WATTS HOT Newsletter®

YOUR SOURCE FOR ENERGY, TECHNOLOGY, SUSTAINABILITY & RESILIENCY

APOLLO Engineering Solutions®

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Special Message – Getting Back Up

Resiliency is a life skill that requires us to focus, keep moving forward and adapt from life's lessons learned in difficult times. Resiliency is a way to become wiser, stronger, and better through times of challenge or opportunity. But strategies are not of the ready-fire-aim variety. As we slowly move out of a COVID-19 lockdown, we are eager to spring into action. However, taking a more measured, careful approach, acclimating to the new normal may offer greater peace of mind in the long run. The wisdom derived from experience is a tricky thing, sometimes difficult to hear and often difficult to follow. Haste makes mistakes. Hastiness in decision making can be especially detrimental when it has long term, often unexpected consequences.

In our sped-up world of hypertext, hyperspace, and hypertension, we might all do well to consider what happens when we are forced to "wait". Many of us find ourselves, me included, mulling over all those moments in which stillness takes precedence over activity. It is in the quiet of waiting that our creativity, imagination, and dreams take place. Some waiting contains optimism and others hold negativity. Some waiting we can control. Others we cannot. Stress occurs when we do not know the difference.

We have been through some gut-wrenching challenges over the past several years. It is time we take account to maintain some semblance of sanity to promote hope and happiness. What a difference a year makes, is an understatement. We have gone through one of the most emotional times in our collective history.

As we move through 2021, there is hope. We must believe in our ability to pivot, to create, to innovate, and to reclaim what matters for all of us in this amazingly diverse and complex world. Coming together is the first order.

"Do not judge me by my success, judge me by how many times I fell down and got back up again."

- Nelson Mandela

These are some inspiring thoughts adapted from a friend and long-time colleague, Eileen McDargh. Eileen is world recognized expert on resilience building, a master facilitator, keynote speaker, author and executive coach. You can learn more about her at **https://eileenmcdargh.com**.

UPCOMING EVENTS

- **Midwest Alliance of Sovereign Tribes (MAST)**
  August 11-12, 2021
  Green Bay, WI
  (in-person)

- **2021 Legislative Conference**
  September 12-14, 2021
  Washington, DC
  (in-person)

- **NAHRO's 2021 National Conference & Exhibition**
  October 7-9, 2021
  Phoenix, AZ
  (tentatively in-person)

- **National Facilities Management & Technology Conference**
  November 10-11, 2021
  Orlando, FL
  (in-person)

- **2022 NAHRO Washington Conference**
  March 28-30, 2022
  Washington, DC
  (tentatively in-person)

Getting Back to the Workplace - How to Address Employee Fears

The coronavirus outbreak has caused panic all over the world and U.S. workplaces are no different. Even as we emerge after 2020, new variants continue to cause fear, especially in the workplace. While it may feel challenging to alleviate anxiety associated with the virus, having a preparedness plan for your housing authority can help to stem employee and resident fears and create a safe work environment for your team.

Keep your team informed about the latest news and updates

As news updates continue to roll out on an almost constant basis, it is hard to make sense of the latest reports and the effect they might have on your employees. To ensure that your employees have access to the most accurate information, it is important to provide them with official updates and best practices for how to prevent the spread of the disease. If you haven't done so already, send a company-wide email **highlighting CDC guidance** on how to prevent exposure in the workplace. This includes washing hands frequently for at least 20 seconds, using an alcohol-based hand sanitizer and using tissues to catch coughs and sneezes. This is a great way to help employees associate a sense of the true risks with the virus and a clear understanding of what they can do to protect themselves and others.

Ask team members to stay home if they're feeling unwell

Keeping your team informed is a great start but to ensure that they stay healthy and protected, it's important to encourage team members who are sick to stay home — especially if they have recently traveled to an **area identified by the CDC.** With cold and flu season still coming on, coronavirus is not the only risk factor for your organization, so it is important to emphasize that it is best to stay home even if an employee who is sick does not believe they have been exposed to the virus. If a team member feels sick at work, encourage them to go home and to consult with their doctor about their symptoms.

