



# Energy Efficiency as a Carbon Reduction Strategy

*Virginia Executive Order 57 Work Group Meeting  
October 31, 2016*

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American Council for an Energy-Efficient Economy

# American Council for an Energy-Efficient Economy (ACEEE)

- ACEEE is a nonprofit 501(c)(3) founded in 1980. We act as a catalyst to advance energy efficiency policies, programs, technologies, investments, & behaviors
- 50 staff; headquarters in Washington, D.C.
- Focus on energy efficiency in industry, buildings, & transportation sectors
- Research in economic analysis & financing, behavior, energy efficiency programs, national policy, utilities, state, & local policy, and some international work
- Diverse funding sources, including foundation grants, contracts and government grants, and conferences & publications



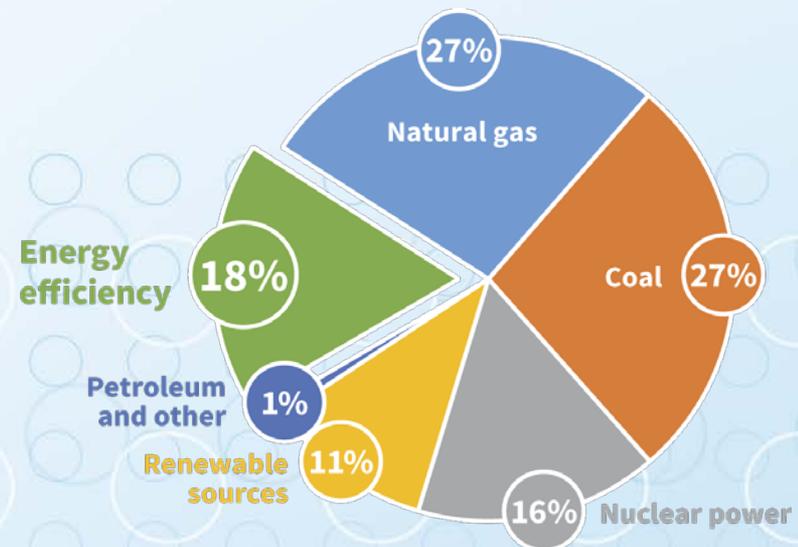
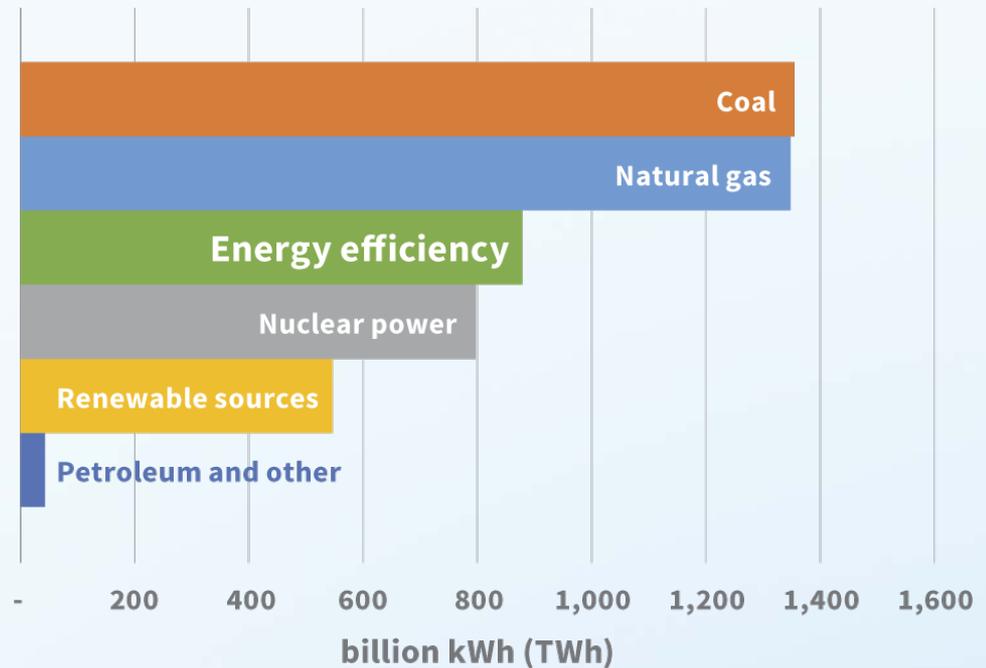
# Overview

