

## Mississippi Renewable Energy and Energy Efficiency Update

### Mississippi Issues

#### **Electric Utilities Submit Annual Net Metering Reports**

Per the [Mississippi Renewable Energy Net Metering Rule](#) adopted by the MPSC on December 3, 2015, each electric utility subject to the rule shall submit a Net Metering Report within 90 days of the end of each calendar year. The report includes information such as the number of net metering customers, the type of technology installed and the amount of interconnect generation capacity. The required information is outlined in the Mississippi Renewable Energy Net Metering Rule.

**Entergy Mississippi, LLC (2016-UN-32)** – Entergy Mississippi, LLC (EML) serves approximately 447,000 customers in [45 of Mississippi's 82 counties](#). EML's [Net Metering and Interconnection Report for Calendar Year 2018](#) indicates that nineteen (19) customers with a total generating capacity of 184.69 kW had executed solar Net Metering Interconnection Agreements in 2018. Twenty-two (22) customers executed solar Net Metering Interconnection Agreements in 2017.

At the end of 2018, fifty-three (53) customers have executed Net Metering Interconnection Agreements since EML implemented its Net Metering Program in September 2016. The 53 Net Metering Interconnected customers (0.0118% of EML's customer base) have achieved the following: Represent 513.85 kW in distributed generation capacity; Delivered 217,444 kWh to the grid; Collected \$11,857.59 from EML for the energy exported to the grid. The 513.85 kW capacity represents 0.0176% of EML's Total System Peak Demand of 2,916.60 MW. EML may refuse Net Metering Applications if total Net Metering Interconnection capacity exceeds 3.0% of Total System Peak Demand. It's important to note that EML's Total System Peak Demand dropped from 2,953.27 MW in 2017 to 2,916.60 in 2018.

At the end of 2018, EML had seventy-nine (79) total distributed generation facility customers (78 solar and 1 wind). These include distributed generation customers that existed prior to the start of EML's Net Metering Program and customer that have executed Net Metering Interconnection Agreements since. The 79 total distributed generation customers at the end of 2018 (0.0176% of EML's customer base) represent 600.52 kW of distributed generation capacity and 0.0206% of EML's Total System Peak Demand.

**Mississippi Power Co. (2016-UN-33)** – Mississippi Power Company (MPCo) serves approximately [187,000 customers](#) in 23 of Mississippi's 82 counties. MPCo's [Net Metering Report and Interconnection Report for Year Ending 2018](#) indicates that thirty-eight (37) customers with a total generating capacity of 451.49 kW had executed solar Net Metering Interconnection Agreements in 2018. Thirty-eight (38) customers executed solar Net Metering Interconnection Agreements in 2017.

One hundred five (105) customers have executed Net Metering Interconnection Agreements since the implementation of MPCo's Renewable Energy Net Metering (RENM) Program in September 2016. The 105 RENM interconnected customers (0.0561% of MPCo's customer base) have done the following in 2018: Represent 1,341.48 kW in distributed generation capacity; Delivered 455,795 kWh to the grid; Collected \$23,821.38 from MPCo for the energy exported to the grid. The 1,341.48 kW capacity represents 0.08738% of MPCo's Total System Peak Demand of 1,535.30 MW. MPCo may refuse Net Metering Applications if total Net Metering Interconnection capacity exceeds 3.0% of Total System Peak Demand.

At the end of 2018, MPCo had 148 total distributed generation customers, including distributed renewable generation customers that existed prior to the start of MPCo's Renewable Energy Net

Metering Program in September 2016. The 148 total behind-the-meter distributed renewable generation customers at the end of 2018 (0.0791% of MPCo’s customer base) represent 1,369.42 kW of distributed generation capacity and 0.0892% of MPCo’s Total System Peak Demand.

**Cooperative Energy [formerly SMEPA] (2011-AD-2)** – Cooperative Energy (CE) provides electrical power for [11 electric distribution cooperatives](#) who in turn serve approximately [432,000 customers](#) in 55 of Mississippi’s 82 counties. CE’s [Net Metering Report and Interconnection Rule Report for 2018](#) indicate that 122 customers with a total generating capacity of 1,032.45 kW had executed solar Distributed Generation Interconnection Agreements in 2018. Seventy-nine (79) customers executed solar Distributed Generation Interconnection Agreements in 2017.

