



# The Growing Role of Renewable Energy in the U.S. Energy Mix: Sustainable Biomass

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*November 15, 2019*

# About BTEC

## Mission:

The Biomass Thermal Energy Council (BTEC) advances the sustainable use of wood and agricultural biomass for clean, efficient heat and combined heat and power to meet America's energy needs and strengthen local economies.

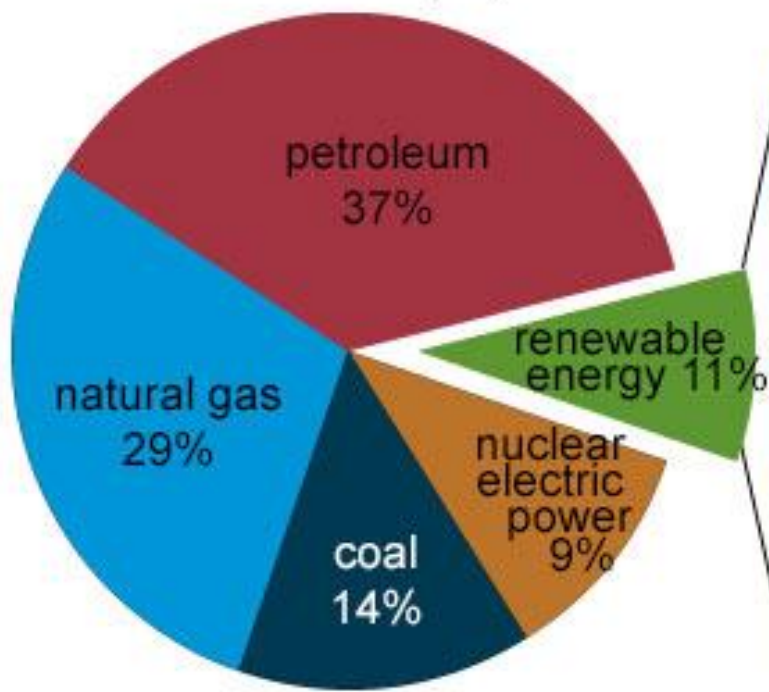
## Focus Areas:

- Policy and Government Affairs
- Technical and Regulatory Affairs
- Education and Outreach

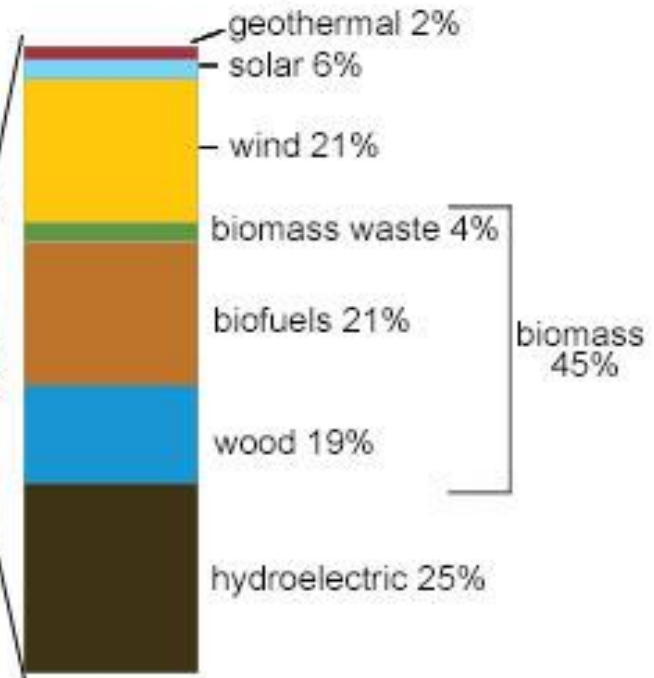


# U.S. energy consumption by energy source, 2017

Total = 97.7 quadrillion  
British thermal units (Btu)



