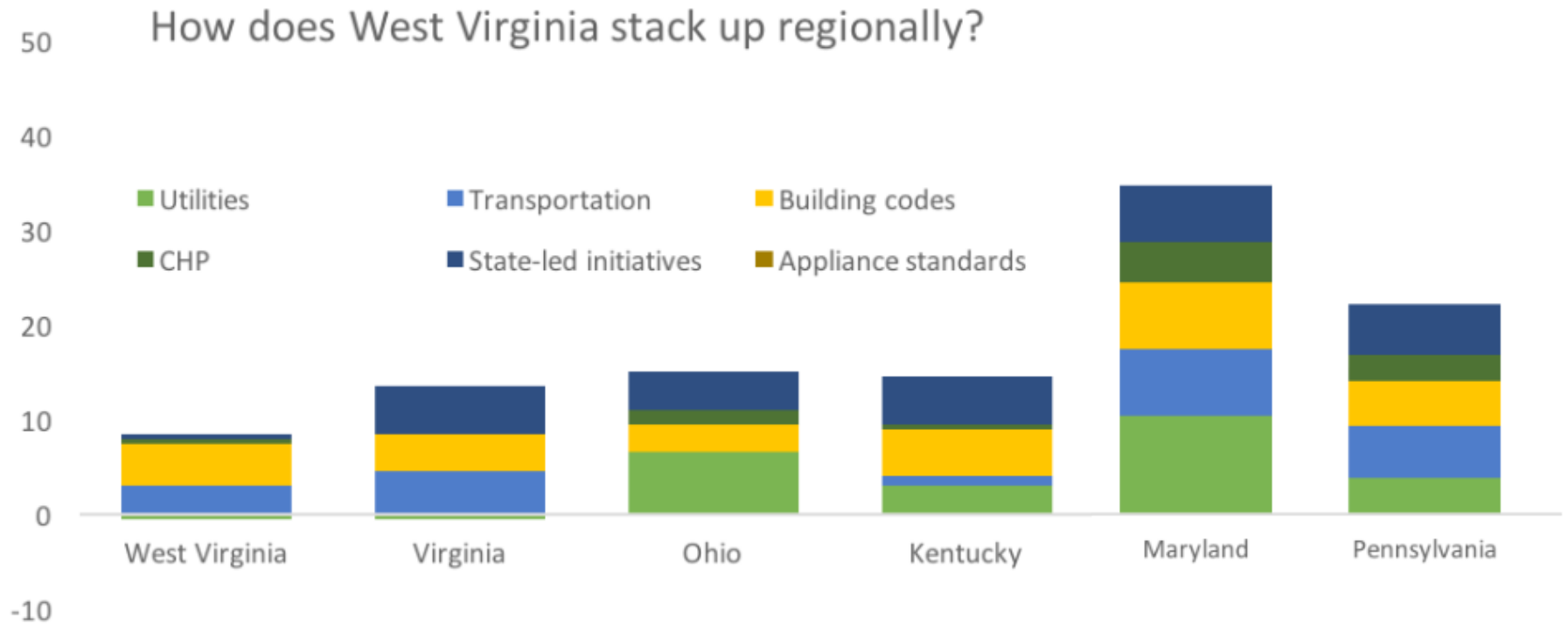
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# How do WV state initiatives stack up?



# State initiatives

Table 31. Summary of scores for government-led initiatives

State	Financial incentives (3 pts.)	Benchmarking and transparency (1 pt.)	Lead by example (2 pts.)	R&D (1 pt.)	Total score (7 pts.)
California	3	1	2	1	7
Washington	3	0.5	2	1	6.5
Colorado	3	0	2	1	6
Connecticut	3	0	2	1	6
Massachusetts	3	0	2	1	6
Minnesota	3	0	2	1	6
New York	3	0.5	1.5	1	6
Tennessee	3	0	2	1	6
Maryland	3	0	1.5	1	5.5
Oregon	3	0	1.5	1	5.5
Alaska	3	0.5	1	0.5	5
Kentucky	3	0	1.5	0.5	5
Maine	2.5	0.5	1.5	0.5	5