At the end of 2018, CE and its member cooperatives had a total of 319 solar distributed generation interconnection customers (0.0738% of CE’s member cooperative’s customer base) with a total interconnected capacity of 3,316.92 kW. Of the 319 interconnected distributed generation customers, 264 distributed generation customers: Delivered 1,388,131 kWh to the grid (nearly double the generation contributed in 2017); Collected \$62,467.13 from CE for the energy exported to the grid (the DG renewable rate for 2018 was \$0.045/kwh); Represent 0.1294% of CE’s Total System Peak Demand of 2,563.31 MW.

**Tennessee Valley Authority (TVA)** –TVA provides electrical power [to 14 municipal and 14 cooperatively owned utilities](#) located primarily in [the northern half of Mississippi](#). TVA and its electric distribution partners are not required to submit an annual Net Metering Report to the MPSC. Requests for information on the number of solar installations in the TVA service area were not fulfilled at the time of this report.

**By the numbers:**

Utility	RENMICs at end of 2016	RENMICs at end of 2017	RENMICs at end of 2018	# of all DGF Customers in 2018	Total Installed RENMICs Capacity	% of Peak System Demand
Entergy MS	10	34	53	79	513.85 kW	0.0176%
MS Power Co	29	67	105	148	1,341.48 kW	0.01397%
Cooperative Energy	89	197	319	320	3,316.92 kW	0.1294%
TVA	n/a					n/a
<b>Total</b>		298	477	547	8,783.90 kW	

(info as of Dec. 31, 2018)

RENMICs = Renewable Energy Net Metering Interconnected Customers

DGF = Distributed Generation Facility

A review of the annual electric utility filings found that a total of 477 renewable energy net metering systems were interconnected to the grid in the as of December 31, 2018 (Entergy MS, MS Power and Cooperative Electric). This was an increase of 179 over the end-of-2017 number of 298 systems. Most systems are solar. However, Entergy MS and MS Power connected few renewable energy net metering customers in 2018 than they did in 2017. Conversely, Cooperative Energy saw a 54% increase in renewable energy net metering customer from 2017 to 2018. Mississippi ranked 41<sup>st</sup> in the nation for solar capacity installed in 2018, according to the [Solar Market Insight Report 2018 Year In Review](#).

**Other issues:** Currently, distribution generation net metering customers of MS Power Co. and Entergy MS are compensated for net excess generation at a rate of “Avoided Cost of Wholesale Power” plus a “Non-Quantifiable Expected Benefits” adder of 2.5 cents/kWh. The MPSC initiated a review of the value of Actual Benefits of Distributed Generation under the Mississippi Net Metering Rule. Despite the consultant’s recommendation to significantly reduce the value of the Benefit Adder, the MPSC decided to maintain the Benefits Adder at 2.5 cents/kWh.

## **Review of MPSC Regular Meeting – April 2**

On April 2, the MPSC held its regular docket meeting. While it was a [short agenda](#) and no electric or natural gas items were listed, the Commission did take action on the following:

**Docket No. 2019-UA-21: SR Meridian I** and **Docket No. 2019-UA-22: SR Meridian II** – The Commission voted to refer the matter to Commissioner Brown for hearing and recommendation. The entire electricity output from these solar projects will be sold to the TVA under a 20 year power purchase agreement.

Next [Meeting](#) of the MPSC will take place on May 7, 2019, at 10 am in the Woolfolk Building.

## **Other Recent Docket Actions at the MPSC**

### **Entergy MS Files Proposal for Community Solar Program and Special Rate Tariff (Docket No. 2018-UN-268)**

Recently, Entergy Mississippi, LLC [proposed a community solar offering](#) for its customers. In [testimony](#) provided by Aaron E Hill, Entergy Mississippi, LLC “proposes to use the Bright Future Solar Project sites to support the community solar offering.” The Bright Future Solar Project consists of three existing 500 kW pilot project sites. 25x’25 has concerns regarding the use of these sites to support a community solar program. Therefore, 25x’25 filed a [Motion to Intervene](#) and followed-up with [comments](#) expressing our concerns with Entergy Mississippi, LLC’s proposal to use the Bright Future Solar Pilot Project sites to support its community solar offering.

### **Attorney General vs. Entergy Trial Started.....and Then Ended**

After more than 10 years and much legal wrangling, the Attorney General of Mississippi was finally going to get his day in the United States District Court. But only a couple of days after the bench trial began, Judge Carlton Reeves decided to [send the case back to the Hinds County Chancery Court](#). Although the state court is where the legal case began years ago, both parties wanted it to remain in federal court.

