Greetings AEEOK Members and Colleagues:

The world has changed in a very unaccustomed manner since the last issue of our newsletter. The new rules of social distancing, stay-at-home orders, face masks, and constant use of hand sanitizers have dramatically changed our culture. As we begin to emerge from the health crisis and reopen businesses, the lessons learned will no doubt create new conversations on so many topics related to our industry. This will include a focus on indoor air quality for not only CO2 but also the addition of viral load—a new term for all of us. I recommend all AEEOK members review ASHRAE’s Building Readiness and Reopening Guidance, which are included in this newsletter.

The future may see increased interest in energy efficiency, clean energy, and technology to improve occupant safety in buildings. This new technology includes UV lighting, air filtration, air scrubbers, bipolar ionization, virtual energy audits, new requirements for temperature set points and humidity control. As members of AEEOK, our expertise will play an important role in answering questions as these new technologies appear in the market for customers and the community.

In the next several months, the policy focus from federal and state lawmakers will turn toward economic stimulus. Energy efficiency should play a role since it has always been an economic stimulus method to decrease operating costs and improve many other non-energy related issues for buildings and processes. The role energy efficiency plays in our nation will continue to be significant in repairing our health and financial activity. Let’s be ready for the challenge!

Thank you all,

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Our Board Members

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The "Growth Opportunities in Distributed Energy, Forecast to 2030" report has been added to ResearchAndMarkets.com’s offering.

Investments into distributed energy resources (DER) technologies reached $53.14 billion in 2019. Total capacity commissioned was 51.04 GW, meaning the total global installed capacity for DER increased by 10% in the year to 528.93 GW. Strong growth is expected for the global market across the decade as a whole. About $846.12 billion is forecast to be invested in new DER capacity over the next decade (2020-2030). The investment will be driven by a combination of favourable regulations, declining project and technology costs, high electricity and demand charges, availability of funding, and new financing models that offset initial investment barriers.

Solar PV will dominate global investment throughout the decade, accounting for 88.2% of the funding. Of this, residential solar PV will account for 49.3% of the total investments, and commercial and industrial (C&I) solar PV the remaining 38.9%. By the end of the next decade, Asia will account for approximately 48% of the total investment, followed by North America (approximately 17.5% share) and Europe (approximately 16%). Total distributed generation (DG)
installed capacity is projected to reach 1182.00 GW by 2030, accounting for 10% of the global installed power generation in the year.

The DER model will play an increasingly pivotal role in the global power mix, as part of a wider drive to decarbonise the sector. The publisher firmly believes that participants in the power generation market must consider the impact of DER and should adapt accordingly.

Behind-the-meter energy storage is set to become a game-changer for DER as it enhances its value proposition and enables revenue stacking. The cost of the energy storage system is forecast to decline by 35% over the course of the decade, making it an increasingly attractive proposition. New solar PV customers will opt for a solar + storage system as standard and existing customers will increasingly look to add a storage system to their existing solar PV DER units.

Prosumers will continue to invest in DER projects to mitigate energy cost uncertainty and avoid increases in demand charges. They will also increasingly benefit from selling electricity back to the grid and from participating in the wholesale electricity, capacity and ancillary service markets.

The transition from a pure pay-and-purchase model to operation and output based OPEX contracts that include maintenance, performance guarantees, and availability of the installed equipment will increasingly be preferred by residential and C&I consumers.
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RECOGNIZED PROGRAM
MEETS U.S. DEPARTMENT OF ENERGY GUIDELINES
The most expensive part of an electric car is the battery. The giant slab of expensive and difficult-to-obtain elements powering the motors is what makes an EV more expensive than its gasoline equivalent. But it looks like Tesla and battery partner Contemporary Amperex Technology Ltd (CATL) of China may have figured out how to make an electric car cost the same as a gas car.

Reuters reports that Tesla and CATL have been working on and will announce a new low-cost battery. This battery is expected to be officially unveiled at Tesla’s Battery Day event, which CEO Elon Musk has announced will happen at the end of May in either California or Texas. The new batteries are supposed to last for one million miles and make it possible for Tesla to sell cars at the same cost as gasoline-powered counterparts.

The Model 3 in China will be the first vehicle to receive the battery technology. Eventually, the higher density, lower-cost battery will make its way into other Tesla vehicles in other markets including the United States, according to sources cited by Reuters.
In February, Reuters reported that Tesla was in talks to use CATL's lithium-iron-phosphate batteries that don't use cobalt, which is the most expensive element in today's EV batteries. CATL has also created a less expensive and simpler battery packaging scheme called cell-to-pack that reduces weight and cost. Put all that together with the advances in power density, and you get a cheaper battery with the same range at a cost that's near $100 per kWh. That's the price point many believe will be the point where EVs cost the same as gas cars.

Earlier this year, General Motors unveiled its next-generation lithium-ion battery technology, and claimed the low-cobalt chemistry brings cost down to $100 per kWh. Those batteries, called Ultium, will go into 20 new electric vehicles, such as the Cadillac Lyriq, by 2023.