- Energy efficiency as a CO<sub>2</sub> reduction strategy
- Current energy efficiency landscape in Virginia
- Potential policies and programs to reduce emissions
- Recommended policies and executive actions to increase energy efficiency
- Key takeaways

# Efficiency as a CO<sub>2</sub> Reduction Strategy

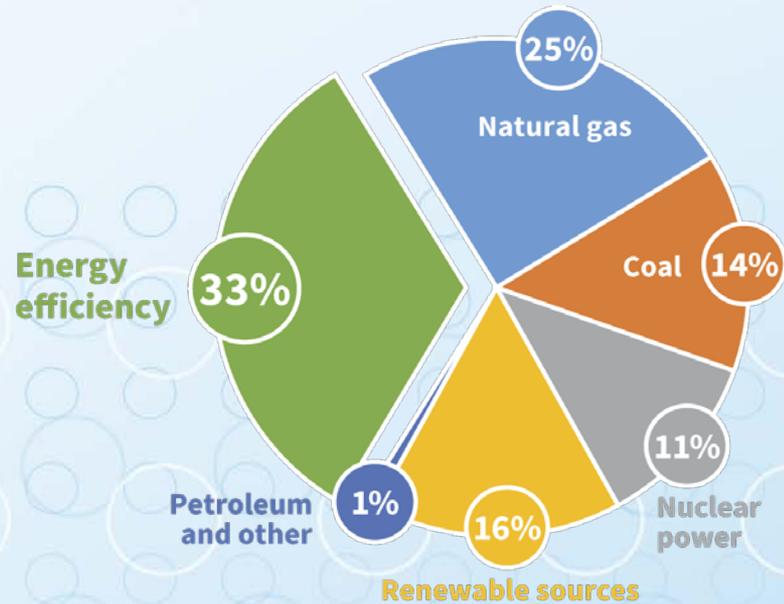
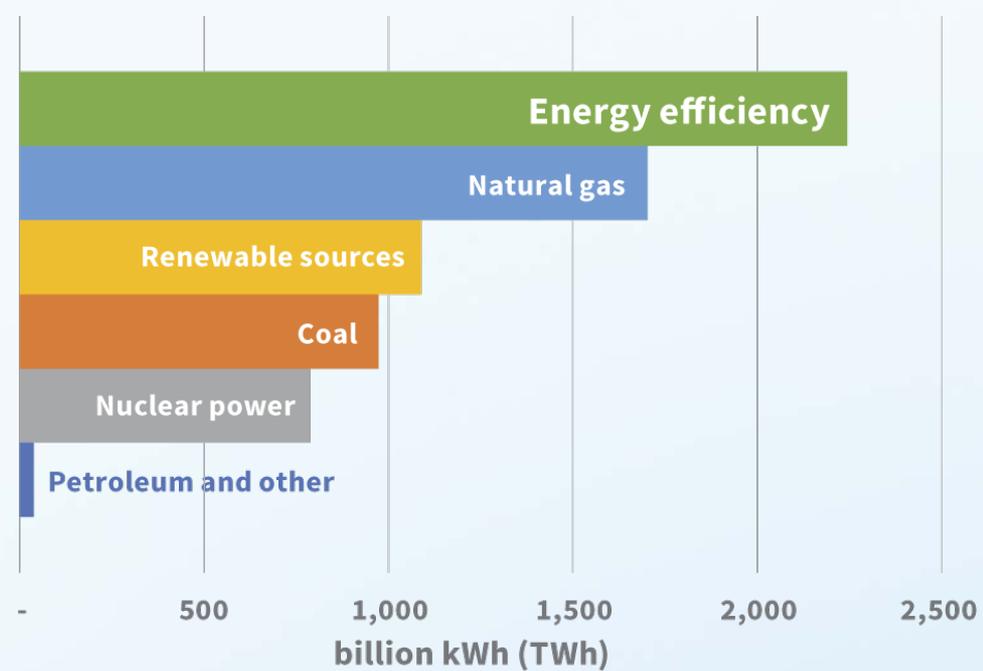
- Utility and non-utility programs
- Residential, commercial and industrial measures
- Energy savings performance contracts (ESPC)
- Combined heat and power
- Building energy codes
- Appliance replacement and recycling programs
- Behavioral programs
- State appliance and equipment standards
- Water and wastewater programs