Total = 11.0 quadrillion Btu



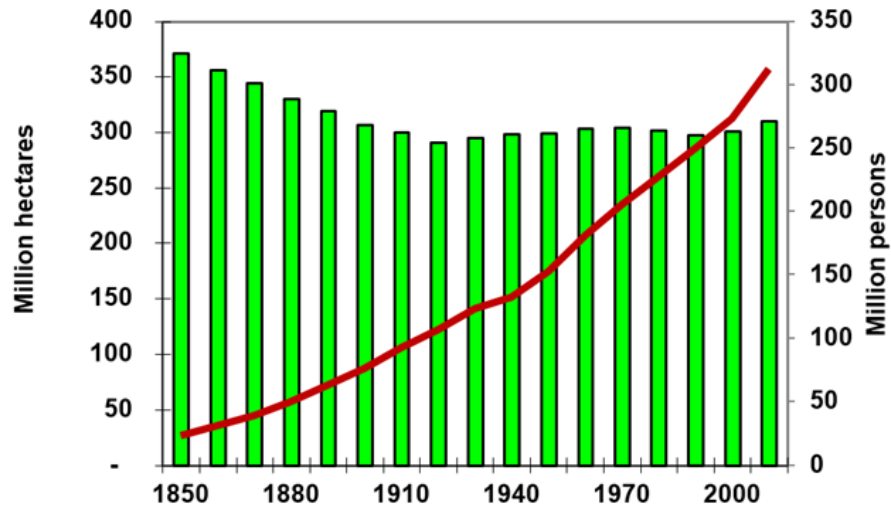
Note: Sum of components may not equal 100% because of independent rounding.  
Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 1.3 and 10.1, April 2018, preliminary data

# Sectors Using Woody Biomass

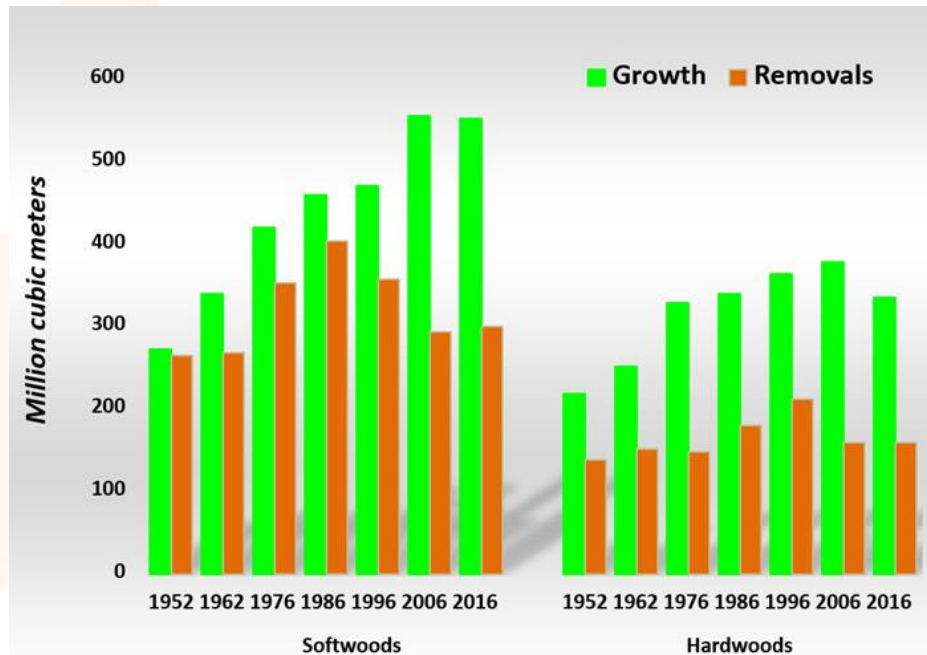
- **Residential** – heating (space heating, water heating)
- **Commercial/Institutional/Industrial** – heating, cooling, electricity
- **Biomass Power Plants** – electricity
- **Export Products** – pellets and wood chips
- **Emerging technologies** – torrefied wood, biocrude, and biodiesel