Tesla's Battery Day event is also expected to bring news that Tesla vehicles will be able to share energy back to the grid. The development would essentially make a Tesla car work like a Powerwall, the battery pack Tesla sells to consumers to store energy from solar panels for use at night or to keep the lights on during a blackout.

Finally, Reuters reported that Tesla is planning to implement high-speed and highly automated battery production. It goes in line with Musk's dream of the machine building the machine. Tesla tried this initially with the Model 3, but it turns out humans are still needed in vehicle production. Battery building might be easier and, if successful, will also bring down costs of the EVs.
While the COVID-19 pandemic continues to keep most of America home, including state legislators, some states have managed to pass landmark clean energy legislation whilst prioritizing matters related to the novel coronavirus.

In New York, the state with the most confirmed coronavirus cases to date, state legislators recently passed The Accelerated Renewable Energy Growth and Community Benefit Act as part of the FY 2020-2021 state budget on April 3. The Act, which focuses largely on siting changes, will create the Office of Renewable Energy Siting to create a streamlined process for siting of large-scale renewable energy projects across the state. While the state's existing energy generation siting process was designed for siting fossil-fuel energy generating plants, the new process establishes uniform environmental standards and aims to expedite project development for renewable energy projects. The Act also includes provisions ensuring that renewable energy development is targeted to maximize economic development and environmental protection, directing the benefits of renewable energy projects to the local host community, and helping to prioritize the planning, investments and responsible development of grid infrastructure.

The provisions contained in the Act will move New York towards its clean energy and climate goals, including the current mandate to obtain 70% of the state’s electricity from renewable sources. In addition to combatting climate change, the Act will help New York to speed economic recovery from the COVID-19 crisis.
The Virginia state government took similar action when, on April 12, Governor Ralph Northam signed into law the Virginia Clean Economy Act. The Act requires the state to transition to 100 percent carbon-free or renewable energy by 2050, making Virginia the eighth state to set such a mandate and the first state in the southern United States to do so. Provisions included in the Act include a moratorium on new fossil fuel plants until 2022, requirements that utilities meet targets for helping customers to use less energy by 2025, and new parameters for the expansion of renewable power, which require that Virginia develop 5,200 megawatts of offshore wind power by 2034. Energy companies that do not meet the new targets will be fined, with portions of that revenue going towards job training and renewable energy programs in low-income and otherwise disadvantaged communities.

On the same day, Governor Northam also enacted an amended version of the Clean Energy and Community Food Preparedness Act, which now requires the state to join the Regional Greenhouse Gas Initiative. That initiative, known as the RGGI, is a cooperative effort among states to cap and reduce carbon dioxide emissions from the power sector. As a member of the initiative, Virginia will establish an auction program to sell allowances into the market-based program.

However, despite these promising developments, the closure of statehouses around the country, and the postponement of legislative sessions in over half of states, has led to the inevitable slowdown of renewable energy legislation, stalling many reforms in the clean energy space indefinitely.

In Illinois, similar legislation to that passed in Virginia that would bring Illinois up to 100 percent renewable energy by 2050 has been put on ice since the state government in Springfield was closed down in early March. The Clean Energy and Jobs Act, which would add a monthly renewable energy charge to residents’ energy bills, establish opportunities for clean energy job training, and provide incentives for small businesses, would have a complicated route to passage in any environment due to its complexity and the number of stakeholders involved. Now, however, the state's first priority is enacting legislation concerning the COVID-19 crisis, making it even less likely that the bill will be passed for at least the next several months.

Interruptions and deferrals of state legislative sessions has affected a number of other state-level clean energy initiatives. In Minnesota, the capitol’s closure has stalled efforts to find consensus around a clean energy bill that would prioritize carbon-free energy over fossil fuels and strengthen the state’s energy efficiency standard. In Michigan, a statutory cap on distributed generation for rooftop solar installers is scheduled to expire in the coming weeks. Because states are currently focused on legislation critical to the management of the COVID-19 pandemic, it appears that clean energy initiatives will be placed, at least for the foreseeable future, on the back burner.
ASHRAE Offers COVID-19 Building Readiness/Reopening Guidance

BY ASHRAE  | MAY 7, 2020

The ASHRAE Epidemic Task Force has developed guidance on mitigating potential health risks during reopening of buildings closed during the COVID-19 pandemic.

“We have reached a time where planning for a safe return to normal activities has become a priority,” said 2019-20 ASHRAE President Darryl K. Boyce, P.Eng. “Safe operation of HVAC and building water management systems are critical components of building readiness and reopening, and ASHRAE’s resources provide a framework for developing plans in a variety of building types.”