Develop a remote work strategy

If you do not already have a remote work strategy in place, this is the time to create one. If your team is based in a single office, consider adding remote work tools such as Slack and Zoom to your existing workflow. This is a great way to keep everyone connected if you are forced to work from home for a while. If you already have a remote strategy in place, or if your team is spread across multiple offices, assess your current work structure to see what is working well and what can be improved. Offer ways for employees to attend meetings remotely and encourage managers to work with their teams to create an effective remote workflow.

Make communication an ongoing priority

To help your employees stay calm and informed, send regular updates with the latest expert guidance, and let them know what you are doing to help protect them. Provide a contact for team members to reach out to if they have questions. While taming anxiety can feel challenging as updates about the coronavirus continue to dominate the news cycle, offering employees a playbook for addressing the issue can help maintain a calm and productive workplace during stressful times.

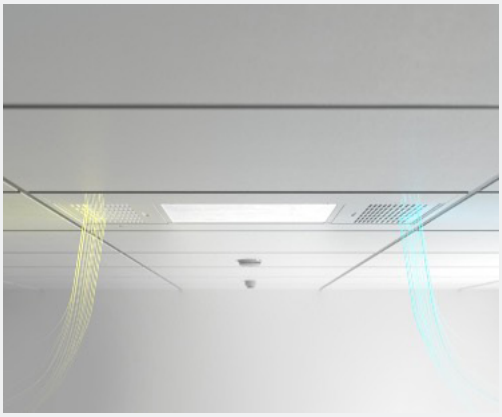
Watts Hot Marketplace: Welcome Back Campaign

Yes, welcome back your staff into a healthier work environment. For residents and staff, wherever people gather (community centers, offices, child-care centers, recreation rooms, etc.), UV Angel has a singular focus: make the world a healthier and safer place for everybody.

While we are several months away from this year's flu season and a posable a winter resurgence of a COVID variant, we can better prepare, prevent the events we recently experienced. By using its patented ultraviolet (UV-C) light technology, **UV Angel** has created an effective way to neutralize harmful pathogens. Using a combination of hardware and software, UV Angel technology provides users with the tools they need to ensure measurably safer and healthier environments, bringing peace of mind to staff and customers.

In the arsenal of infection prevention, ultraviolet lights are used throughout health care and other environments to neutralize microorganisms on surfaces, in water and in the air.

Designed directly into a traditional ceiling light fixture, UV Angel Air is an unobtrusive environmental treatment system that uses ultraviolet light to treat the air automatically and continually. Made and manufactured in USA.



Air Series -
https://youtu.be/cBmAOnROrSs

Surface Series -
https://youtu.be/h9DvpE6Ur1M

Frequently touched surfaces are being interacted with faster than they can be manually cleaned. Using an intelligent, automated ultraviolet light treatment platform, UV Angel can add an extra layer of safety by neutralizing potential threats.

UV Angel technology has been shown to have elimination rates up to 99.99%. Using the latest in advanced ultraviolet light technology, laboratory studies have shown effective removal of pathogens from treated air and surfaces. ***We can prove it!*** UV Angel is compliant to CDC guidelines, providing peace of mind for management, staff, clients.

Look for UV Angel in Starbucks, McDonalds, St. Jude's Children's Hospital, ESPN, Tishman Speyer (Commercial Real Estate), Phillips Edison (shopping center developers), V.A. Hospitals and Nursing Homes.

Contact Dick Santangelo, P.E. for information 703-627-7161 or **rsantangelo@apolloengsol.com**.

Never Too Early to Prepare for the Next Heating Season - Considerations for Peak Boiler Efficiency

Cleaning, maintenance, and retrocommissioning are important steps to getting long-term efficiency from boiler and water heater systems. A new boiler has a higher operating efficiency than one even 10 years old. Due to the capital funding shortfalls over the years, many housing authorities are making do with boiler equipment older than 10 years.

Improvements in boiler designs and control systems are pushing seasonal operating efficiencies ever higher. Factor in small losses in operating efficiency due to normal wear and tear and aging, and managers can achieve significant increases in efficiency just by replacing a boiler. The question is whether the increases will justify replacement.

To make a comparison, managers need to evaluate the performance of the installed unit. First, they can make certain the installed unit is free of easily corrected defects and operates properly. Following the manufacturer's recommendations, technicians should perform these tasks:

Burner adjustment. Proper burner adjustment is essential for safe and efficient operation. Dirt and wear in the burner will change performance, as will variations in fuel pressure.

