Five Power Industry Trends to Watch in 2018

Policies Set in Motion that Will Define the Year, from Batteries to Power Markets

Industry Insight (i)

simultaneous trends reflecting a broader shift from coal to natural gas and renewables. The changing fuel mix, growth in renewables, and evolution of distributed energy resources are among the key causes catalyzing this transformation. In 2018, most of these trends are expected to continue or accelerate. The spread of renewables will likely continue unabated. The market has matured along with growing

Over the past five years, the power industry has evolved at a faster pace because of several

demand from consumers. Utilities, on their part, have made commitments towards clean energy and resiliency, and renewables help meet both. Renewables will grow hand in hand with investments in energy storage to address intermittency and other integration challenges. In the recent years, the U.S. nuclear fleet has seen a wave of closures amid weak sales and low

Westinghouse have plagued the few new builds. The federal and several state governments have striven to support nuclear, and advanced technologies promise some hope for the industry, but their combined impact remains to be seen. The penetration of distributed energy resources - namely, distributed generation (DG), energy storage, energy efficiency, demand response, microgrids, and electric vehicles - has made utilities

reconsider their strategies and planning processes. Net energy metering, a billing mechanism that

prices due to an influx of cheap natural gas. Meanwhile, cost overruns and the bankruptcy of

allows customers with grid-connected DG to exchange excess generation for kWh and/or financial credits, has prompted a flurry of activity as utilities seek to reduce rates or add charges to avoid shifting grid maintenance costs to non-DG customers. Utilities have also taken issue with the avoided cost that must be paid to small independent power producers under the federal Public Utilities Regulatory Policies Act (PURPA) of 1978 considering the significant decline in renewable energy costs in recent years. All these trends have also affected the grid operators who must manage a higher share of renewable generation, accommodate state policy requirements with wholesale markets, and enhance price formation to improve market signals.

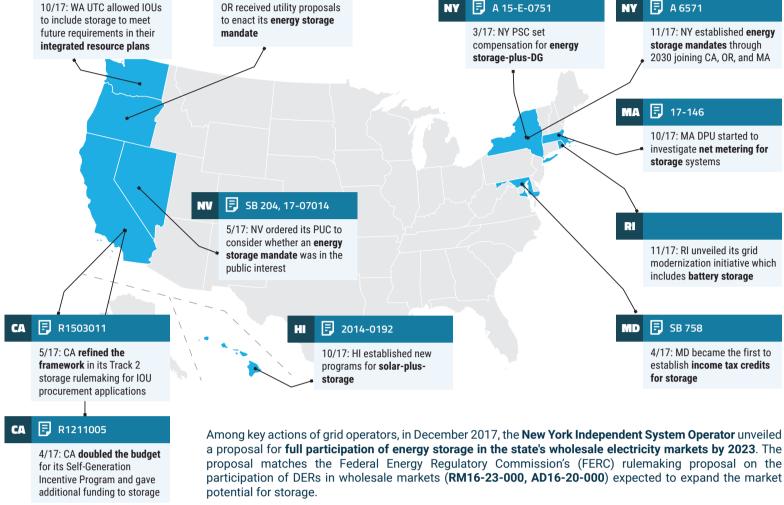
Here is a roundup of five important trends that will impact the power industry this year.

#1: Growing Momentum for Energy Storage

Interest in energy storage is accelerating as policymakers, grid planners, and utilities recognize storage as an important tool to firm up intermittent generation, flatten the load curve, and offer ancillary services. While the spread of renewables remains a major driver for the growth of energy storage, grid resiliency needs, especially in the wake of weather disasters, provide another avenue for growth in the

industry. According to the U.S. Energy Storage Monitor, 41.8 MW of storage were deployed across the U.S. in the third quarter of 2017, representing a 46 percent growth year-over-year. In the policy realm, governments have used mandates, tax incentives, streamlined permitting processes, and research and development programs to support storage. The numerous policies enacted in 2017 will set the tone for 2018 in storage. E UE-151069, U-161024 **I** HB 2193 10/17: WA UTC allowed IOUs OR received utility proposals to include storage to meet to enact its energy storage future requirements in their mandate

ENERKNOL Connecting you to the comprehensive universe of regulatory and legislative information, in real time. **ACCESS NOW** 🗐 A 6571



17-0333

#2: Intensifying Debate over the Future of Nuclear

Low natural gas prices have pushed down the wholesale electricity prices squeezing the margins of nuclear plants. Consequently, a number of nuclear plants have found themselves at the risk of premature closure due to their inability to compete with natural gas plants in wholesale markets. The wave of closures has prompted the Nuclear Regulatory Commission (NRC) to consider new rules for decommissioning nuclear plants to make