ASHRAE’s recommendations for reopening buildings are outlined in the frequently asked questions section of its COVID-19 Resources webpage. Recommendations for building readiness and reopening include the following:

- Create a strategic plan prior to opening a building. The plan should include measures to make occupants feel safer, ensuring supply chain for critical items such as filters and communication plans for building support and safety measures for occupants.
• If the building opening takes place when Personal Protective Equipment (PPE) requirements are still in place, ASHRAE's Occupancy Guides can be referenced to deal with functioning buildings during the epidemic.

• Review HVAC programming to provide flushing two hours before and post occupancies. This includes operating the exhaust fans as well as opening the outside air dampers. For buildings without the capacity to treat large quantities of outside air and when outside air conditions are moderate, open all windows for a minimum of two hours before reoccupation.

• Ensure that custodial scope includes proper cleaning procedures built from EPA and CDC guidance on approved products and methods:
  • Disinfect high-touch areas of HVAC and other building service systems (e.g. on/off switches, thermostats)
  • Disinfect the interior of refrigerated devices, e.g. refrigerators, where the virus can potentially survive for long periods of time.

• Run the system on minimum outside air when unoccupied.

• Garage exhaust, if any, should run two hours before occupancy.

“Key elements of a strategy to limit the spread of the COVID-19 virus are to perform needed heating, ventilating and air conditioning (HVAC) system maintenance, including filter changes, and to run HVAC equipment, prior to re-occupancy,” said ASHRAE Epidemic Task Force chair, ASHRAE Environmental Health Committee voting member and 2013-14 ASHRAE Presidential Member Bill Bahnfleth.

A decrease in water usage in buildings closed or with limited access during the pandemic can increase the risk of bacteria growth in building plumbing and associated equipment. Facility managers and building owners can help mitigate the risk of waterborne pathogens, such as Legionella bacteria, the cause of Legionnaire’s disease, by developing a water management plan. ANSI/ASHRAE Standard 188-2018, Legionellosis: Risk Management for Building Water Systems establishes minimum legionellosis risk management requirements for building water systems.

“ASHRAE's building readiness guidance empowers building owners with resources and practical guidance for safer operation of HVAC systems as we cautiously transition into a post-COVID-19 world,” said ASHRAE Epidemic Task Force chair of Building Readiness guidance Wade Conlan.

The task force also recommends guidance released in the newly updated ASHRAE Position Document “Infectious Aerosols” as well as the Emerging Issues Brief.

For extensive resources and strategies on safe building reopening, visit ashrae.org/COVID19.
Tulsa is a finalist for Tesla’s newest assembly plant, and the city is lobbying hard for the electric vehicle and clean energy company to build there. The city’s iconic Golden Driller statue recently received a facelift—styled with the company logo and a mask of Tesla’s founder, Elon Musk.
As utilities tackle immediate COVID-19 impacts, analysts stress need to focus beyond the pandemic

Power systems across the country need new approaches for today’s shifting loads, but focusing on recovery and tomorrow’s resources can be even better, analysts say.

HERMAN K. TRABISH, UTILITY DRIVE  |  MAY 20, 2020

Data now verifies a pandemic-driven collapsing commercial-industrial (C&I) electricity load is only partially offset by sheltering-at-home customers' spiking residential usage.

Utilities have implemented measures to help residential customers cope with rising powerbills. But some utility leaders and analysts are thinking beyond today’s uncertainties and looking instead toward tomorrow’s system needs in light of these shifting load dynamics, they told Utility Dive.

Because of the economic turmoil, "a sharp recovery to previous 'normal' daily load shapes is unlikely without new stimulus efforts," Energy Innovation Senior Fellow Eric Gimon told Utility Dive. But "utilities are safer equities than most in this storm, so it could be a moment for CEOs to
pursue new electrification revenues and expenditures for system flexibility they will need going forward."

The growing "emphasis on energy efficiency and clean and alternative resources" will present new "opportunities for economic development as the economy reopens," Consolidated Edison (ConEd) spokesperson Allan Drury agreed. "Coming out of the pandemic, customers and regulators are likely to set higher expectations for reliability" that require new "smart investments" that will be "good for the economy," he told Utility Dive.

Disconnection moratoria and bill relief address near term needs, and keeping close track of shifting load data is vital, but the better question is what tomorrow’s power system can be, utility spokespeople and system analysts told Utility Dive.

**C&I decline amid the pandemic**

For system operators across the country, C&I loads are sharply down and residential use is rising, but with flatter peaks. Overall, U.S. load was down 6.5% in April, according to a May 12 Brattle Group report.

A sampling of residential demand showed an average 12% increase and that C&I demand was off by an average of 31% through April 27, consulting firm ICF reported May 3. Average "daily peak demand dropped by 10%" from April 27 to May 3, but has since "reached relative steady state," it found.

Meanwhile, utilities face new challenges created by the shifting C&I and residential loads.

Demand from residential air conditioning is up "about 40%," which is "a real concern" for system operators and customers, Scott Hinson, chief technology officer at consumer energy data specialist Pecan Street, told Utility Dive. "Electricity bills could go very high in June, July, and August when it gets hot."