# State initiatives

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Tennessee	3	0	2	1	6
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9<sup>th</sup>

11<sup>th</sup>

# State initiatives

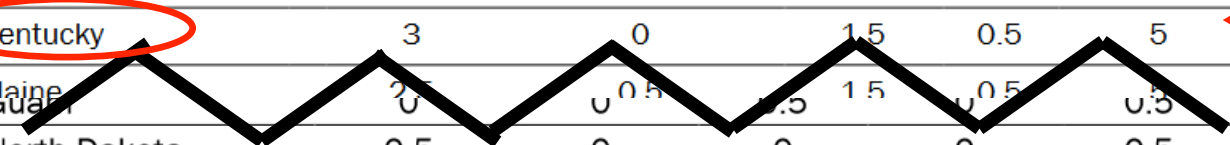
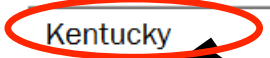
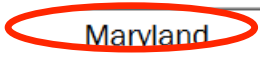
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Oregon	3	0	1.5	1	5.5
Alaska	3	0.5	1	0.5	5
Kentucky	3	0	1.5	0.5	5
Maine	2	0.5	1.5	0.5	4.5
Guam	2	0.5	1.5	0.5	4.5
North Dakota	0.5	0	0	0	0.5
US Virgin Islands	0	0	0.5	0	0.5
West Virginia	0	0	0	0.5	0.5

9<sup>th</sup>

11<sup>th</sup>

DEAD  
LAST



# State financial incentives

Policy building blocks to an energy-efficient economy:

I. Utilities

II. Building codes

**III. State-led initiatives**

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# State financial incentives