A 5330

of the costly and lengthy decommissioning process paid for through a fund that plant operators create during construction. Multiple states have chosen to support nuclear as a low-carbon baseload electricity source to maintain its share in the energy portfolio. New York (15-E-0302 and 16-E-0270) and Illinois (SB 2814) were first to enact programs in 2016 to compensate eligible nuclear plants for every MWh of carbon-free electricity they generate. Both programs which sparked a national debate over nuclear subsidies have survived legal challenges. However, the outlook for new nuclear reactors remains grim due to the bankruptcy of the reactor designer Westinghouse Electric and spiraling capital costs.

the process more efficient and reduce the need for exemptions from existing regulations. According to the Energy Information Administration (EIA), the U.S. has successfully decommissioned ten commercial nuclear reactors as of November 2017, and another 20 are currently in different stages

10/17: CT allowed Dominion's 10/17: OH proposed to create 12/17: NJ proposed to 10/17: IPA submitted its Millstone plant to enter into a establish a "Nuclear Diversity a zero-emissions nuclear zero-emission standard competitive procurement Certificate" program credit program procurement plan process along with renewables if corroborated by an ongoing study into the

F HB 381

SB 1501

plant's viability

U-17973

12-2050-EL-ORD

11/17: OH PUCO required

utilities to offer a standard

tariff to standard service

customers and allowed energy marketers to provide

net metering

SB 309

5/17: IN decided to phase out

NEM over 5 years or when

utilities reach 1.5% of their

summer peak load and

grandfather existing

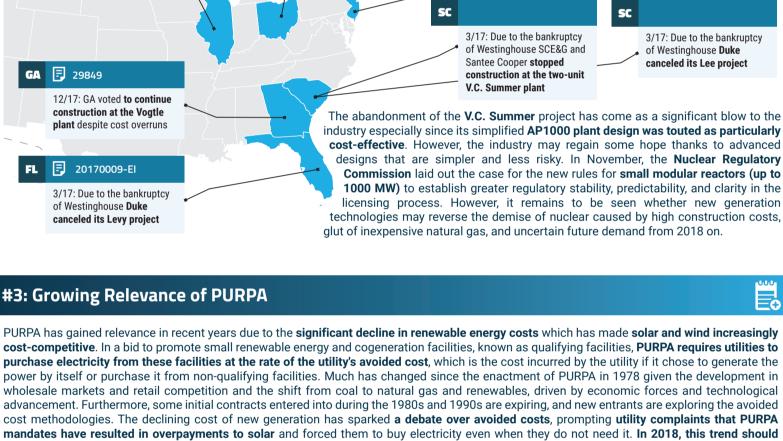
ME

NJ

11/17: MI PSC updated

avoided cost payment

formula for Consumers



8/17: ID PUC ruled that solar-plus-battery storage projects would be eligible for

F IPC-E-17-01

order that slashed the term two-year contracts, similar to Energy solar from 25 to ten years) F HB 589 10/17: NC UC incorporated changes set by HB 589 which reduced contract lengths to 10 years and capacity limits to 1 MW

The changing net metering landscape has called for discussions among utilities, consumers, renewable energy companies, and regulators on improving the existing policies. With evolving consumption patterns, utilities want rate structures that address cross-subsidies and help recover fixed costs. Even states with relatively small solar capacity, such as Idaho and Montana, have sought to solve these challenges proactively. In 2018 and onwards, outcomes in leading solar states that have changed net metering policies such as Ohio, California, and Hawaii will influence other

MT D2016.5.39

F HB 219

to HB 219

8/17: MT PSC established

criteria for Northwestern's

net metering study pursuant

10/17: MT PSC increased the

15 years (up from a previous

maximum contract term to

14-035-114 rate slightly lower than the retail one 8/17: Rocky Mountain Power reached a settlement on grandfathering existing NEM

#4: Changes to Net Energy Metering Rules

states with less developed solar markets.