Control calibration. Proper boiler-control operation is essential for safety and performance. Technicians must test all safety controls and test the control system over the entire firing range to ensure it is properly configured.

Cleaning. Any buildup on the boiler's heat-transfer surfaces, such as soot or scale, decreases operating efficiency, so technicians need to inspect and clean all surfaces, as necessary.

Internal inspections. For large boilers, technicians should inspect all refractory material for cracks and erosion, and they should check tubes for erosion, corrosion, scale buildup, cracking and overheating.

Once technicians have inspected the boiler and corrected defects, managers can test the boiler efficiency following the manufacturer's recommended procedures. Usually, the test will indicate the combustion efficiency of the boiler, and managers can compare it to data provided by the manufacturer when the boiler was new or to industry average figures. For example, older boilers have a typical combustion efficiency of 80-85%, while new condensing boilers typically have an efficiency rating in the 90-92% range.

If a manager finds that a boiler is still in good condition and operating efficiently, consider retrocommissioning the unit rather than replacement. Retrocommissioning reviews the equipment installed, connected loads, the nature of those loads, the maintenance history, and the operating performance. Managers already have gathered much of the data necessary.

Retrocommissioning also identifies steps that operators and maintenance personnel can take to improve performance, reliability, and operating efficiency. Some steps are procedural and can be implemented at no expense, while others might require component replacement or additional maintenance tasks.

Configuration considerations

When considering whether to repair or replace a boiler or water heater, managers need to consider the configuration of the heating system attached to the boiler. This equipment does not operate on its own. It is part of a system, and the configuration of that system often determines how efficiently it operates. For example, while the combustion efficiency reveals how efficiently the boiler burns fuel, it is not the best indication of efficiency. Boilers must operate over a range of heating loads and respond to different heating loads, which impacts its efficiency over the entire heating season. This seasonal efficiency of the boiler has the greatest impact on energy costs.

Some boilers respond to varying loads by adjusting the firing rate of the burner, while others simply turn off the burner until additional heat is required. When the boiler shuts off, heat continues to radiate from the boiler jacket, and air continues to flow through the boiler, cooling it. When the boiler turns on again, it must spend energy recovering those losses. The more frequent the cycles, the greater the losses and the lower the unit's seasonal efficiency.

Changing the system configuration can reduce these losses. Instead of replacing boilers one for one, managers should install two or even three smaller boilers. Low-load conditions require only one boiler to operate. With a smaller capacity, cycling will be reduced, and seasonal efficiency will increase. As the load increases, the remaining boilers can come online as needed. Multiple boilers also offer the benefit of redundancy, so the failure of a single boiler will not shut down the entire heating system. Managers also should not overlook other system components when evaluating boilers. Pumps, piping, condensate return lines and pumps, insulation, boiler flues and terminal devices all affect the overall performance of the heating system supplied by the boiler.

Over time, the facility's heating needs most likely have changed. The changes will affect each component, and the results will affect the sizing and operation of the boiler.

Content recognition goes to James Piper, P.E., is a national facilities consultant based in Bowie, MD. He has over 35 years of experience with facilities engineering, maintenance, and management issues.

Watts Hot Marketplace: Enlightened Enterprises, Inc.

Bringing Enlightened Outcomes to the Nation's Public Housing Authorities

Over the last 17 years, Enlightened Enterprises, Inc., a Service Disabled Veteran Small Business, has been helping PHAs grow and succeed. With a company resume of over 75 PHAs and $400 million in successful projects under our belt, Enlightened and our trusted world class partners, Apollo Engineering Solutions, Efficiency Energy, Clean Air USA, Insolcorp and 2rw Consulting Corporation, are ready to help your agency prosper and succeed during this new era. Over the years we have found that having a seasoned, experienced partner to help you navigate the challenges of operating a PHA business can be invaluable. Below are three (3) timely and important areas where we can help you immediately:

Pathogen Control: While the Global pandemic is winding down, we are still faced with the prospect of other emerging infectious diseases. The Pandemic has forced us to reevaluate what it means to be a provider of safe and sanitary housing and reminds us how unprepared the World has been in dealing with this challenge. While most PHAs have done an admirable job of responding in a crisis-management mode to COVID-19, one of the areas that has been overlooked is preparing for the future by making smart investments now to simultaneously navigate lingering COVID-19 concerns, get staff back to the office, protect residents and prepare for future pandemics or other infectious disease events.