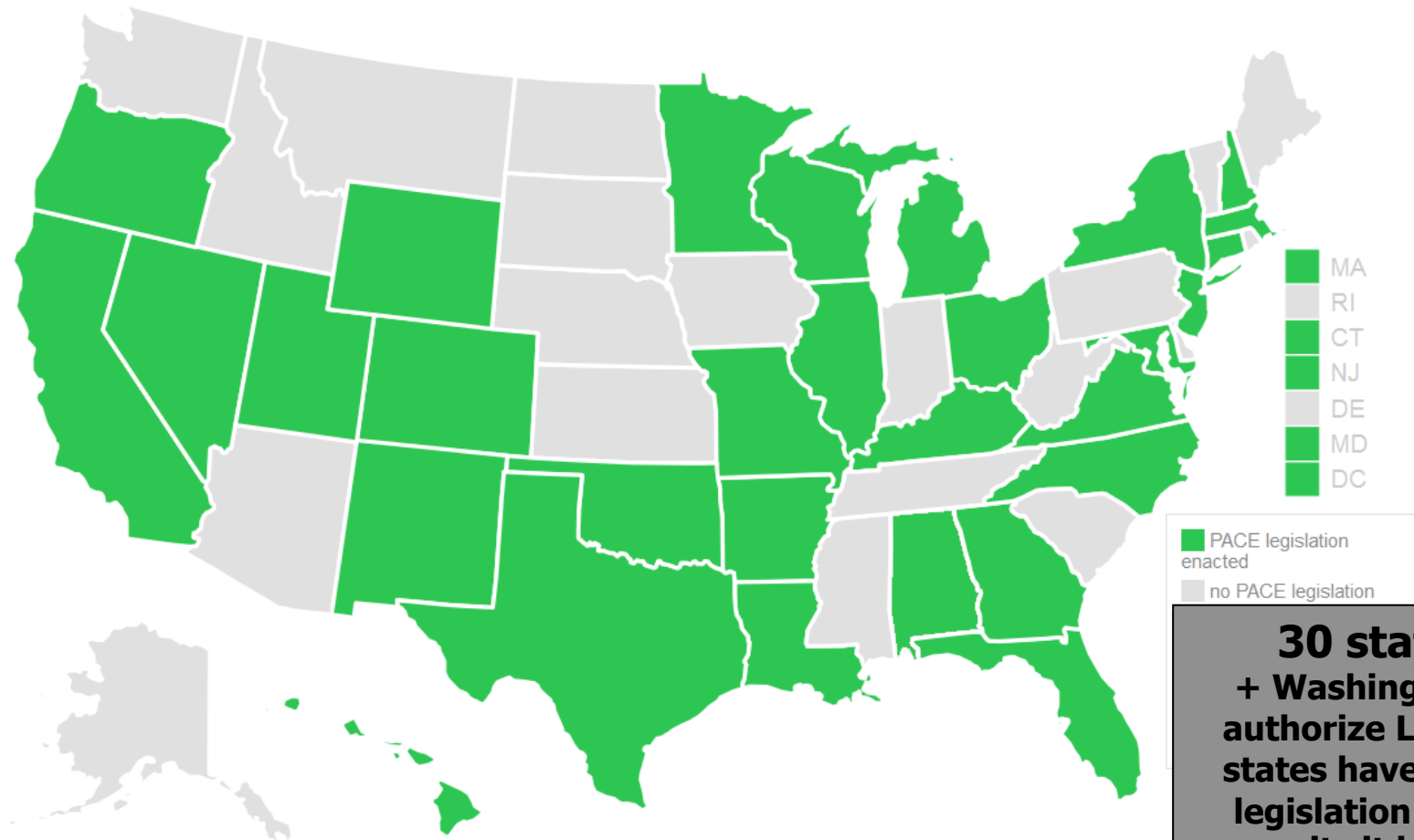
- **Kentucky** - Personal and corporate energy efficiency tax credits; green bank loan for state agencies; sales tax exemption for energy-efficient products; three grants; commercial PACE financing
- **Maryland** - Different loans and grant programs for agricultural residential, multifamily, commercial, and industrial sectors; Smart Energy Communities Program; loans for state agencies; commercial PACE financing
- **Pennsylvania** - Alternative Energy Investment Fund; Pennsylvania Sustainable Energy Finance Program; several grant and loan programs
- **Virginia** - Energy Leasing Program for state-owned facilities; Clean Energy Manufacturing Grant Program; one loan program; personal and property tax incentives; commercial PACE financing; Clean Energy Development and Services (CEDS) program
- **Ohio** - Two loans and one grant program; property tax exemption for energy-efficient projects; commercial PACE financing
- **West Virginia** - None

# Local Energy and Efficiency Partnerships (LEEP)

(a/k/a “property-assessed clean  
energy” / “PACE”)



# The Local Energy Efficiency Partnership Act (“LEEP Act”)



# LEEP: Local Energy & Efficiency Partnerships – what are they??

- Funding mechanism for businesses to make energy efficiency upgrades using private capital
- Loan value  $\leq$  savings from upgrades
- Payback period  $\leq$  20 years
- Payments are made on the property tax ticket
  - If the business sells the building, the loan stays with the building, not the former owner.
  - The loans are “senior” to other liens on the property, unless the mortgagee says “no.”

# LEEP: Local Energy & Efficiency Partnerships – Key components

- State legislation needed to authorize municipalities
- Opt-in program for municipalities
- Application for businesses within municipalities that opt in
- Municipalities should/can reject applications that do not meet certain criteria, including:
  - Financial security of the borrower
  - Investment-grade energy audit
  - Ratio of the cost of upgrades to building value

# LEEP: Local Energy & Efficiency Partnerships – Where we are in WV

- 2015 & 16 bills cosponsored by Rs and Ds:
  - Republican cosponsors:  
Dels. Hanshaw, Ambler, Ashley, Canterbury, Cooper, D. Evans, and Walters;  
Sens. Walters and Blair
  - Democratic cosponsors:  
Dels. Fleischauer, Guthrie, Manchin, and Skinner;  
Sens. Miller, Snyder, and Woelfel