The Attorney General claims that Entergy didn’t keep its promise to the state and violated the Consumer Protection Act by refusing to buy cheaper electricity generated by newer, more efficient, independently-owned natural gas-fueled generators. At the same time, Entergy allegedly sold to its Mississippi customers, including the state of Mississippi, more expensive power generated from its old, antiquated electrical generating plants and purchased from its out-of-state sister companies. Approximately \$1 billion to \$2 billion dollars in refunds to customers could be a stake in this case. Entergy settled two cases in Louisiana involving similar claims for over \$150 million.

Since the case was filed in 2008, Entergy has turned over the operation and management of its transmission system to the [Midcontinent Independent System Operator \(MISO\)](#), which could save Entergy customers up to \$1 billion between 2013 and 2022. Entergy tried to sell its 15,000 mile transmission network serving parts of Arkansas, Louisiana, Mississippi and Texas. Entergy proposed the

sell to try to resolve U.S. Justice Department concerns about possible anti-competitive behavior. Entergy MS also withdrew from the Entergy Operating Companies System Agreement.

The future of the case is now in question.

## **MDEQ Recognizes 2019 enHance Members**

enHance is a voluntary stewardship program that recognizes committed environmental leaders who accomplish goals beyond their legal requirements. enHance is open to facilities, cities, counties, and other entities who are interested in the program. This year marks the eleventh year of enHance and its members have made some [remarkable accomplishments](#). In the past year, members' projects have resulted in over 3,000 pounds of hazardous waste being reduced, 8.6 million gallons of water saved, and the reduction of 120,000 MMBTU in energy use. enHance Members also reported more than \$1 million dollars saved last year. enHance partners shared their success at the recent [Annual Meeting and Workshop](#). Learn more [HERE](#).

## **Mississippi State University Issues RFP for Solar Energy**

Mississippi State recently issued a request for proposals ([RFP 19-22](#)) to provide renewable energy or renewable energy generating assets to on & off campus locations. Contractors can propose a turnkey sale, lease, power purchase agreement or other form of financing. MSU is open to all solar technology options and designs shown to be in the best interest of MSU. MSU intends to make steps towards Carbon Neutrality by 2042.

## **Energy Efficient Building Codes Proven Cost-Effective and Reduce Energy Use**

The U.S. [adds](#) a net average of 1.4 million homes to the national housing stock each year. Investing in energy efficiency is cost effective and each month delivers \$4 to \$32 in net *savings*. However, these saving cannot be realized without effective building codes and standards. For the residential sector, building codes like the International Energy Conservation Code (IECC) and voluntary labels like ENERGY STAR provide cost-effective guidance for insulation, windows, lighting and heating and cooling equipment to construct efficient and sustainable homes. ACEEE's [research](#) and [summary](#) concludes that new homes must first be built with efficiency in mind for maximum cost effectiveness. Unfortunately, Mississippi continues to avoid having real conversations regarding statewide energy building codes.

## **Regional Issues**

### **Solar in the Southeast 2018 Annual Report**

[Solar in the Southeast](#) illuminates the role of utilities in the growing southeastern solar market. The purpose of the report is to document current progress and trends at both utility and state levels, as well as identify policies and practices to drive continued solar growth in the Southeast. The seven-state Southeast region featured over 8,000 MW of solar in 2018 and will comfortably surpass 10,000 MW in 2019. Based on utility and other industry forecasts, SACE has increased its forecast to 17,000 MW by 2021 and nearing 20,000 MW of solar for 2022. Corporate procurement is driving much of the new solar development in the Southeast. Facebook, Google, Target, Walmart, and Johnson & Johnson each announced major solar projects in the region.

The report also assess the individual performance and potential growth of solar in each state. Currently, Mississippi has about 187 MW of solar in the state. Mississippi Power exhibits one of the highest watts per customer solar ratios of any utility in the southeast (826 W/C in 2018). However, limited plans for solar expansion could mean the state falls behind the regional average for solar watts per customer.

With the Integrated Resource Planning (IRP) process under development in Mississippi, there is hope that more transparency and opportunity for stakeholder involvement will lead to greater investments in solar and other renewable energy options.

### Ashley Furniture Invests \$29 Million in Solar Energy – Including in Mississippi

Ashley Furniture Industries, Inc. has [selected ten of its largest U.S. facilities to receive solar installations](#) this year as part of phase one of their new initiative. By installing solar, the company expects to offset its electrical energy needs by 35% using clean energy from the sun. "This is a long-term investment, not only for Ashley, but for our environment. We are taking proactive steps and hope to see others in our industry join us," said Ron Wanek, Founder and Chairman, Ashley Furniture Industries, Inc. Project sites include three locations in California as well as Florida, **Mississippi**, North Carolina, Pennsylvania, Texas and Wisconsin.