In the electricity sector, efficiency is now our 3<sup>rd</sup> largest resource...

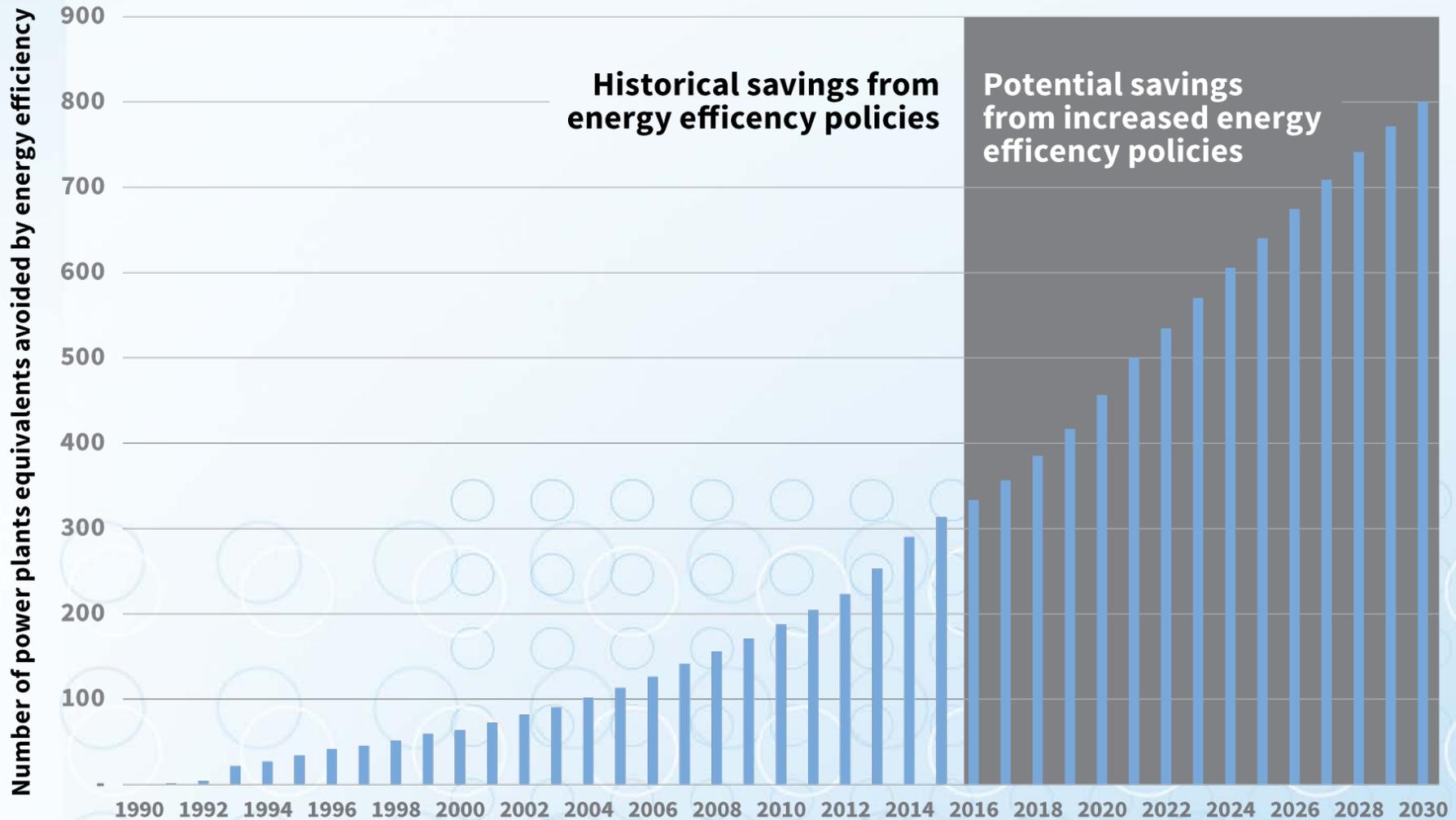


Source: ACEEE 2016. *Greatest Energy