



NERA Electricity Insights

2018 Quarter 2 Comparative Analysis | Issue No. 6

NERA
ECONOMIC CONSULTING

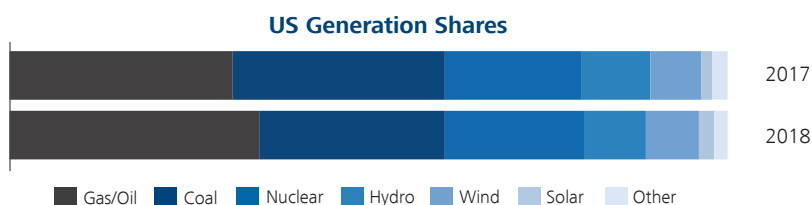
About NERA Electricity Insights

NERA Electricity Insights provides timely quarterly analysis of the latest data on US power generators. Utilizing datasets released by the US Energy Information Administration (EIA) and the US Environmental Protection Agency (EPA), NERA stays at the forefront of an evolving electricity industry, tracks new developments, and presents broader energy trends that can also impact future outcomes. The following provides some insights for Q2 2018.

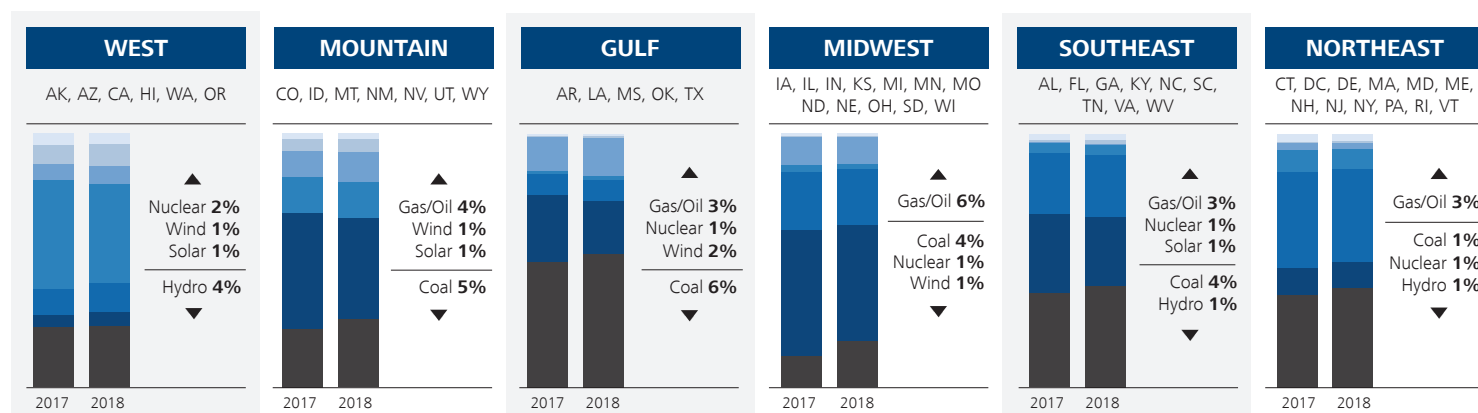
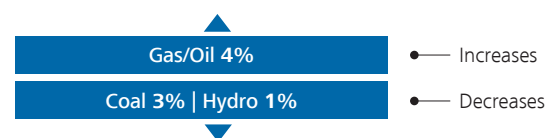
The Big Picture: Q2 2018 vs. Q2 2017

	Q2 2017	Q2 2018	Change	Q2 2017	Q2 2018	Change
			<i>US Generation (TWh)</i>	<i>US Capacity (GW)</i>		
Combined Cycle	244	281	37	244	256	12
Peaking Gas/Oil	59	70	11	242	242	(0)
Coal	285	262	(23)	265	247	(17)
Nuclear	185	196	11	99	100	0
Hydro	92	85	(7)	80	80	(0)
Wind	67	75	7	83	89	5
Solar	17	21	4	24	29	5
Other	21	22	0	42	42	0
			<i>CO₂ Emissions (MM Metric Tons)</i>			
US Power Sector CO ₂	419	415	(4)			
			<i>Avg. Delivered Fuel Prices to Power Sector (\$/MMBtu)</i>			
Natural Gas	\$3.74	\$3.10	(\$0.64)			
Coal	\$2.07	\$2.05	(\$0.02)			