### Arkansas Adds Record Number of Renewable Energy Customers

Arkansas has recorded the largest annual increase in the number of net metering systems ever. A review of annual electric utility filings with the Arkansas Public Service Commission found a total of 1,508 net metering systems as of December 31, 2018, a 520-net increase over the end-of-2017 number of 988 systems. Most systems are solar, with a few solar-wind and wind-only systems. Arkansas added the 18th most solar projects among the 50 states last year, adding 118 megawatts of solar generation.

Arkansas Net Metering Systems								
Year	AECC*	Empire	Entergy	OG&E	Swepco	TOTAL	# increase from previous year	% increase from previous year
2018	870	11	454	48	125	1508	520	52.6
2017	598	4	286	23	77	988	355	56.1
2016	388	2	182	20	41	633	141	28.7
2015	284	1	156	18	33	492	84	20.6
2014	234	1	130	15	28	408	74	22.2
2013	193	1	106	14	20	334		

Source: Data compiled from Arkansas electric utilities' annual reports detailing existing net metering facilities under APSC Docket 06-105-U, due each year by March 15.

\* Cumulative number of net metering systems from electric cooperative members of the Arkansas Electric Cooperative Corporation (AECC).

### Arkansas Utilities Collect Efficiency Awards in Washington, DC

Entergy Arkansas and Southwest Electric Power Co. (SWEPCO) claimed Partner of the Year Awards for energy efficiency programs serving residential customers. [Entergy Arkansas received the 2019 ENERGY STAR® Award for Excellence](#) for its Entergy Solutions Residential Lighting and Appliances Program [SWEPCO received the 2019 award](#) for Energy Efficiency Program Delivery, Home Performance with ENERGY STAR. For a complete list of 2019 winners, visit [energystar.gov/awardwinners](http://energystar.gov/awardwinners).

## Louisiana PSC Request Comments for Phase II EE Programs

The LPSC is seeking comments on its proposed *Phase II Energy Efficiency and Conservation Rule*. Comments are due on May 31. The Phase II Rule is meant to allow for a seamless transition from the current Quick Start Programs to more Comprehensive Energy Efficiency Programs. The Phase II programs must still be cost-effective, must provide quantifiable, verifiable energy savings, and meet a range of objectives. The LPSC will also host a technical conference on June 14 at 9 am in Baton Rouge.

## Tennessee's Largest Solar Farm to Date Goes Online

On April 23, 2019, Silicon Ranch, Tennessee Valley Authority (TVA), the City of Millington, Millington Industrial Development Board (MIDB), and Memphis, Light Gas & Water (MLGW) officially “Flipped the Switch” on a [53-megawatt solar facility in Millington, TN](#). Silicon Ranch owns, operates and maintains the facility through a long-term power purchase agreement (PPA) with TVA. The facility produces enough electricity to power approximately 7,500 homes and includes single-axis tracking system, which allows the 525,000 panels to follow the sun across its daily arc.

## Silicon Ranch Secures More Investment Dollars

Silicon Ranch Corp., which owns and operates more than 120 solar energy facilities across 14 states, has secured an additional \$60 million in equity capital. Just last month, Silicon Ranch announced plans to hire 400 workers in southwest Georgia to build a \$150 million solar farm that will cover 1,200 acres and support a Facebook data center.

## TVA Issues Call for Renewables

The Tennessee Valley Authority (TVA) [issued a request for proposals](#) for 200 MW of renewable energy, including energy storage, that would need to be online by 2022. TVA said a similar call in 2017 for 200MW resulted in the development of almost 675MW of solar power to supply Facebook and Google data centres. The deadline for proposals is May 15, 2019. See the [Request for Proposal](#).

## Vanderbilt University Unveils Plan to go 100% Renewable Energy

[Vanderbilt University says it wants to use renewable energy](#) to power the Nashville, Tennessee campus entirely, be carbon neutral by 2050 and produce more renewable energy than it consumes. The plan features investing in on-site clean energy and off-site large-scale renewable energy, increasing campus green spaces, reducing energy consumption and waste, decreasing its carbon footprint from transportation and commuting, and investing in sustainable infrastructure.

