



UNIVERSITY OF MARYLAND: AN ENERGY STRATEGY FOR A SECURE FUTURE

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OVERVIEW



Flagship campus for the University System of MD

- Top rankings for research, entrepreneurship, and innovation
- 40,000+ students
- Over 14 million gross square feet
- 254 Buildings
- 1,340 acres main campus
- Nearly 50% of buildings > 50 years
- Over \$2 billion in renovation needs

DRIVING FORCES

CLIMATE ACTION PLAN 2.0

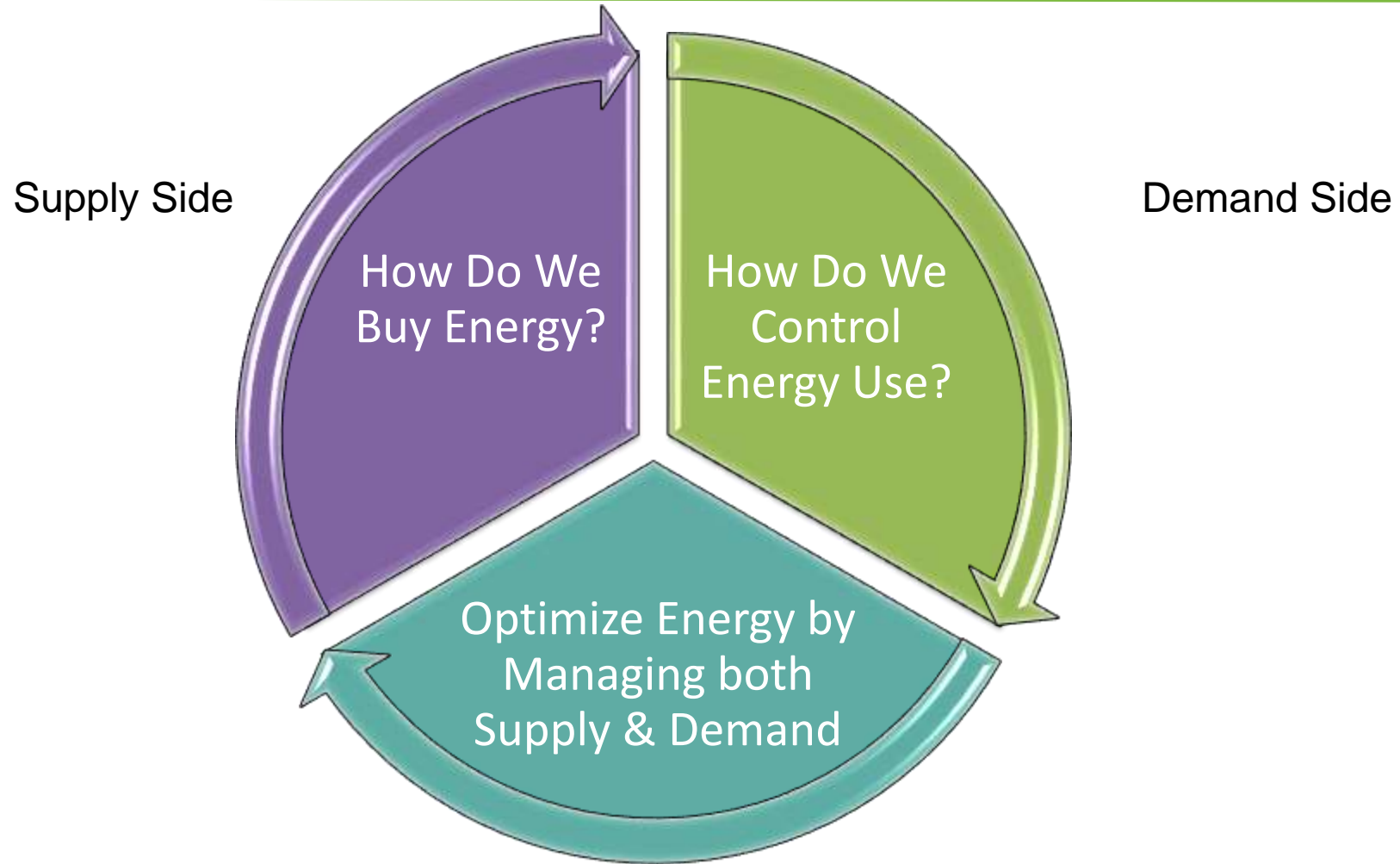
- CAP 1.0 developed 2009 as result of American College and University President's Climate Commitment
- 50% reduction in carbon emissions by 2020 from 2005 levels; **achieved 49% reduction in 2017**
- 60% reduction in carbon emissions by 2025 from 2005 levels
- Carbon neutrality for all scopes of emissions by 2050