Story You Haven't Heard*.  
<http://aceee.org/research-report/u1604>

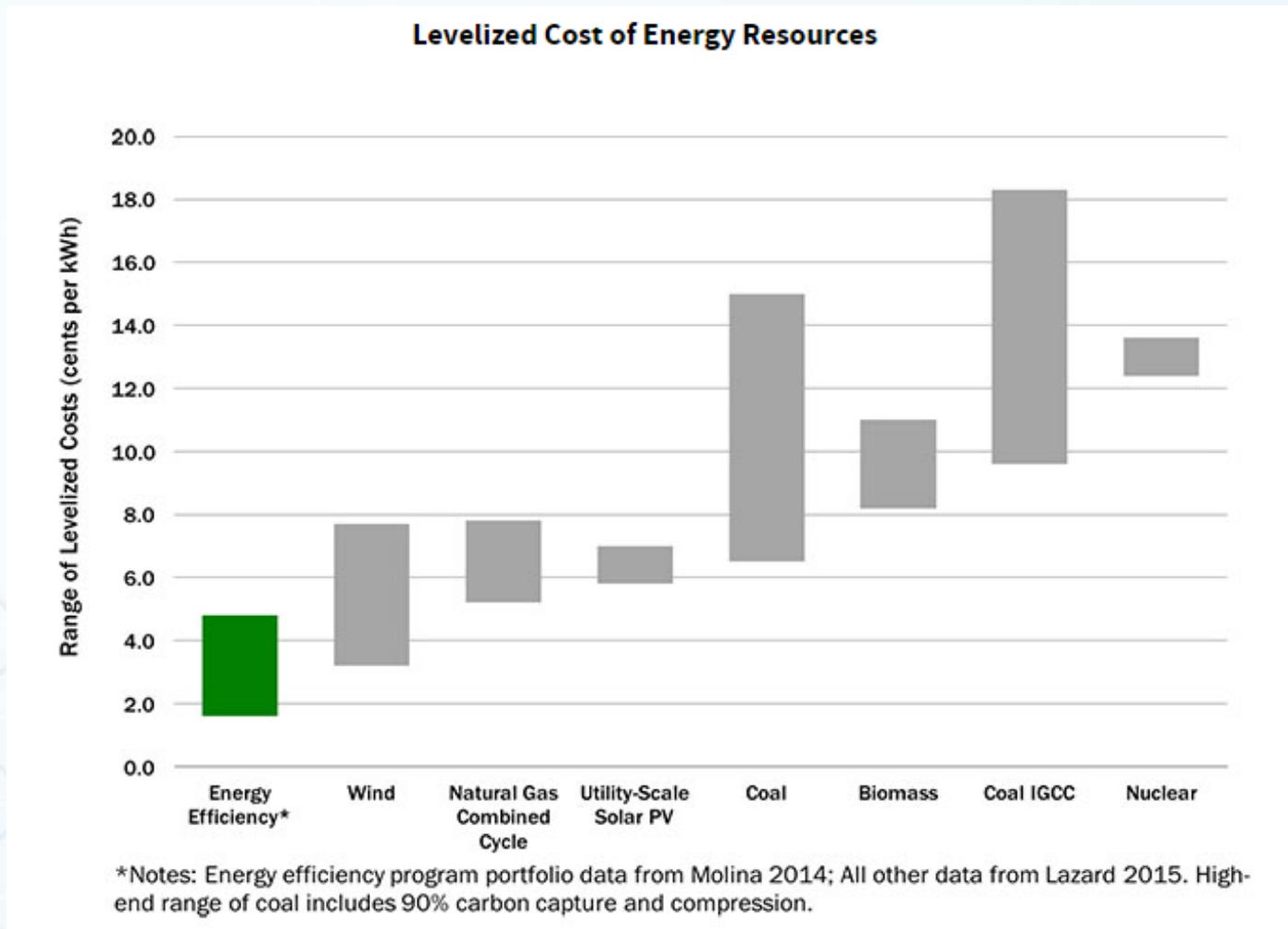
...and could become our largest resource by 2030