## Texas' Largest Solar Project Secures Buyers for the Energy

Solar developer 7X Energy secured a second and final corporate power-purchase agreement for its 690-megawatt Taygete project in West Texas, [unlocking what will be the state's largest solar project](#). “We’re putting the weather risk on the project so the customer doesn’t have to bear it,” 7X Energy CEO Clay Butler said in an interview. 7X has developed the 315-megawatt Phoebe and 136-megawatt Lapetus facilities, sold to Innergex and Duke Energy Renewables, respectively. Recently, Starbucks announced a partnership with solar developer Cypress Creek on eight Texas solar projects that will provide energy for 360 coffee stores across the state.

## Austin Energy Buys Biomass Power Plant from Southern Company for \$460M

As a means to escape from the remainder of a 20-year, \$2.3 billion contract set to run through 2032, Austin Energy is paying \$460M for the 114 MW Nacogdoches Generating Facility, a wood chip-fueled

biomass power plant. The city has been the plant’s only customer since 2012. However, the city has used the plant sparingly because the facility was often too expensive to run. At the time the 20-year contract was signed, there were concerns that fossil fuel prices would soon skyrocket in the wake of new federal carbon taxes. But the carbon taxes never materialized, natural gas prices plummeted, wind and solar energy took off, and biomass-generated energy became uncompetitive. Austin Energy expects to save \$275 million by buying the facility.

### South Carolina’s Largest Solar Farm to Move Forward

The 75 MW Centerfield Cooper Solar Farm will sit on approximately 800 acres in Chesterfield and is being developed by NCRE. Santee Cooper and NCRE announced a purchase power agreement that will committ new renewable energy that makes economic sense for Santee Cooper customers. The utility is utilizing renewable resources that are cost-efficient and partners with others to bring costs down.

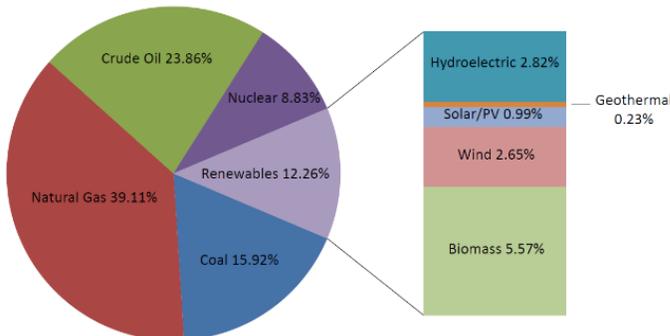
## National Issues

### Progress to the 25x’25 Goal: Total U.S. Energy Production and Consumption

According to the most recent Monthly Energy Review (MER) issued by the DOE’s Energy Information Administration (EIA), both renewable energy production and consumption grew in 2018 over 2017.

#### U.S. Primary Energy Production by source, 2018

2018 Total Energy Production: 95.533 Quad BTU  
 2018 Renewable Energy Production: 11.716 Quad BTU



Total energy production in the United States increased by 7.275 quadrillion BTUs (quads) to 95.533 quads, a jump of more than 8 percent. Fossil fuel production was led by net increases in natural gas (3.984 quads) and crude oil (3.267 quads) and accounted for most of the production growth. (Coal, however, saw a slight decrease in production over the previous year.)

All renewable energy resources saw an uptick in production, except for hydroelectric power. Total renewable

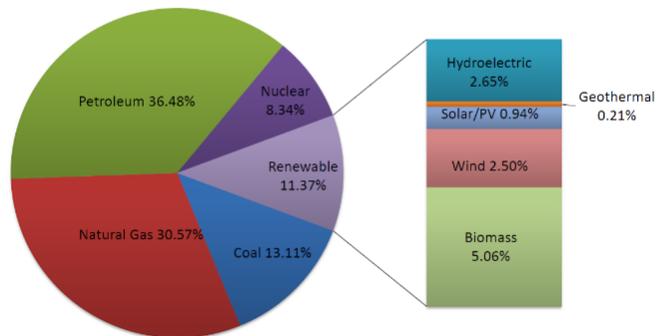
energy production clocked in last year at 11.716 Quads, or 12.26 percent of total energy production, which is actually a slight decrease from 2017's 12.71 percent.

The year-over-year increase in total fossil fuel production was 9.89 percent (6.835 quads), while total renewable energy production only increased by 3.7 percent (0.418 quads).