Enlightened can help: We have done our due diligence and have identified proven pathogen control solutions using UV Light that have been subjected to clinical and peer reviews and follow CDC guidelines. We are available to brief your team on how you can implement these proven, cost-effective solutions.

Owner's Representative Services: One of the most valuable actions that any PHA can take that is considering a new construction or modernization project, an energy performance contract (EPC) or RAD project, or how best to finance the project is to engage the services of a knowledgeable and experienced owner's representative.

Enlightened can help: Our experienced team of construction experts and our policy and programmatic professionals will ensure that your project is:

- Properly and safely developed and in compliance with applicable regulations;
- Effectively managed and construction period savings are maximized;
- Delivered on time and within budget;
- Organized to ensure that all relevant incentives are utilized and savings are maximized;
- Managed in such a way that key staff are not pulled away from other important work assignments to focus on what can become a complicated and labor-intensive effort.

Energy Issues: Because energy costs typically run in excess of 23% of total project expenses in affordable housing, it is important for to ensure that you have an effective, resilient and sustainable energy plan that addresses all of the key energy using areas in your developments and an implementation strategy to accomplish your objectives and maximizes energy savings.

Enlightened can help: Our knowledgeable professionals can assist your agency with:

- Independent, third-party review and analysis of energy projects and recommendations for improvement including energy resiliency recommendations;
- Energy audits and comprehensive RAD evaluation and implementation services;
- Measurement and verification (M&V) of energy use and cost savings;
- Green Physical Needs Assessments (GPNA), in support of long-term capital improvement plans;
- Securing rebates for public sector entities including PHAs through programs like 179D;
- Analysis of utility consumption and development of engineered utility allowances for affordable housing and Low Income Housing Tax Credit (LIHTC) properties;
- Electric and Natural Gas Procurement;
- State-of-the-art Phase Change building envelope and roofing solutions.

Contact Michael Nail, Enlightened's President and CEO at **Enlightened1on1@gmail.com** or 301-639-3767 or for more information or to set up a time to talk. We welcome the opportunity to work with you!

www.EnlightenedEnterprisesInc.com

Florida Condo Collapse – What Public Housing and Multi-family Owners Can Learn from this Tragedy

As the rescue shifts to search and recovery, information is emerging about possible causes. There are lessons for Public Housing Executive Directors, Multifamily Owners and Facility Managers of older buildings (some of the Public Housing stock goes back to the 60's and 70's) responsible for residential facilities can take from this tragedy.

The **NY Times reports** that engineers looking at the building's collapse think the failure point was somewhere near the bottom of the building. **The Washington Post reports** that residents and former employees said the building's parking garage often flooded, a possible factor in the collapse. A previous engineering report from 2018 had warned of "major structural damage," **according to the Washington Post**. And **CNN reports** that a letter from the condo board's president from April 9th of this year warned residents that deterioration to the building had gotten worse since a 2018 engineering assessment.

Public Housing Executive Directors, Multifamily Owners and Facility Managers see their fair share of engineering reports, energy audits, Physical Needs Assessments, RAD Physical Condition Assessments, Real Estate Assessment Center inspections and others building conditions feedback. Many of these assessments include warnings of health and safety issues; however, they were not intended for determining structural integrity, i.e., eminent catastrophic failure. They can provide some valuable information on the overall condition of the building to look further, especially in older buildings. Unfortunately, some of the findings from assessments can be too-easily dismissed as crying wolf. Or they might be too expensive to deal with now. This condo collapse tragedy should be a stark reminder to facility managers that any structural damage to a building can cause supremely dire consequences if not dealt with promptly. The Florida condo building was reportedly set to undergo repairs in anticipation of its 40-year recertification.