Regional Generation Mix: Q2 2018 vs. Q2 2017



US Changes Relative to Q2 2018 and Q2 2017



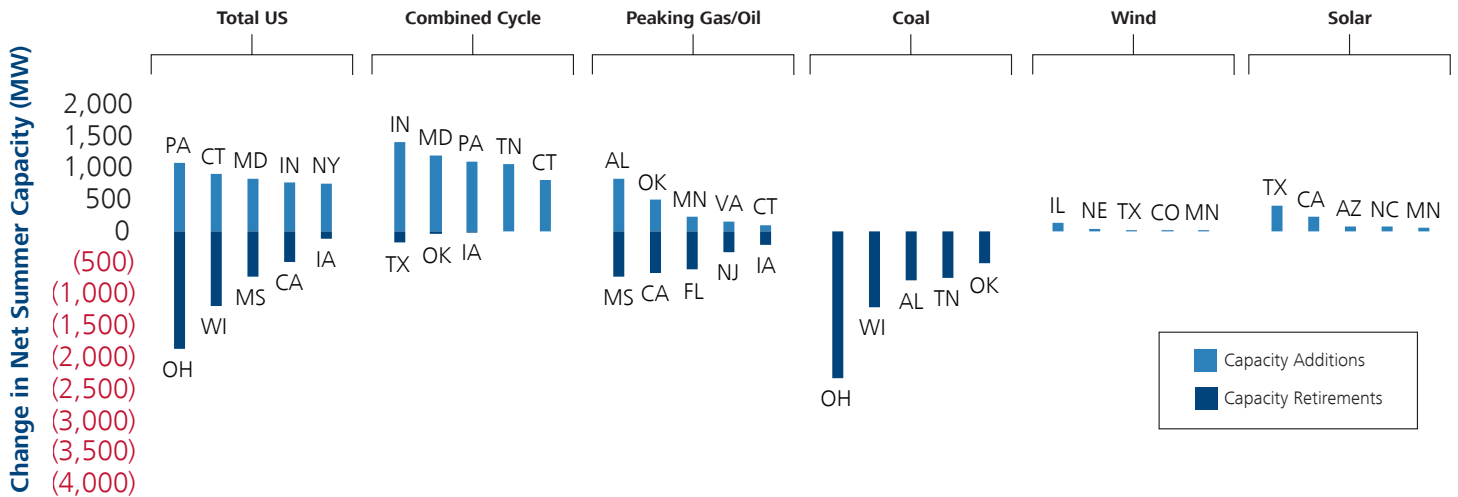
QUESTIONS TO THINK ABOUT

What will happen to electricity prices in the West if hydro output remains low?

With coal generation declining in each of the last four quarters (relative to the prior year), is there a set of economic conditions that can reverse this trend?

Capacity Additions and Retirements (Top 5 States by Technology): Q2 2018 vs. Q1 2018

Nationally, there were additions of 9 GW of combined cycle units and 1 GW of solar; there were also retirements of 6 GW of coal and 1 GW of peaking gas/oil units. Additions of storage (0.1 GW) slightly exceeded wind additions, with the largest storage additions coming from California and Michigan.