On the consumption side, a total of 101.268 quads was consumed in the United States last year, an increase of 3.461 quads over 2017. This is the first time U.S. energy consumption exceeded 100 quads of energy since 2007. Consumption of most energy sources (natural gas, petroleum, nuclear,

#### U.S. Primary Energy Consumption by source, 2018

2018 Total Energy Consumption: 101.268 Quad BTU  
 2018 Renewable Energy Consumption: 11.515 Quad BTU



Source: U.S. Energy Information Administration

geothermal, solar, wind and biomass) increased, except for coal and hydroelectric power. Total fossil fuel energy consumption increased to 81.161 Quads, a hike of 3.144 quads (4.03 percent) over 2017 levels.

Because total energy consumption grew at a rate of 3.54 percent, renewable energy consumption as a percentage of total energy consumption only ticked up 0.1 percent, to 11.37 percent.

If the United States is producing 95.533 quads of energy and consuming 101.268 quads of energy, where is the net difference in energy being sourced from? While the nation has dramatically increased energy exports over the years, the United States remains a net importer of energy – especially of crude oil – to satisfy our domestic energy needs.

Read the full blog post [HERE](#).

## **2017 Census of Agriculture Finds On-Farm Renewable Energy Flourishing**

USDA today announced the results of the [2017 Census of Agriculture](#). Census data provide valuable insights into demographics, economics, land and activities on U.S. farms and ranches. In short, the census found that farmers are getting older, more women are in control, number of farms is getting smaller, and the size of farms is getting larger, and average farm income is going down. The census also found that a total of 133,176 farms and ranches [use renewable energy producing systems](#), more than double the 57,299 in 2012. More farms are installing solar arrays and wind turbines and constructing methane digesters and geothermal energy systems.

## **Wind Project Development Sets New Record**

The [American Wind Energy Association's \(AWEA\) Wind Industry Market Report](#) reveals that U.S. project developers announced new wind farms with a total capacity of 6,146 megawatts (MW) in the first quarter of 2019. The additional capacity brings the U.S. construction and advanced development pipeline to a record-breaking 39,161 MW. Texas boasted the most wind under construction with 6,528 MW. Iowa led the nation in new capacity installations in the first quarter with 536 MW brought online. The country's total installed wind capacity is currently 97,223 MW.

## **How can Utilities Help States and Localities get to 100% Renewable Energy?**

As of April 1, 114 U.S. cities have officially declared they want 100% renewables for their electric power needs in the next one to two decades. Three states have committed to 100% carbon-free. That will be a big change in the generation and use of electricity. While the goals are simple, the paths to achieving them are not. [Utilities can help determine](#) where renewables expands on their systems so that it happens in ways that serve consumers and protects, or even strengthens, distribution systems.

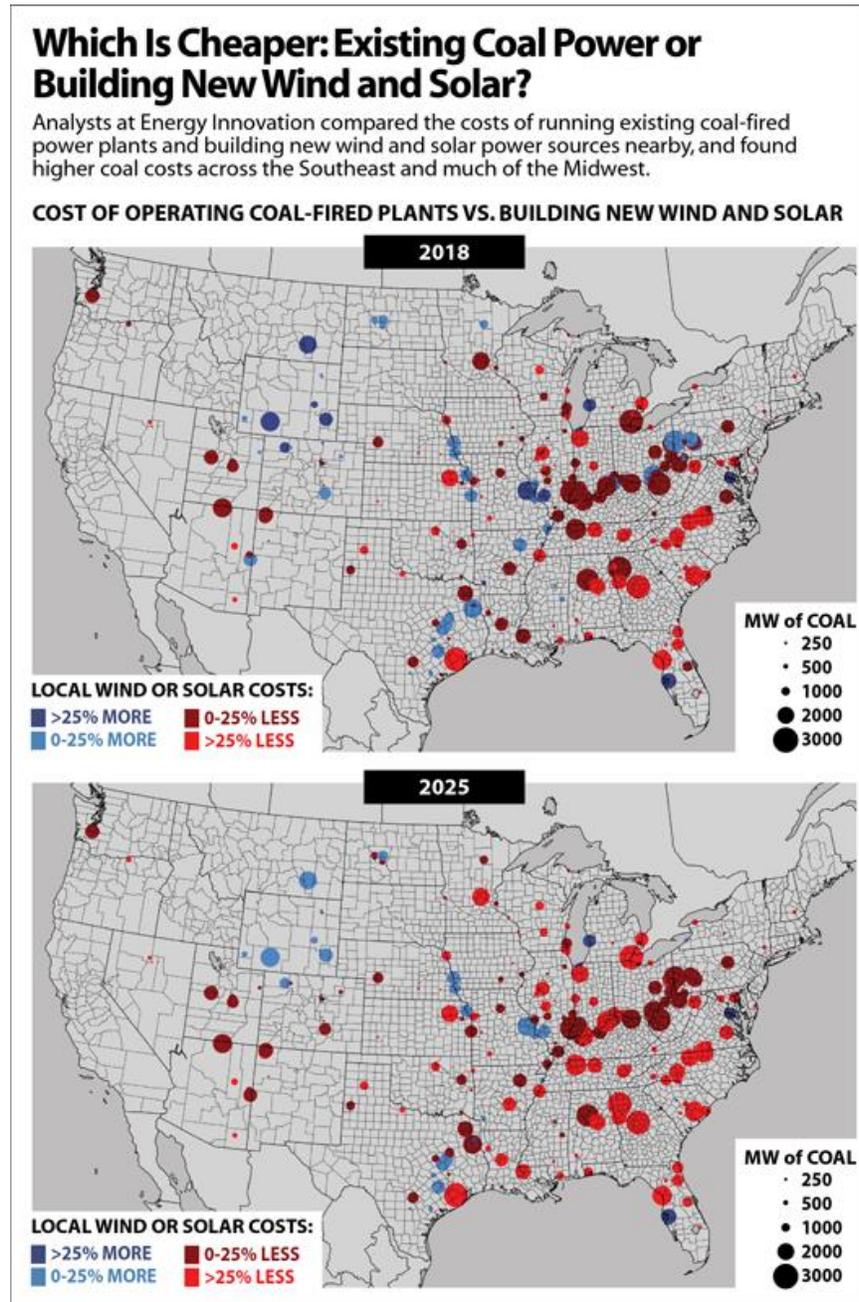
## **Zillow: Solar Homes Sell for More**