It is easy for executive and facility managers to get caught up in the day-to-day and put off long-term projects. So again, this should be a good wake-up call for residential property owners and a warning to us all that the Nation's infrastructure requires the Federal, State, and local government and private residential and commercial owners to reconsider any of their capital planning projects that may have been on the drawing board but fell to the cutting room floor. A PHA or MF property owner may want to view the events in Miami as *a shot across the bow.* We know that age, construction type and location of the building certainly can affect risk. Property owners may want to begin by conducting a review of previous assessments, audits, and reports looking for notes, comments, and observations regarding exposed rebar, issues with basement walls – bulging, cracks in basement walls, missing concrete around columns, water leaks, missing bricks on exterior, leaning exterior walls, etc. One or more of these deficiencies may be cause to bring in structural experts to assess the building's condition. Over the years if building maintenance is up-to-date, reviewing building assessment documents may be an exercise in due diligence. Communications with residents and staff, alerting them to management's proactive engagement to ensure their safety will also pay dividends. Where the process goes beyond the in-house evaluation will depend on your findings. There is the greater satisfaction that you acted in the interest of your residents and staff.

"***Life is inherently risky. There is only one big risk you should avoid at all costs, and that is the risk of doing nothing.***" *- Denis Waitley*

Content recognition goes to Greg Zimmerman, deputy editor, Facility Market. Facility Management is the landing page for Building Management Professionals.

Why HVAC Restoration Is a Bottom Line Necessity

Housing authorities and multi-family privately owned properties across the United State must maintain aging infrastructure daily. One of the most critical components to a building's health, occupant comfort and energy efficiency is the heating, ventilation, and air conditioning (HVAC) systems, in particular air handling units (AHU) found on rooftops and in mechanical rooms.

It has been estimated that the mean age of a commercial building is nearly 50 years old, with many government and higher education buildings being much older. On average the HVAC equipment lifecycle is around 25 years, with rooftop AHU lifespans being shorter due to environmental operating conditions. Most Executive Directors, asset managers or facility directors look at replacing these AHUs or redesigning the system between the 15-to-20-year milestone. But, considering the number of AHU, financial hard costs, and downtime, *is replacement the only option? What about HVAC restoration?*

Consider this, the basic design and function of an AHU has changed little in the last 100 years. Cabinet. Blower. Coil. Sure, more advanced control systems have been developed and implemented but they are only as good as how the AHU itself is performing. That, or the controls must be reprogrammed to work with inefficiency at the AHU, which can throw the entire building envelope out of balance. The good news is there are processes, like HVAC New Life, that can restore the AHU to near factory specification for a fraction of the cost of redesign or replacement!

The HVAC Restoration "WHY" Factors

Indoor Air Quality and People

The HVAC of a building has a tremendous effect on the people within the indoor environment. Not the least of which is ventilation and with that the air that is breathed. It has been estimated humans breath about 3,000 gallons of air day. The HVAC system is not only responsible for the exchange of air and thermal comfort in a building, but also keeping that air clean. Even with the best filtration, evaporator coils in the AHU can become fouled with dust (mostly comprised of human skin cells) which becomes a food source for microbes such as bacteria and fungi (mold). Microbials can cause a range of issues from unpleasant odors to full blown allergen triggers or worse that can affect the health and productivity of the building occupant. This can be costly to a multifamily property owner.

Even with new equipment indoor air quality (IAQ) issues can quickly compound. Routine cleaning of the AHU and especially the coils is always recommended. Hygienic cleaning is the important first step in the HVAC restoration. Chemical rinsing of the coil only superficially cleans and can eliminate some microbial odors. However, steam cleaning the interior of the AHU and evaporator coils goes beyond chemical cleaning. The increased pressure driving the steam penetrates through the coil to eliminate all fouling, while the high temperatures provide thorough microbial disinfection. Additionally, pre and post steam cleaning bio-enzyme treatments on the coil can also impede the return of microbial elements. Steam coil cleaning to be a highly effective antimicrobial solution while also demonstrating optimized system performance. More on that later.

Beyond the benefits of steam coil cleaning, flexible, antimicrobial/antioxidant coatings and drain pan liners, as well as zero porosity, no-fiberglass insulation in the restoration process improve both IAQ and equipment longevity.