# Forest Areas Are Stable

## Forest Area and Population Growth



## Forest Growth vs. Removal





# Issues Facing US Forests

- Development Pressures & Land Use Change
  - Lack of Financial Returns from Forests
  - More Development
- Forest Management
  - Lack of Funding
  - Diseases
  - Wildfires
- Rapidly Shifting Energy Markets
  - Cheap Fossil Energy
  - Sustainable Wood Fuels Can't Compete
- Climate Change



Loblolly Pine killed by Southern Pine Beetle (GA)



Ponderosa Pine killed by mountain pine beetle (SD)

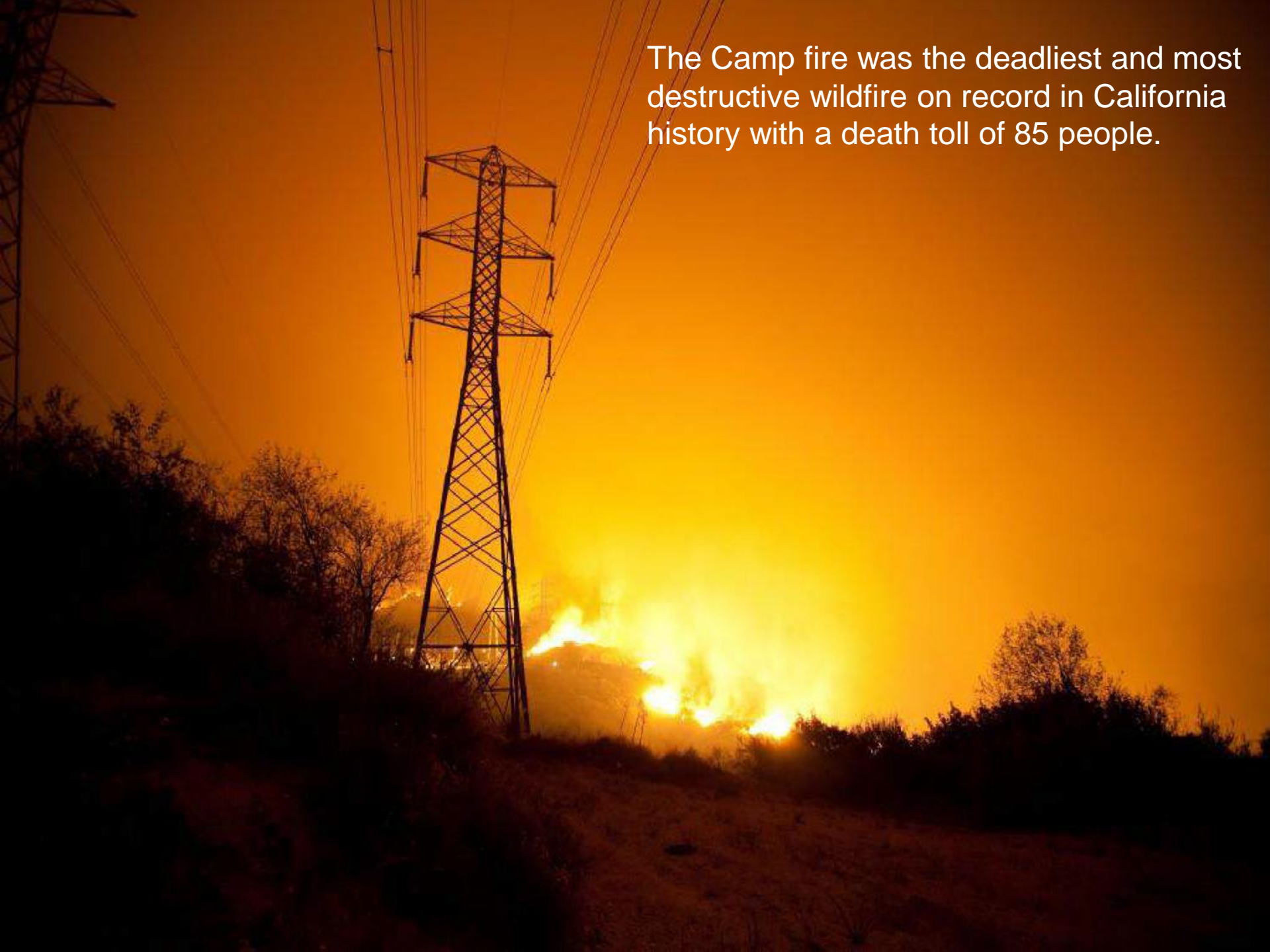


Spruce killed by bark beetles (CO)



Bark Beetles in California

The Camp fire was the deadliest and most destructive wildfire on record in California history with a death toll of 85 people.