Not only can adding solar panels to a home save energy costs and help the environment, it also can potentially increase a home's value. During the past year, homes with solar-energy systems sold for 4.1% more on average than comparable homes without solar power, [according to Zillow](#). For the median-valued home, that translates to an additional \$9,274.

## **Report: New Wind & Solar Power Is Cheaper Than Existing Coal in Much of U.S.**

Eight-six percent of U.S. coal plants won't be able to compete on price with new wind and solar by 2025, analysts found. Their map holds some surprises, especially for the Southeast. These economic challenge exist for every coal plant in states that includes the Carolinas, Georgia, Alabama and Mississippi. However, a transition of that kind and size requires careful planning to make sure that the electricity

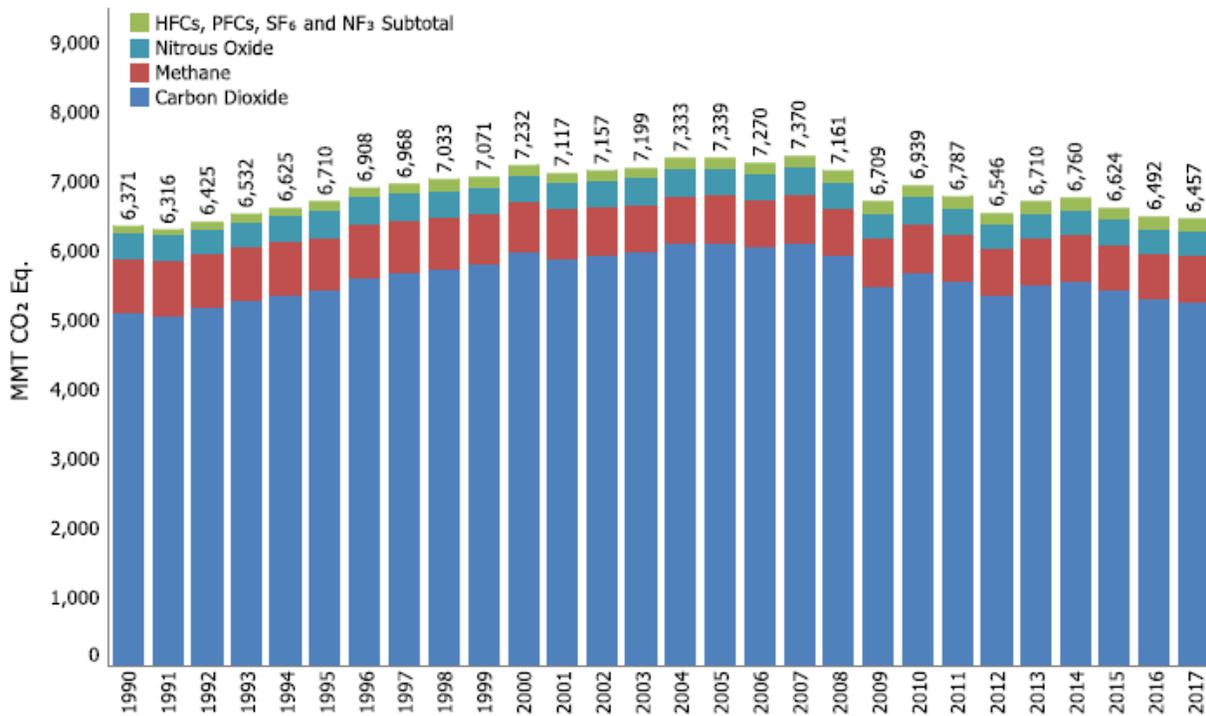
system has the resources it needs. Large majorities of Americans support increasing the use of solar and wind energy. The [data in this report](#) provide an economic rationale for a clean energy transition.