Restoration is Less Disruptive to Residents

Just like HVAC replacement, restoration projects across a campus of buildings are undertaken in phases. The major difference is that HVAC restoration causes less disruption to the occupants of the building. Remember the productivity factor mentioned above? Well, replacing large systems result in the need for temporary cooling systems to implemented while the main system is shut down, removed, then replaced. This can cause the building to be out of balance, not just from an engineering perspective but from a workflow viewpoint. Temp cooling can be noisy and change traffic patterns in hallways and offices. HVAC restoration often takes place outside of normal operating hours at nights or on weekends. The system is shut down, cleaned, primed, recoated and reinsulated all when the building is unoccupied. With restoration there is little downtime in the building's normal operations and time is money!

Sustainability & Energy Efficiency

In most cases equipment replacement for existing buildings is a 1:1 swap. Meaning that AHU being replaced was already designed to be the right size for the portion of the facility it is servicing. Sometimes replacements involve a rethinking of the design or specification of the equipment. This can lead to additional downtime as previously referenced. HVAC Restoration optimizes the AHU in place. This can be incredibly useful in situations with tight mechanical rooms such as historic buildings where the architecture cannot be altered to accommodate new equipment. Furthermore, HVAC restoration reduces the carbon footprint of replacement because there is no need for new equipment to be transported to the site and old equipment removed and trucked away to the scrapyard. Speaking of scrapping, this too increases the carbon footprint of a replacement project in the energy it takes to break down the old equipment for recycling, the recycling process itself and/or just relegating the entire AHU to a landfill.

Now, back to that steam coil cleaning process. While a new AHU will be more efficient than an older neglected one, units restored with the steam coil cleaning process can be just as efficient as new. Consider a **case study** conducted by Pure Air Control Services, Inc., and Georgia Tech University. M&V testing conducted before and after the cleaning, done independently from both parties, found that HVAC restoration improved airflow by 42.6%, Delta-P by 22% and added 7 tons of cooling capacity to the system in four hours of cleaning. It took a 25-ton system operating at 15 tons and got it back to near spec at 22 tons! The Continental Automated Buildings Association (CABA) white paper also backs these consistent results with the steam process. Steam cleaned coils also work with existing or new controls program the system for optimal performance.

Freeing Capital Expenditure Budgets (CAPEX)

HVAC Restoration "increases the useful lifespan" of an asset. Restoration can be purchased and depreciated out of CAPEX just like replacement! This is a very lucrative benefit when comparing restoration and replacement during cost/benefit analyses. On average the hard costs of labor and materials for HVAC restoration are 1/10 that of HVAC replacement. Now factor in the human resource and energy savings and it is easy to see that HVAC restoration make sense over total new replacement. The University of Central Florida Rosen Campus projected that it would cost them $1,200,000 to replace all 15 rooftop AHUs. They restored all 15 units for about $120,000 with zero disruption to their day-to-day operations. Just imagine where they might spend that freed up $1 million in CAPEX!

Sparing Operational Expenditure Budgets (OPEX)

Because HVAC restoration can be purchased with CAPEX and the results bring the equipment to near new condition OPEX can be spared for use towards more critical maintenance issues. This is especially helpful with facilities that constantly operate in a deferred maintenance scenario. HVAC often falls into poor cleanliness and disrepair because of deferred maintenance. Restore it using CAPEX and the save OPEX for pressing concerns!

Other Considerations

Whether undertaking an HVAC replacement or restoration program the cornerstone data needed to proceed can be found in the facility's mechanical inventory. If a facility does not have a full inventory on hand, a total assessment should be made, including visual inspection notes and M&V testing before any decision was made. This is critical in proactive planning from a maintenance standpoint regardless of plans for replacement or restoration. It will also be helpful in prioritizing AHUs for when and what type of restoration is needed. It is also a key component in logging for a preventive maintenance program that includes annual steam coil cleaning to maintain energy efficiency as well as for warranty tracking.

Not every single AHU is a candidate for HVAC restoration and solid mechanical inventory data should flag the units that need to be replaced. But it will also demonstrate that most units can and should be restored for many additional years of operations and cost savings.