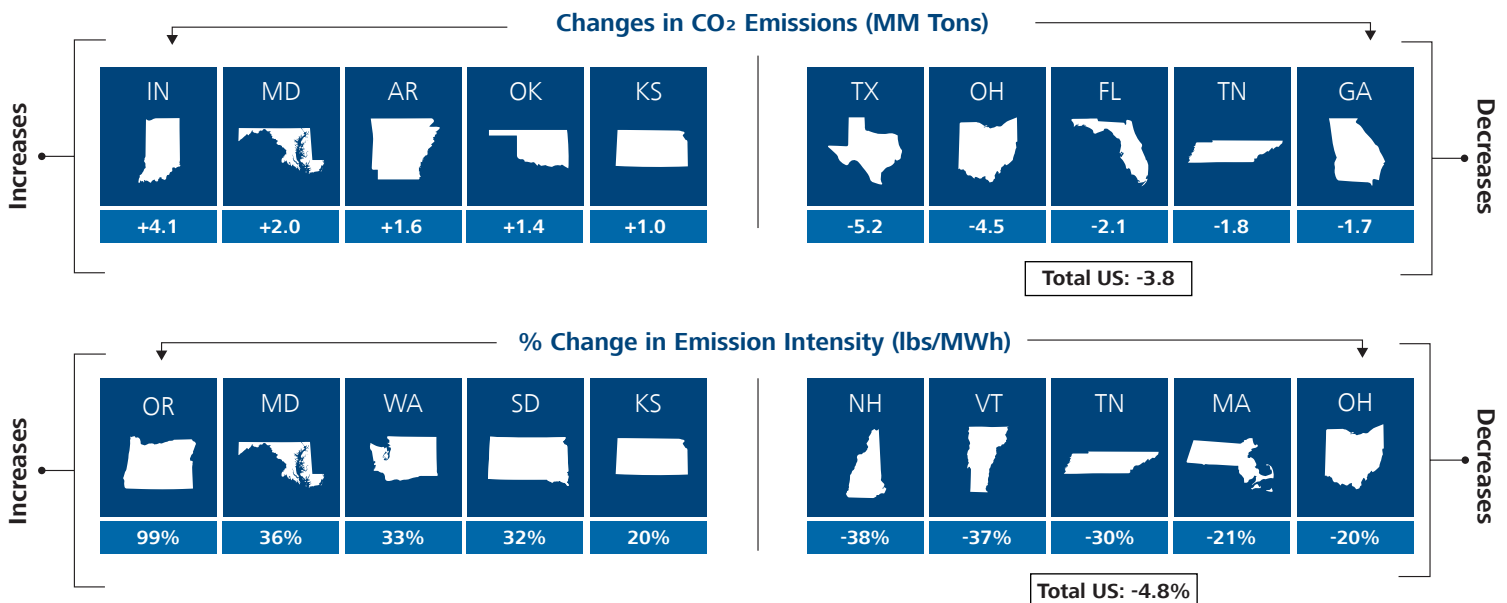


QUESTIONS TO THINK ABOUT

Can the EPA's recently announced Affordable Clean Energy rule slow or stop retirements of coal-fired generators?
Has solar surpassed wind as the preferred renewable technology nationally?

US and State Changes in CO₂ Emissions and CO₂ Emission Intensity: Q2 2018 vs. Q2 2017

Nationally, power sector CO₂ emissions in Q2 2018 were 3.8 million metric tons lower than in Q2 2017 (0.9% decrease) and generation was up 4% over the same period, amounting to a 4.8% decrease in national CO₂ emissions intensity.



QUESTIONS TO THINK ABOUT

Can the decline in emissions intensity in each of the last four quarters be sustained?
Will the EPA's recently announced Affordable Clean Energy rule be able to change the current emissions trajectory?