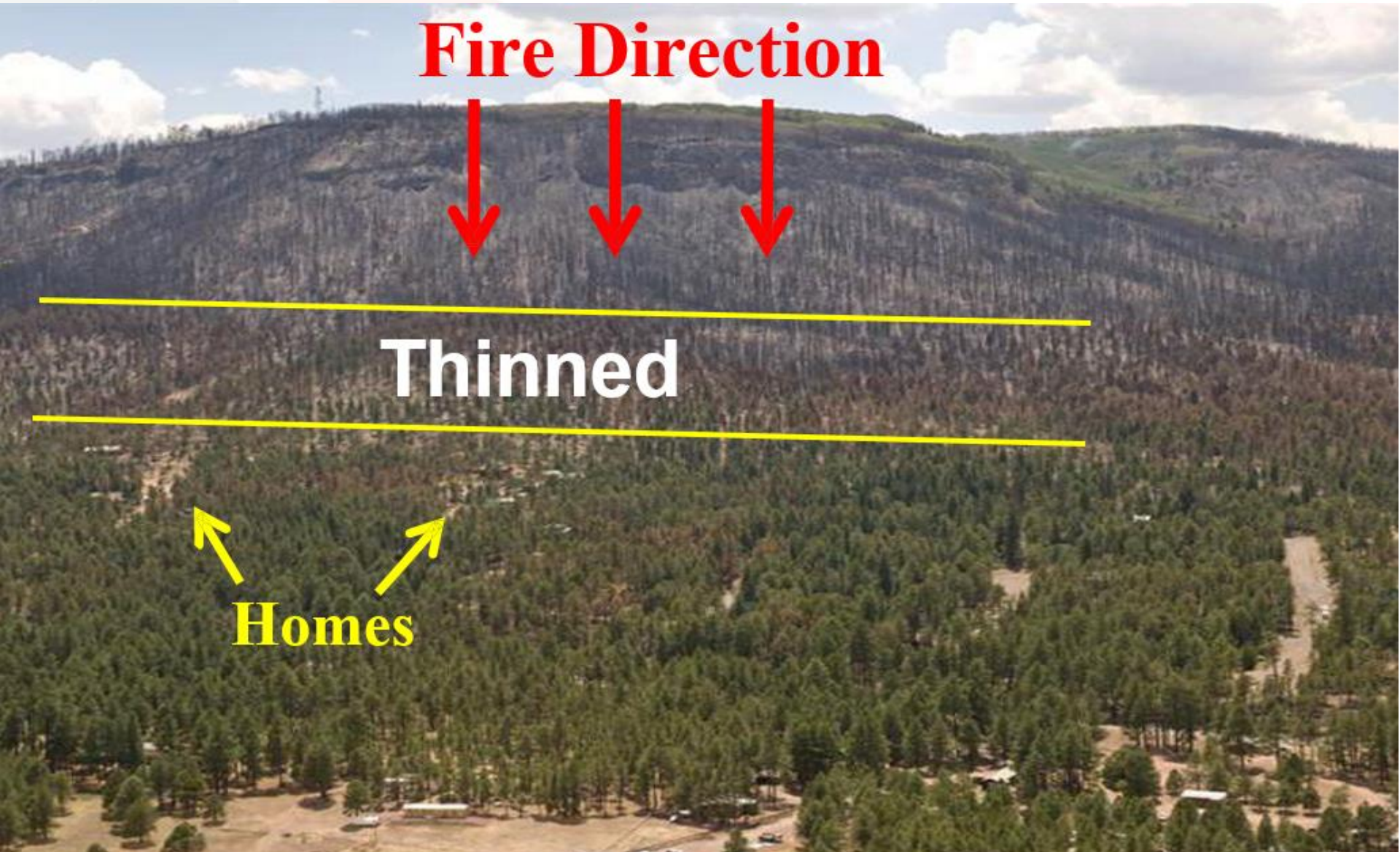


**Fire Direction**



**Thinned**

**Homes**





# Benefits of Wood Energy

- Helps re-establish markets for low value wood
  - Private sector: Allows for forest owners to make forest management more profitable while reducing wildfire threat
  - Public Sector: Wildfire suppression is the largest budget item of the USFS. Responsible management of federal forests would save taxpayer dollars.
- Increase rural economic development, job creation, and energy savings.
  - Private forests support over 2.4 million rural jobs.
- Cost savings of nearly 50% in recent winters compared to heating oil.

# The Key Barriers for Industry

1. Biomass heating equipment (residential, commercial, industrial) have initial high capital costs (at low volume) compared to fossil fuel heating systems (at high volume).
2. Low-value wood requires markets to be economically viable for use.
3. Comprehensive carbon intensity accounting and pricing for all energy options.



# Policy Solutions

## Pending Legislation

### **Biomass Thermal Utilization (BTU) Act – H.R. 1479, S. 628**

- Extends investment tax credit to biomass heating systems (Residential, commercial and industrial) – based on system efficiency