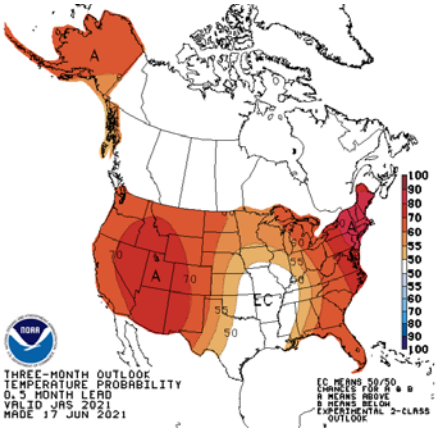
Information on HVAC restoration processes were provided by Alan Wozniak, CIAQP, CIEC, President, Pure Air Control Services, Inc. For additional information, call or email Dick Santangelo at 703-627-7161 or rsantangelo@apolloengsol.com.

U.S. Energy Information Administration (EIA) Outlook – Summer/Fall 2021

Outlook favors above-normal temperatures across the West, Northern and Central Plains, Midwest, and Northeast. Below-normal temperatures are most likely across the South, Southeast, and Alaska. Below-normal precipitation is expected to continue across much of the West and Northern Plains, while above-normal precipitation is favored across most of the rest of the Lower 48 and Alaska.

June/July Short-Term Energy Outlook

The *June/July Short-Term Energy Outlook* (STEO) remains subject to heightened levels of uncertainty related to the ongoing economic recovery from the COVID-19 pandemic. The U.S. economy continues to rise after reaching multiyear lows in the second quarter of 2020 (2Q20). The increase in economic activity and easing of the COVID-19 pandemic have contributed to rising energy use. U.S. gross domestic product (GDP) declined by 3.5% in 2020 from 2019 levels. This STEO assumes U.S. GDP will grow by 6.7% in 2021 and by 4.9% in 2022. The U.S. macroeconomic assumptions in this outlook are based on forecasts by IHS Markit. Our forecast assumes continuing economic growth and increasing mobility because of the easing of the COVID-19 pandemic. Any developments that would cause deviations from these assumptions would likely cause energy consumption and prices to deviate from our forecast.



Liquid Fuels

- We expect U.S. gasoline consumption will average 9.1 million barrels per day (b/d) this summer (April–September), which is 1.3 million b/d more than last summer but still over 0.4 million b/d less than summer 2019. Weekly consumption data reflect the **Colonial Pipeline outage** and subsequent increase in gasoline demand, but consumption both before and after this event indicate more gasoline demand than we had previously forecast. Our latest forecast also reflects IHS Markit's increased employment forecast. We expect U.S. gasoline consumption to average 8.7 million b/d in for all of 2021 and 9.0 million b/d in 2022.
- We forecast OPEC crude oil production will average 26.9 million b/d in 2021 and 28.7 million b/d in 2022. OPEC crude oil production in the forecast rises from 25.0 million b/d in April to an average of 28.0 million b/d in 3Q21. Our expectation of rising OPEC production is primarily based on our assumption that OPEC will raise production by about 1 million b/d in both June and in July in response to rising global oil demand and seasonal increases in oil consumption for power generation for some OPEC members. It also reflects an assumption that Iran's crude oil production will continue to increase this year. Although sanctions that target Iran's crude oil exports remain in place, crude oil exports—according to ClipperData, LLC. —and production from Iran are up from most of 2020.

Natural Gas

- In May, the natural gas spot price at Henry Hub averaged $2.91 per million British thermal units (MMBtu), which is up from the April average of $2.66/MMBtu. We expect the Henry Hub spot price will average $2.92/MMBtu in 3Q21 and $3.07/MMBtu for all of 2021, which is up from the **2020 average of $2.03/MMBtu**. Higher natural gas prices this year primarily reflect two factors: growth in liquefied natural gas (LNG) exports and rising domestic natural gas consumption outside of the power sector. In 2022, the Henry Hub price will probably average $2.93/MMBtu amid slowing growth in LNG exports and rising U.S. natural gas production.

- U.S. consumption of natural gas will probably average 82.9 billion cubic feet per day (Bcf/d) in 2021, down 0.5% from 2020. U.S. natural gas consumption declines in the forecast because electric power generators switch to coal from natural gas because of rising natural gas prices. In 2021, we expect residential and commercial natural gas consumption combined will rise by 1.2 Bcf/d from 2020 and industrial consumption will rise by 0.7 Bcf/d from 2020. Rising consumption outside of the power sector results from expanding economic activity and colder winter temperatures in 2021 compared with 2020. We expect U.S. natural gas consumption will average 82.8 Bcf/d in 2022.