F IPC-E-17-13

B AB 405

F R1512012

11/17: CA PUC removed the

construction deadline for

rooftop solar to qualify for

7/17: ID's leading utility

requested authorization to close NEM and create a solar

rate class due to cost shifting

6/17: NV reinstated NEM at a

6/17: NH PUC approved

1/17: ME PUC grandfathered

NEM customers for 15 years

17-22

new NEM tariffs

3/17: MA DPU started

mechanism for DERs in a first step to move beyond NEM

9/17: NJ BPU started a study

examine the cost differential

of NJ's solar market to

between residential and

utility-scale solar

7/17: NC required a

proceeding to revise NEM

rates after an investigation

B HB 589

customers until 2035 investigating NEM 5 15-E-0751 3/17: NY PSC adopted a new Value Stack pricing

grandfathered time-of-use customers for 30 years customers to recover fixed rates 16-027-R E-01345A-16-0123/0036 10/17: HI established two 3/17: AR PSC grandfathered 8/17: Rocky Mountain Power reached a settlement on new programs for solar-plus-NEM customers for 20 years grandfathering existing NEM storage customers customers until 2035

16-GIME-403-GIE

9/17: KS CC allowed utilities

to create a rate class for DG

The glut of cheap natural gas and the spread of renewables have rendered coal and nuclear power plants less economical drawing attention to price signals in wholesale electricity markets. Discussions on wholesale markets and state policies have centered on market designs that value various resource attributes. So far, wholesale markets have been agnostic to resource types and environmental externalities, causing states to address them on their own. PJM Interconnection and the Electric Reliability Commission of Texas (ERCOT) are examining reforms to price formation issues while in California, generators are tackling increased instances of negative pricing and curtailment, also suggesting a need for market reform.

Among other initiatives to

FERC

#5: Wholesale Market Reforms

fuel-secure generators such as coal and nuclear units. While the proposal revived some optimism in the two industries, a broad range of other stakeholders have raised numerous issues.

Perhaps the most closely

the Department of Energy's

reasonable rates for

grid resiliency rule proposed

in September 2017 to provide

watched issue for 2018 will be

RTOs/ISOs. Reforms, if passed, would likely address market mechanisms to value resource attributes and internalize carbon costs within wholesale electricity prices. However, stakeholder discussions have remained inconclusive so far, making this issue a key one to follow in 2018. **EnerKnol** connects you with comprehensive, real-time **energy policy data** from **federal**, **regional**, and **state** sources.

In May 2017, the FERC held a

policies and objectives can be

technical conference to

determine whether state

achieved through market

mechanisms in the Eastern

energy market prices for inflexible resources that have so far been excluded from the process. PJM explained that all resources scheduled to opportunity to set prices and markets.

watch in 2018, in November **Utility Commission of Texas** 2017, PJM Interconnection requested comments on its proposed to expand the project to assess price formation rules in the ERCOT eligibility criteria for setting energy-only market to respond to persistently low prices. The outcome of ERCOT proceeding will likely have a significant impact on wind serve demand should have the energy in Texas, which tops the nation in wind production. earn competitive returns in the

ERCOT

In October 2017, the Public



NYISO/NY DPS

In August 2017, the New York

Independent System Operator

and the Department of Public

Service initiated a process to

examine the potential for

wholesale energy market to further the state's energy

carbon pricing in the

policy goals.

Visit EnerKnol.com to learn more!

212 537 4797 @ info@enerknol.com www.enerknol.com Sources: EnerKnol, EIA Disclosures Section RESEARCH RISKS Regulatory and Legislative agendas are subject to change. AUTHOR CERTIFICATION By issuing this research report, Angelique Mercurio as author of this research report, certifies that the recommendations and opinions expressed accurately reflect her personal views discussed herein and no part of the author's compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed in this report. In the report is not to the construed as a profit of the companies cited, mentioned, or discussed herein. Enerknol Inc. is not a broker-dealer or registered investment advisor. Information contained herein has been derived from sources believed to be reliable but is not guaranteed as to accuracy and does not purpor to be a complete analysis of the company, industry or security involved in this report. This report is not to be construed as an offer to sell or a solicitation of an offer to buy any security or to engage in or refine from engaging in any transaction. Opinions expressed are subject to change without notice. The information herein is for persons residing in the United States on in any tonar purisonic only in any transaction. Opinions expressed are subject to change without notice. The information herein is for persons residing in the United States only and is not intended for any person in any transaction. Opinions expressed are subject to change without notice. The information herein is for persons residing in the United States only and is not intended for any person in any transaction. Opinions expressed are subject to change without notice. The information herein is for persons residing in the United States on in any transaction. Opinions expressed are subject to the Mental and the opinions expressed and the wholesal clients of the female and the opinions expressed any transaction. Opinions expressed any transaction. Opinions expressed between the Mental and the Information and the Information in the Report to the State of the gene

10+ million filings from 300+ sources in energy ACCESS TRIAL policy and regulation at your fingertips.