### **Wood Heaters Emissions Reductions Act – S. 2274**

- \$75M (annually) grant Program to remove and replace old systems

## Existing Programs With Opportunities for Improvement

### **EPA Renewable Fuel Standard**

- Electric pathway and fair implementation, possible expansion to include thermal

### **Community Wood Energy & Innovation Program (2018 Farm Bill)**

- \$25 million to install wood energy systems and innovative wood products facilities

### **Bioenergy Program for Advanced Biofuels (2018 Farm Bill)**

- Provides payments to fuel producers to expand production levels



# Actions to Take

## Co Sponsor!

- **Biomass Thermal Utilization (BTU) Act – H.R. 1479, S. 628**
- **Wood Heaters Emissions Reductions Act – S. 2274**

## Work with Us

- **To direct EPA to expand the Renewable Fuel Standard to include wood pellets and chips**

## Thanks

- **Bioenergy Program for Advanced Biofuels (2018 Farm Bill)**
- **Community Wood Energy & Innovation Program (2018 Farm Bill)**



# Biogas!

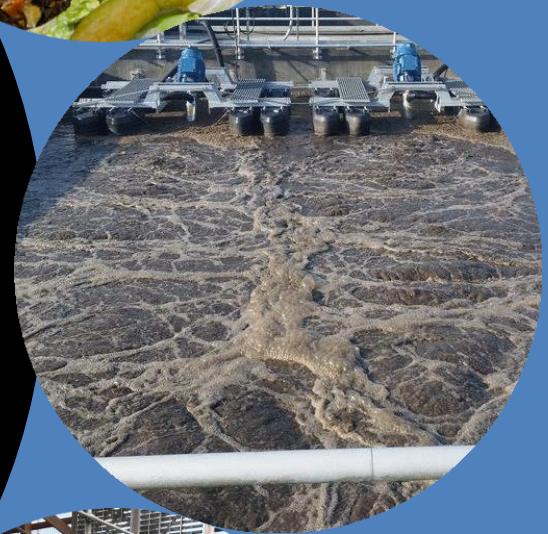
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**With what infrastructure  
will we manage:  
66,500,000 TONS of food  
waste each year**