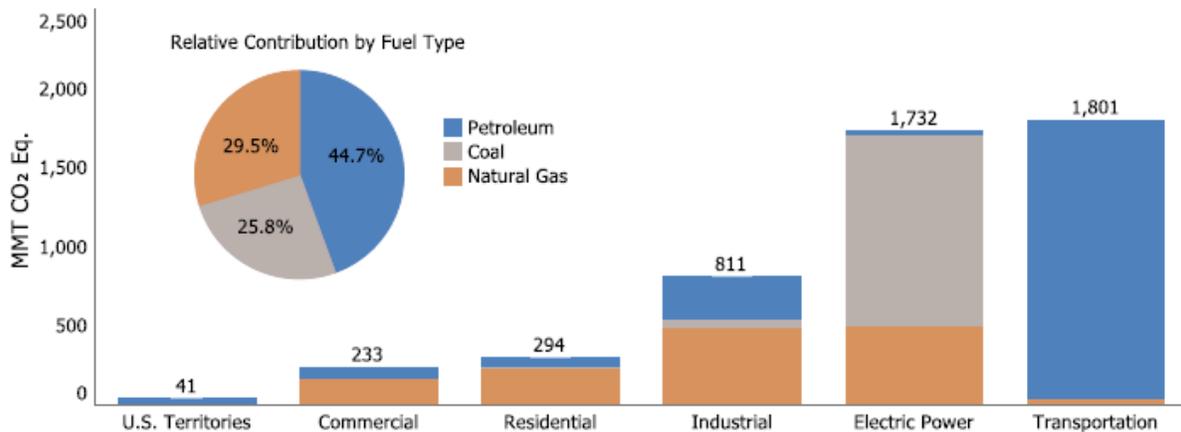
## Latest Inventory of U.S. GHG Emissions and Sinks Shows Long-Term Reductions

The 2019 edition of U.S. Environmental Protection Agency’s (EPA) comprehensive annual report on greenhouse gas (GHG) emissions shows a long-term trend in falling greenhouse gas emissions.

**Gross U.S. Greenhouse Gas Emissions by Gas (MMT CO<sub>2</sub> Eq.)**



The five major fuel-consuming economic sectors contributing to CO<sub>2</sub> emissions from fossil fuel combustion are transportation, electric power, industrial, residential, and commercial. Carbon dioxide emissions are produced by the electric power sector as fossil fuel is consumed to provide electricity to one of the other four sectors, or “end-use” sectors. An interesting aspect of the chart below shows that the transportation sector is now the largest emitter of CO<sub>2</sub> eq. emissions, surpassing electric power.



From 1990 to 2017, total transportation CO<sub>2</sub> emissions increased due, in large part, to increased demand for travel as a result of a confluence of factors including population growth, economic growth, urban sprawl, and low fuel prices during the beginning of this period. Almost all of the energy consumed for transportation was supplied by petroleum-based products.

Another fast fact, forestry and other sustainable land practices remove over 11% of total emissions from the atmosphere annually. Check out the [U.S. GHG Inventory Fast Facts](#).

## Strategic Directions: Smart Utilities Report 2019



Digital technology and networks are breathing life into utilities' aging distribution systems just as distributed energy resources (DER), energy efficiency and renewable energy are challenging traditional business models and centralized generation.

Economical advances in energy production, storage and control are giving rise to the prosumer, driving consumer choice and ultimately producing a new energy marketplace at the local distribution level.

However, utilities are struggling to manage two-way power flow and variable DER while maintaining the reliability, efficiency and security of their operations. This report captures what's top of mind among overseers of electric networks.