# 313 power plant equivalents avoided since 1990... could grow to 800 by 2030



# Efficiency is a Low-Cost Resource



# Multiple Benefits of Energy Efficiency

- Lower utility bills for residents and businesses
- Reduces pollutants and improves public health
- Helps reduce energy burden for those most in need
- Increased comfort and safety
- Creates opportunities for local job creation and economic development
- Cheaper to save energy than to build new plants

# Multiple Benefits of Energy Efficiency



**Protect health**



**Improve safety and comfort**



**Save money**

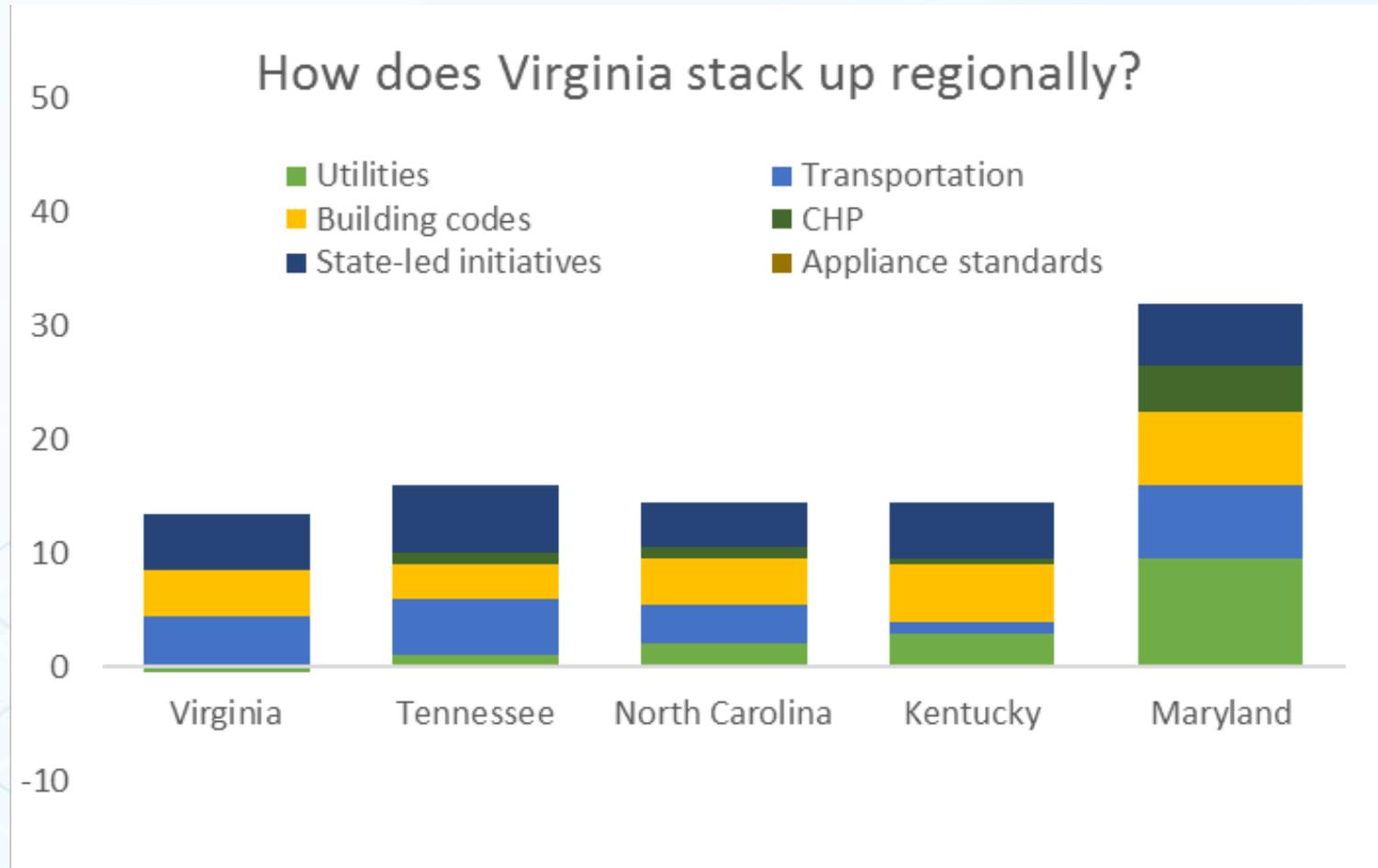


**Create jobs and opportunity**

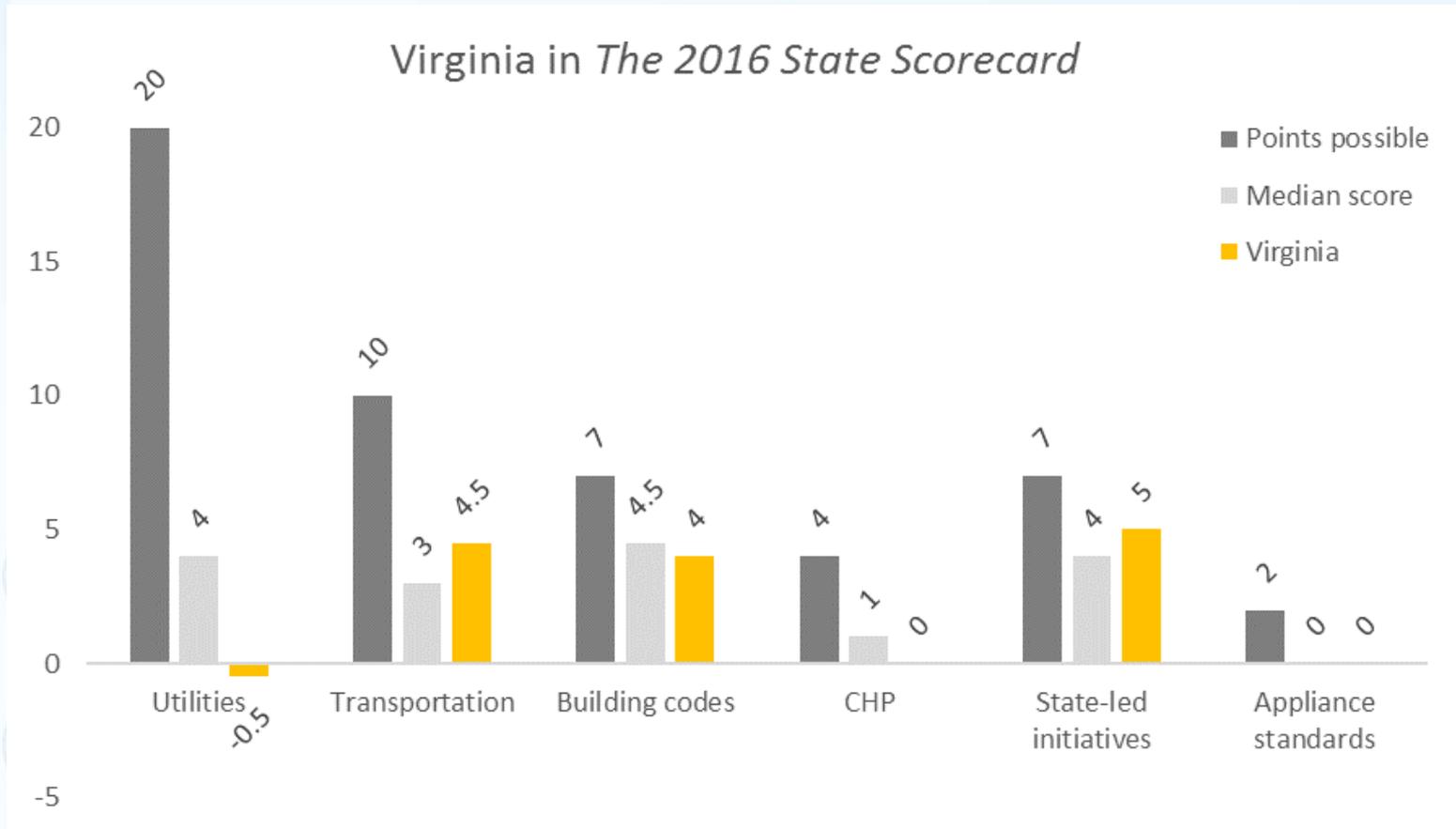


**Protect the environment**

# Virginia: 2016 State Scorecard



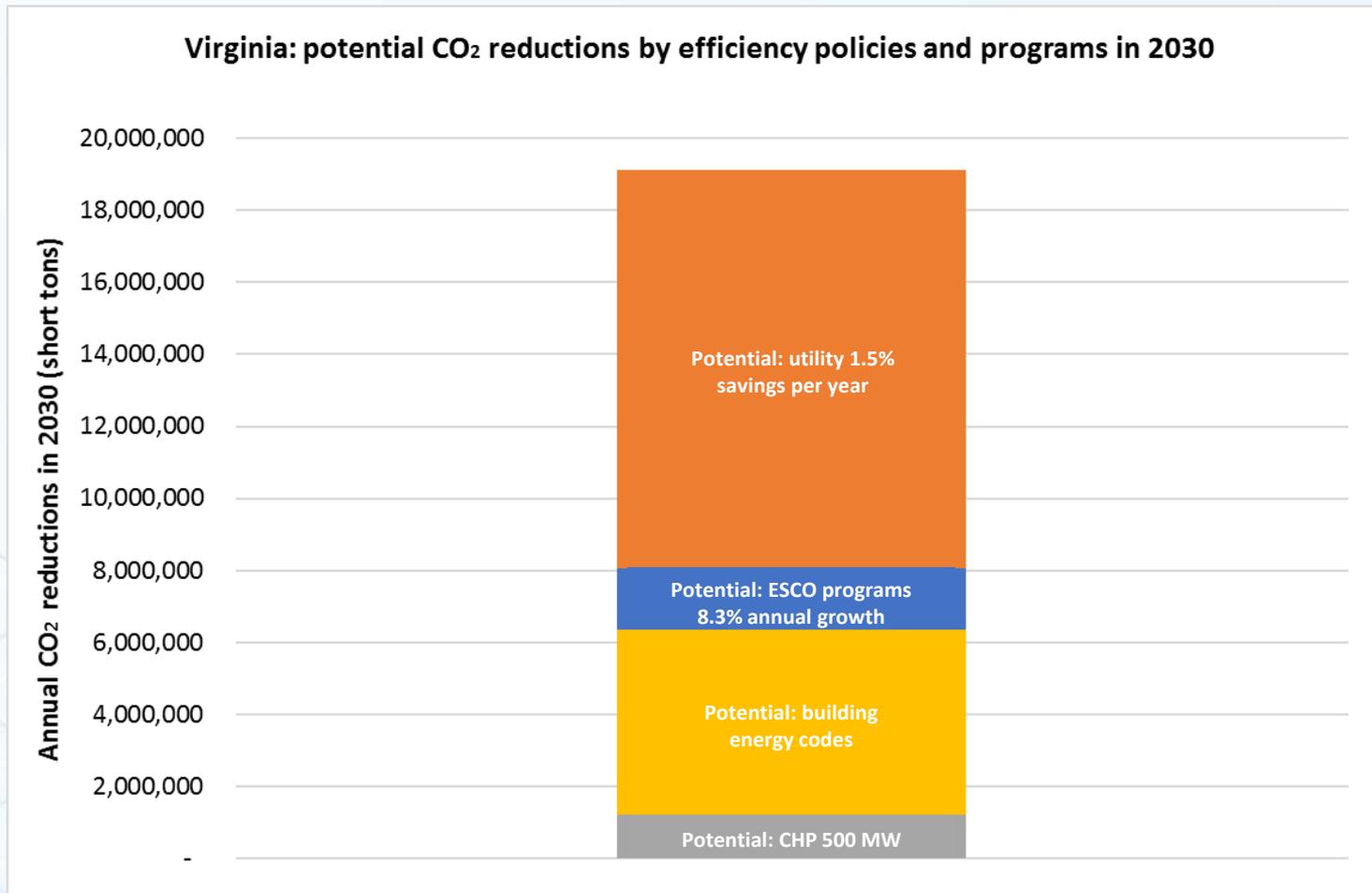
# Virginia: 2016 State Scorecard



# Current Efficiency Landscape

- Utility energy efficiency programs
  - No energy savings target, utility programs currently saving about 0.06% annually; large customer opt-out in place.
- State government-led initiatives