Unit-Level Capacity Factors: Q2 2018 and Q2 2017

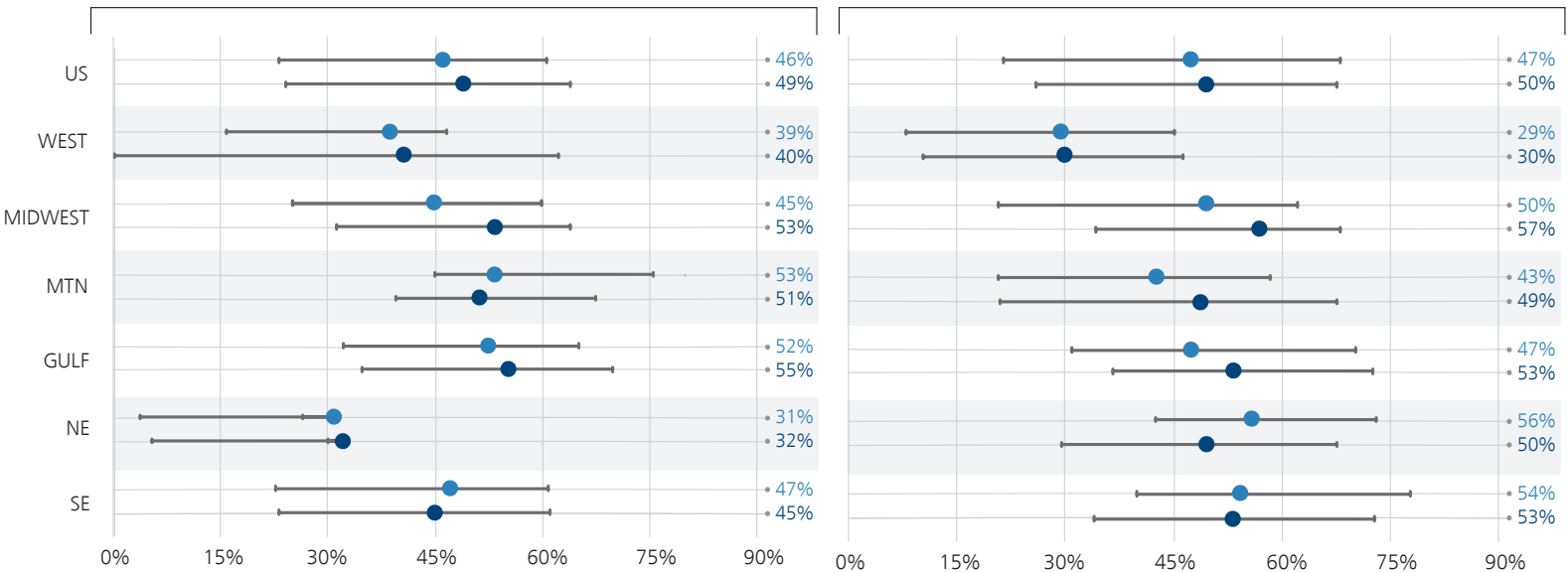
The higher capacity factors for combined cycle units reflect both increased generation and increased capacity while capacity factors for coal units have increased despite decreases in generation.

Coal and Combined Cycle (Average, 25th, and 75th Percentiles): Q2 2017 vs. Q2 2018