**The sludge from 31  
BILLION gallons of  
wastewater EVERY DAY**

**The manure AND  
NUTRIENTS from 8 BILLION  
cows, chicken, turkey and  
pigs**





# The US Biogas Market

## Current

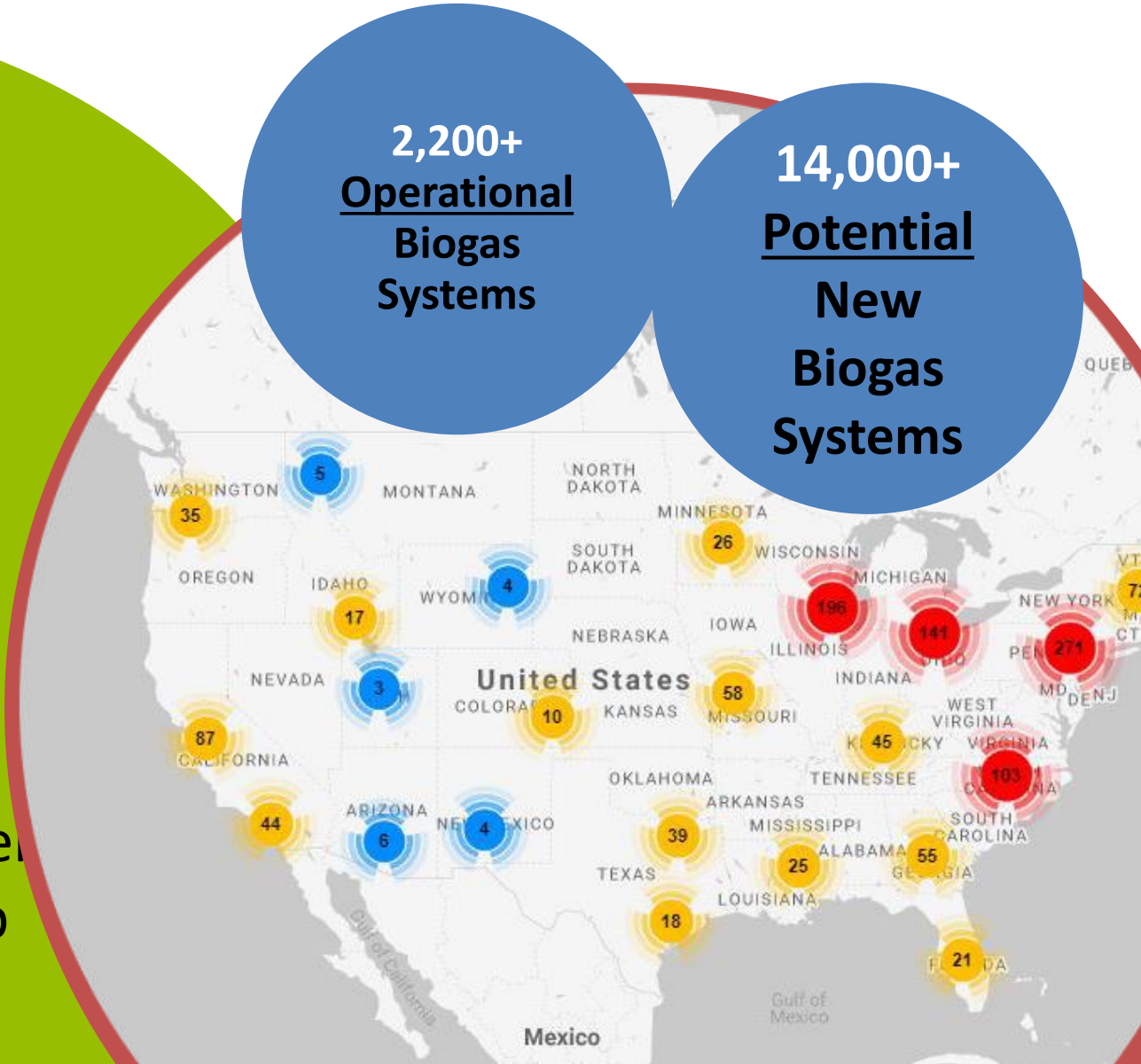
253 on Farm  
1,269 Water  
66 Food Scrap  
645 at Landfills