# Benchmarking and transparency

Policy building blocks to an energy-efficient economy:

I. Utilities

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**III. State-led initiatives**

A. Financial incentives

**B. Benchmarking & Transparency**

C. “Lead by example”

D. R&D

# Benchmarking and transparency

Standards or disclosure for private buildings' energy efficiency

Currently, only 10 states have such programs

Benchmarking for commercial buildings: DC, CA, WA

Disclosure for residential: AK, HI, KS, SD, ME, NY, SD

# Leading by example

Policy building blocks to an energy-efficient economy:

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B. Benchmarking & Transparency

**C. “Lead by example”**

D. R&D

# Leading by example

- New and existing state building standards higher than the state code – currently must meet state code
- Benchmarking for public buildings - none
- Energy Service Performance Contracting programs – existing program for ESPCs, but no requirements



# Kentucky's Performance Contracting

From the ACEEE Scorecard:

- With more than \$750 million in ESPC investments since enabling legislation in 1996, Kentucky has **one of the largest performance contracting industries in the nation.**
- Through the Local Government Energy Retrofit Program, the state facilitates energy efficiency in smaller municipalities through ESPC.
- All state-supported community and technical colleges have ESPCs.
- The state also tracks real-time energy savings in state buildings and makes these data publicly available.

# Thank God for Mississippi?

## Mississippi's leadership in benchmarking

- All state agencies must report energy consumption or face penalties.
- State agencies work with the Mississippi Development Authority Energy and Natural Resources Division to develop energy management plans.
- The state also set a goal of achieving 20% energy savings in public university facilities by 2020.
- To reach its energy savings goals, the state significantly upgraded its energy codes for both public and private buildings.

# Assessing Government Energy Use

- Things we don't know about the government's energy use:
  - What opportunities exist for saving taxpayer money through cutting energy costs
  - How much energy the state government uses
  - How much money the state pays in utility bills
  - How big the state government's buildings are
  - What buildings the state government owns

# Leading by example

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# Research and Development

WVU Industrial Assessment Center  
WVU Energy Institute  
WVU College of Law Center for Energy & Sustainable Development

# Example Report: The WV Jobs Project:

## A Guide to Creating Jobs in Energy Efficiency

- Released in May of 2017
- Joint project of :
  - The American Jobs Project and
  - WVU Center for Energy and Sustainable Development

*West Virginia is well positioned to benefit from rising global demand for industrial energy efficiency products given:*

- *its large industrial manufacturing base with chemical and energy efficiency manufacturers,*
- *collection of energy-focused research institutions conducting cutting-edge research on fuel and energy efficiency,*
- *readily available workforce, and*
- *incentives for businesses located in the state.*

# Example Report: The WV Jobs Project:

## A Guide to Creating Jobs in Energy Efficiency

### **Strategically Expanding West Virginia's Industrial EE Sector & Supply Chain Companies**

- Partner with Industry Ass'ns to Create an Energy Efficiency Industry Working Group
- Strengthen and Expand West Virginia's Foreign Direct Investment Strategy
- Create an Anchor Company Tax Credit

### **Fostering a Strong Innovation Ecosystem**

- Leverage Philanthropic Funding Via a Foundation Liaison
- Co-Sponsor a Hackathon to Ignite West Virginia's Entrepreneurial Culture
- Encourage Commercialization of Cutting-Edge Research

### **Leveraging Local Assets to Increase Access to Capital for Growing Companies**

- Develop Relationships with Foundations Engaging in Program- Related Investment
- Create Tax Incentives for Investment in Startups
- Coach Businesses on How to Solicit Capital
- Establish a State Fund of Funds to Stimulate the Investment Environment

### **Aligning Training Programs to Meet the Needs of Industry and Serve Students**

- Support Career-Connected Learning
- Encourage High School Partnerships with Community and Technical Colleges
- Align Community College Efforts with Private Sector Needs