COAL

COMBINED CYCLE

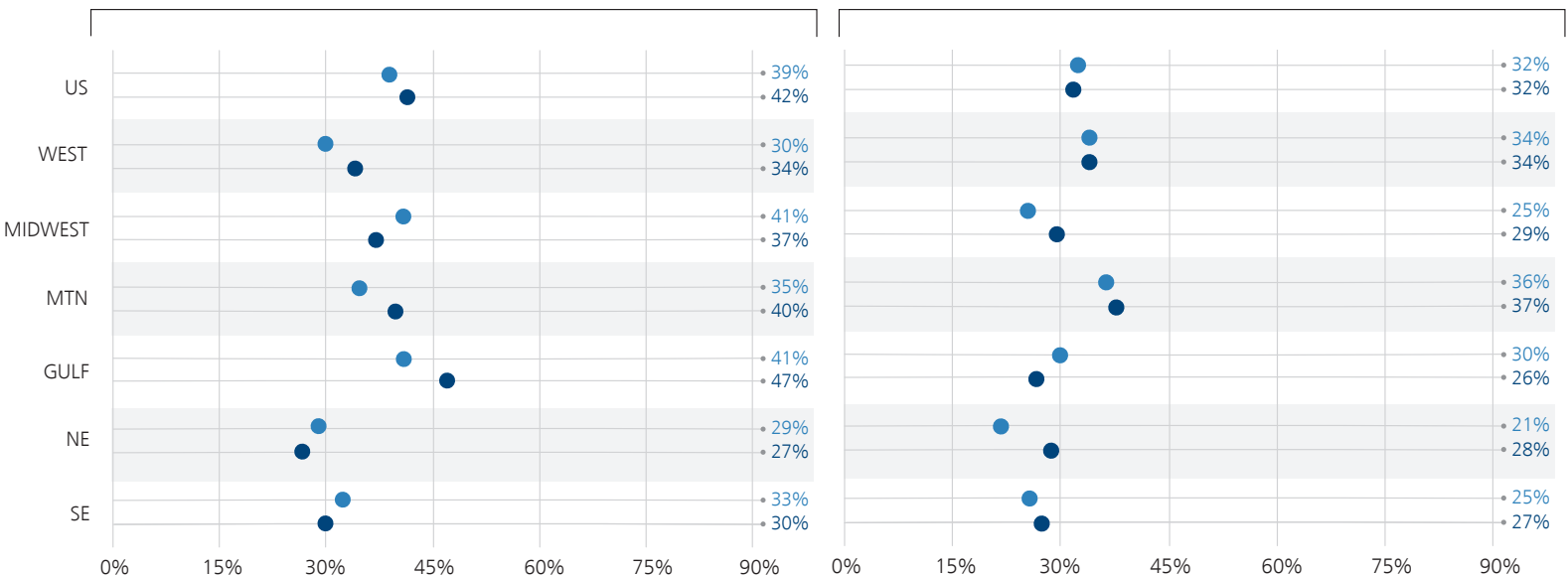


Wind and Solar (Average): Q2 2017 vs. Q2 2018



WIND

SOLAR



QUESTIONS TO THINK ABOUT

What factors can reverse the declining combined cycle capacity factors in the Northeast?
As the Midwest retires its less-efficient coal units, can the remaining units sustain their improved capacity factors?

About NERA's Energy & Environment Group

NERA's Energy & Environment Group is at the forefront of the continuing transformation of the energy sector worldwide. We help companies develop strategies for exploring new opportunities and minimizing new risks, including issues related to climate change policy and other environmental rules. We work with our clients to develop new regulatory strategies and, when needed, support our clients with analysis and testimony before regulatory commissions, and domestic and international courts.

NERA has exceptional in-house market modeling capabilities to provide detailed analytical support for a wide variety of engagements. Our NewERA model, the most state-of-the-art, fully-integrated electricity-macroeconomic model available in the consulting space, helps companies evaluate how new and potential future policy or market changes will interact with each other and influence business and economic outcomes. It captures policies' effects as they ripple through all sectors of the economy, supporting transaction evaluation, asset valuation, and policy analysis. The NewERA model integrates a macroeconomic model with a highly-detailed electricity sector model, providing a unified understanding of the economic impacts of new policies on all sectors of the economy. Detailed electricity sector outputs include dispatch decisions for generating units, new builds, wholesale and retail electricity prices, and emissions prices.

Recent Project Spotlight

NERA Economists Provide NewERA Model Analysis in Carbon Capture Study

A NERA project team, led by Associate Directors Dr. Sugandha Tuladhar and Scott Bloomberg, provided the Carbon Utilization Research Council (CURC) and ClearPath Foundation (CPF) with evaluations of the potential for market-driven deployment of carbon capture, utilization, and storage (CCUS) technologies for coal and natural gas power plants.

NERA's NewERA simulations were used in the report prepared by CURC/CPF, which examines how reducing the cost of carbon capture via a rigorous research, development, and deployment (RD&D) program can enable new coal and natural gas power projects with carbon capture for EOR, and quantifies the resulting economic and employment benefits to the United States.

For more information, click:

<http://www.nera.com/publications/archive/2018/nera-economists-provide-newera-model-analysis-in-carbon-capture-.html>.

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