## Potential

8,300 on Farm  
4,000 Wastewater  
1,000 Food Scrap  
440 at Landfills

2,200+  
Operational  
Biogas  
Systems

14,000+  
Potential  
New  
Biogas  
Systems



# Investment and job potential

- **13,500 US Biogas Systems =**
  - – \$40 billion in capital deployment
  - – 335,000 short –term construction jobs and 23,000 permanent jobs



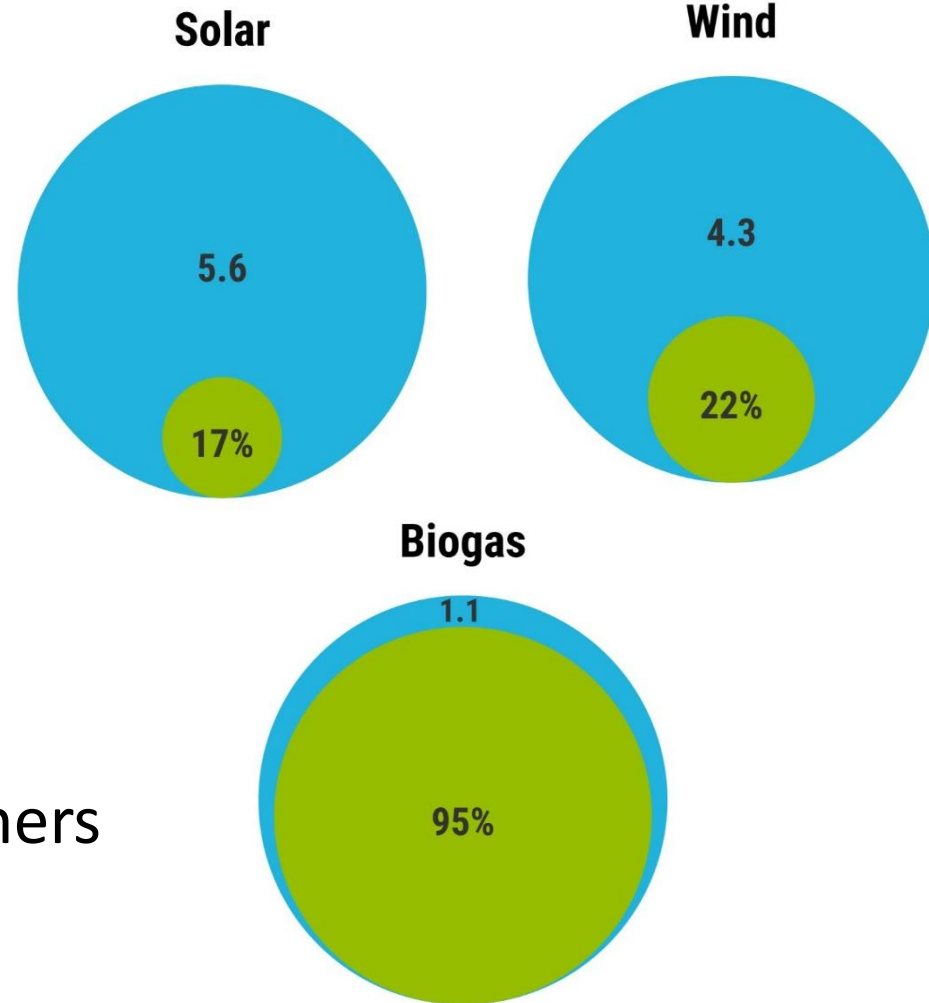
# Biogas/AD Systems Are Worth It

## Capacity factor:

- Solar: 17% (EIA, NJ)
- Wind: 22% (average worldwide)
- Biogas/AD: 95% (DOE, UW)

## How much are the non-energy benefits worth?

- Waste management
- Nutrient recycling
- Reduced or negative GHGs
- Revenue “insurance” for farmers
- Odor reduction
- Soil health





# Policy

Renewable Fuel  
Standard

Farm Bill

Infrastructure

Tax  
Extenders

Climate

Ag  
Approps

Watershed Protection

**Thanks for your attention!**

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**Join Us!**

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