

Microgrids: Resilient Electricity for a Changing Climate

Climate Adaptation Forum

DVRPC Webinar

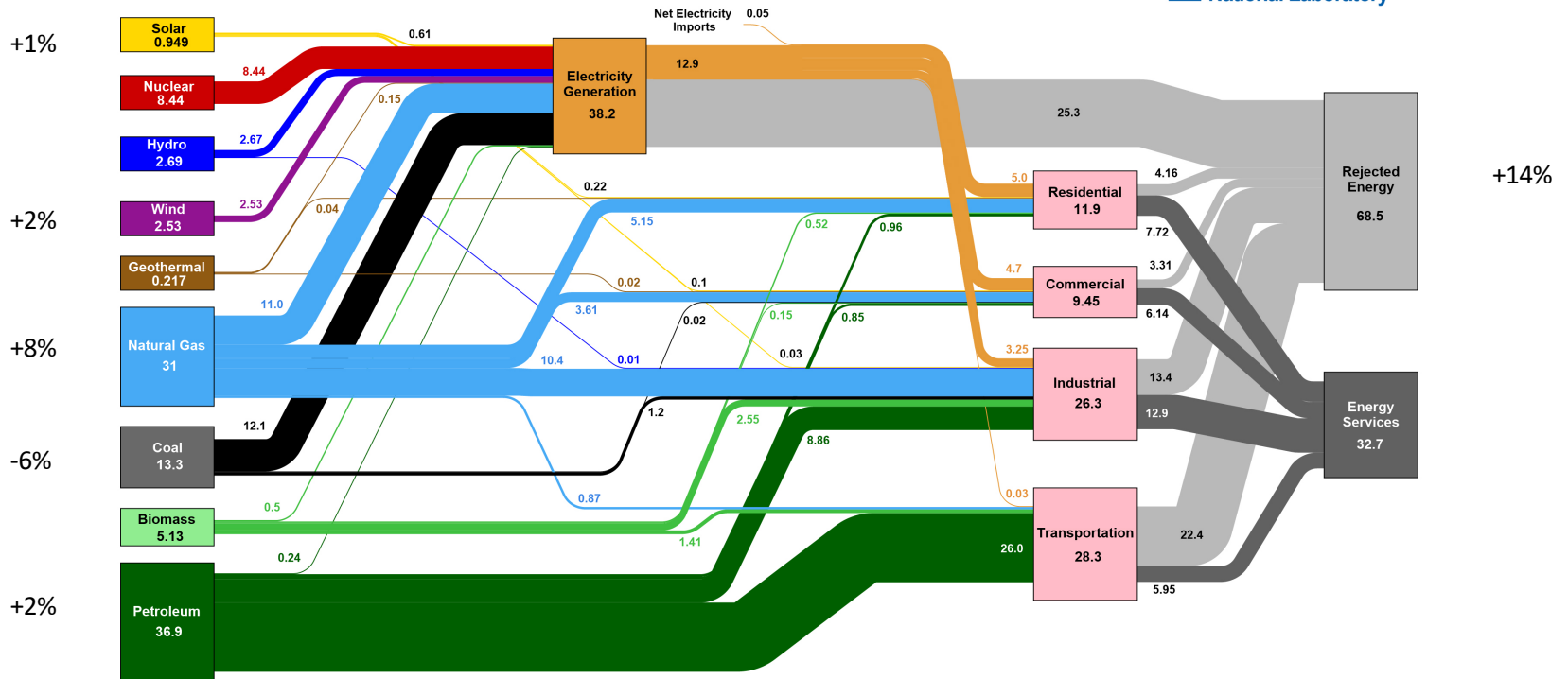
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Energy Obesity



Estimated U.S. Energy Consumption in 2018: 101.2 Quads



2018 = Highest total use on record, up 3.6% from 2017
 Percentages in margin = 10 year comparisons (rounded)

Taking Climate Action

- Use less energy
 - Building and industrial energy efficiency
 - Smart cities
- Use cleaner electricity
 - But don't pick technology winners
- Convert majority of transportation to electricity
- Generate more energy at the grid edge
 - Resilience
 - Reduce line losses, transmission expansion costs

Microgrids

- A microgrid is a local electric system or combined electric and thermal system:
 - that includes retail load and the ability to provide energy and energy management services needed to meet a significant proportion of the included load on a non-emergency basis
 - that is capable of operating either in parallel or in isolation from the electrical grid
 - that, when operating in parallel, is capable of providing energy, capacity or related services to the grid

Microgrid Value

- Resilience
 - All resilience is local
- Saving money
 - Internal efficiencies and arbitrage
 - Buildings serve as thermal storage
 - Time of day pricing and fuel arbitrage
- Reduced carbon footprint
- External sales
- Incorporation of renewables

What Can PA Communities Do?

- PA Utility definition
 - Person who owns or operates facilities for generating, transmitting, or distributing electricity
 - Problem for separated facilities
 - Virtual net metering – 2 mile limit
 - OK if not serving the public – perhaps 10 customers
 - Serving building or facility occupants
- Paths forward
 - Being an “Electric Generation Supplier”
 - Forming one or more co-ops?

What Can NJ Communities Do?

- NJ Utility definition
 - Person who owns, operates, manages or controls electricity distribution equipment for public use
 - Problem for separated facilities
 - Excludes
 - 10 customers within ten miles – virtual metering
 - On-site renewables (or contiguous, OK to cross roads)
 - Cogeneration
- Paths forward
 - Being an “Electric Power Supplier”

PA Guaranteed Energy Savings Act

- Includes all microgrid components
 - Energy efficiency
 - Renewable energy
 - Smart controls
 - Alternative energy suppliers
- That create savings or revenues
- Provides flexible procurement mechanism
 - 20 year contracts
- Not subject to Local Government Unit Debt Act
 - Subject to appropriations

Questions?

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“The economy is a subset of the ecology.”