PRESIDENT'S ENERGY INITIATIVES

- Energy Conservation – reduce electricity consumption by 20% by 2020
- Carbon-neutral new construction – design new buildings to strict energy efficiency standards
- 100% Purchased Power from renewable sources by 2020; **achieved 86% in 2017, expect 90% in 2018**

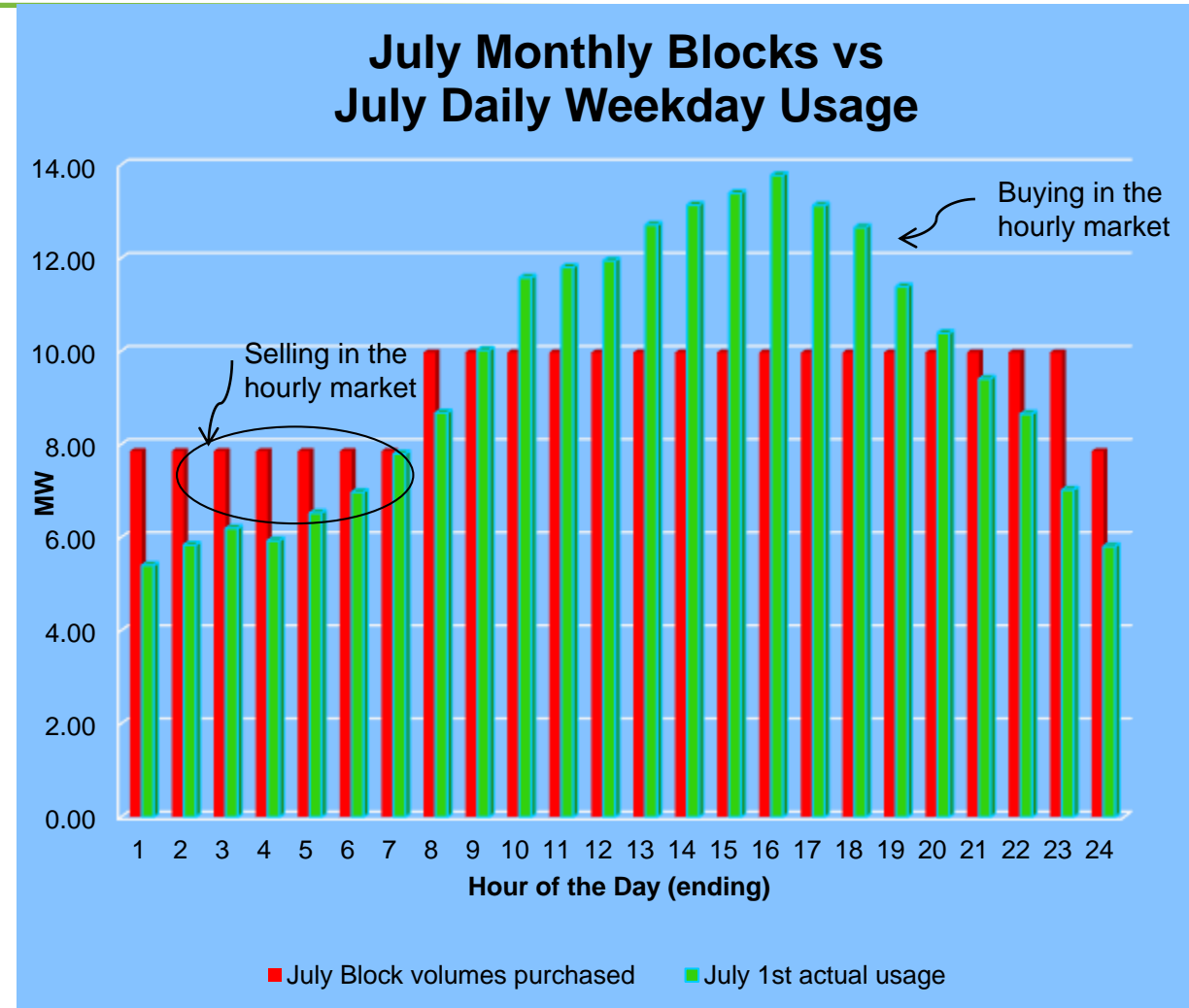


PLAN OF ATTACK



SUPPLY SIDE STRATEGY

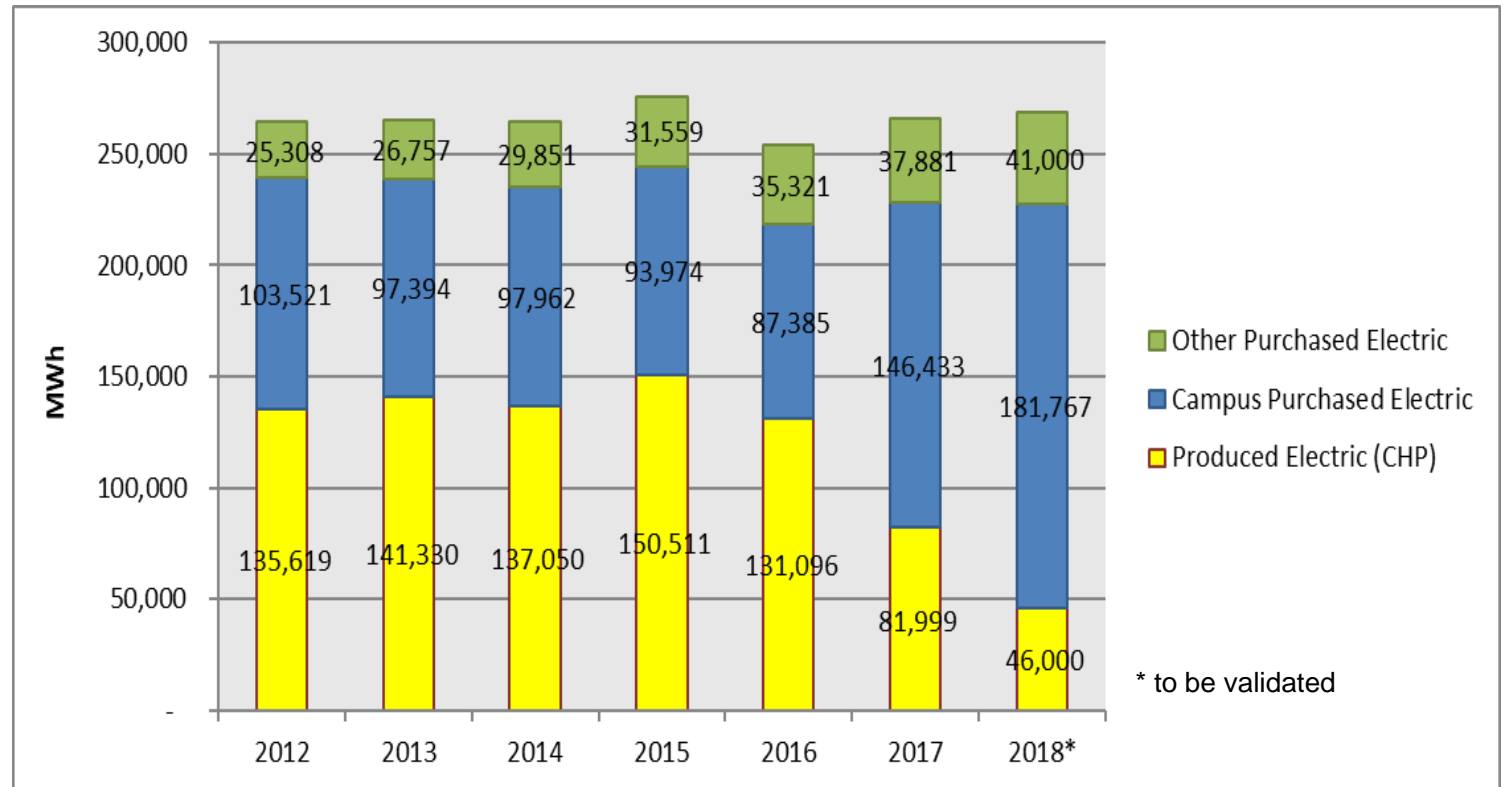
- Maryland is a deregulated market; choice of suppliers for gas and electric
- Fixed vs. variable cost supply contracts dependent on account size
- Block & Index vs fixed price contracts
- 36 month hedge horizon; 36-48 months fixed price
- On & off site renewable power purchase agreements (2.8 MW solar on campus)
- 27.5 MW Combined heat and power plant (CHP)
- Multiple chilled water plants



DEMAND SIDE STRATEGY

- Energy Performance Contracts for improved energy efficiency in high EUI buildings
- Addresses facilities renewal needs through energy efficiency upgrades
- Advanced metering to facilitate data analytics through building automation systems and operational data warehouse (ODW)
- Retro commissioning of “newer” buildings < 25 years
- Infrastructure improvements such as steam and electrical distribution systems related to CHP

CAMPUS POWER CONSUMPTION



WGL ENERGY – DISTRIBUTED IMPACT



THANK YOU

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