  - Benchmarking energy use; encourages energy service performance contracts (ESPCs) in public buildings; offers efficiency incentives.
- Building energy codes
  - 2012 IECC for commercial, 2009 IECC equivalent for residential.
- Efficiency programs serving low-income households
  - Utility-run programs and Weatherization Assistance Program.
- Combined heat and power (CHP)
  - No new installations in 2015 and no policies in place to encourage deployment.

# Potential CO<sub>2</sub> Reductions from Energy Efficiency



# Realizing Efficiency's Multiple Benefits

- By implementing these four planned and potential efficiency policies and programs, Virginia can realize the following benefits in 2030:
  - Reduce 19.1 million tons of CO<sub>2</sub>
  - Save 34 million MWh
  - Save Virginia \$2.8 billion
  - Achieve over 100% of Clean Power Plan emissions goal

# Policy Recommendations

1. Establish a utility savings target of 1.5%; offer performance incentives to utilities achieving higher levels of savings; improve EM&V protocols and establish a stakeholder process.
2. Utilities could implement more comprehensive efficiency measures and design programs that better meet the needs of large customers.
3. Adopt and enforce the 2015 IECC for residential and commercial buildings.
4. Adopt policies that encourage CHP deployment.
5. Take executive actions to encourage energy efficiency.

# Executive Action Recommendations

1. Empower agencies to work together.
2. Clear the path for ESPCs in municipal and private buildings.
3. Identify opportunities to support low-income communities.
4. Help residential and commercial sectors collect building energy data.
5. Continue efforts to reduce energy consumption in public buildings.
6. Consider policies and programs to enable investments in CHP.

# Key Takeaways

- Energy efficiency can produce CO<sub>2</sub> reductions at least-cost, while providing multiple benefits
- Efficiency potential is largely untapped in Virginia
- There are many ways Virginia can increase energy efficiency through policies and executive actions
- By implementing a set of energy efficiency policies and programs, Virginia can realize significant CO<sub>2</sub> reductions

# Additional Resources

- ACEEE State and Local Policy Database - [database.aceee.org/](https://database.aceee.org/)
- ACEEE Clean Power Plan Webpage - [aceee.org/topics/clean-power-plan](https://aceee.org/topics/clean-power-plan)
- ACEEE EM&V Comments to Virginia State Corporation Commission - [aceee.org/regulatory-filing/va-scc-comments-0516](https://aceee.org/regulatory-filing/va-scc-comments-0516)
- State and Utility Pollution Reduction Calculator Version 2 (SUPR 2) - [aceee.org/research-report/e1601](https://aceee.org/research-report/e1601)
- The Greatest Story You Haven't Heard: How Investing in Energy Efficiency Changed the US Power Sector and Gave Us a Tool to Tackle Climate Change - [aceee.org/research-report/u1604](https://aceee.org/research-report/u1604)
- Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities Report - [aceee.org/research-report/u1602](https://aceee.org/research-report/u1602)

# Questions?

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