Electricity, coal, renewables, and emissions

- We forecast that retail sales of electricity in the United States will increase by 2.3% in 2021 after falling by 3.9% in 2020. The largest increase in consumption will occur in the residential sector, where we forecast retail sales of electricity will grow by 2.8% this year. This growth is primarily a result of colder temperatures in the first quarter of 2021 compared with the same period in 2020. Much of the forecast increase in electricity consumption in the commercial and industrial sectors reflects improving economic conditions in 2021. We expect retail electricity sales to these two sectors combined will increase by 2.0% in 2021. For 2022, we forecast that U.S. retail sales of electricity will grow by another 1.4%.
- We expect the share of electric power generation produced by natural gas in the United States will average 36% in 2021 and 35% in 2022, down from 39% in 2020. The forecast share for natural gas as a generation fuel declines in response to our expectation of a higher delivered natural gas price for electricity generators, which we forecast will average $4.09/MMBtu in 2021 compared with an average of $2.39/MMBtu in 2020. Because of the higher expected natural gas prices, the forecast share of generation from coal rises from 20% in 2020 to 23% this year but falls to 22% next year. New additions of solar and wind generating capacity support our expectation that the renewables share of U.S. generation will rise from 20% in 2020 to 21% in 2021 and to 23% in 2022. The nuclear share of U.S. electricity generation declines from 21% in 2020 to 20% in 2021 and to 19% in 2022 because of **retiring capacity** at some nuclear power plants.

Renewable Energy

- We forecast that planned additions to U.S. wind and solar generating capacity in 2021 and 2022 will contribute to rising electricity generation from those sources. We estimate that the U.S. electric power sector added 14.8 gigawatts (GW) of new wind capacity in 2020. 16.0 GW of **new wind capacity** will probably come online in 2021 and 5.3 GW in 2022. Utility-scale solar capacity rose by about 10.5 GW in 2020. Our forecast for added utility-scale solar capacity is 15.5 GW 2021 and 16.6 GW for 2022. We expect significant **solar capacity additions in Texas** during the forecast period. In addition, 4 GW to 5 GW of small-scale solar capacity (systems less than 1 megawatt) will come online each year during the 2021–22 STEO forecast.

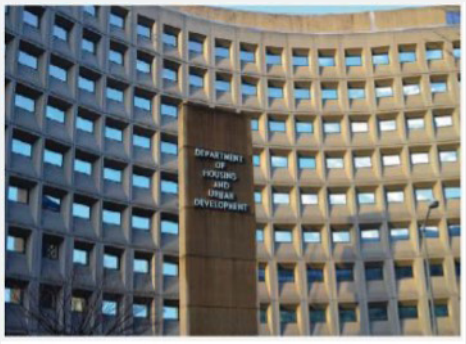
Coal

- We expect U.S. coal production to total 600 million short tons (MMst) in 2021, which is 61 MMst (11%) more than in 2020. The increase is driven primarily by rising electricity demand. In 2022, we expect coal production to grow by an additional 5 MMst (1%).
- We expect U.S. coal exports to be about 81 MMst in 2021, 12 MMst (17%) more than in 2020 and for this growth to come from rising demand for steam coal in Europe and Asia as increased steel prices during 2021 and 2022 drive exports. Forecast U.S. coal exports in 2022 rise by 12 MMst (14%).

GHG Emissions

- We estimate that U.S. energy-related carbon dioxide (CO_2) emissions **decreased by 11% in 2020** due to less energy consumption related to reduced economic activity and responses to COVID-19. In 2021, we forecast energy-related CO_2 emissions will increase about 6% from the 2020 level as economic activity increases and leads to rising energy use. We expect energy-related CO_2 emissions to rise in 2022, but by a slower rate of 2%. We forecast that after declining by 19% in 2020, coal-related CO_2 emissions will rise by 15% in 2021 and then decrease by 1% in 2022.

Watts Hot at HUD



HUD Continues Demonstration to Test New Method of Physical Inspections in Voucher-Assisted Housing
June 8, 2021, 86 FR 30468 Notice

HUD announced continuation of its demonstration to test the proposed new method of assessing the physical conditions of voucher-assisted housing through October 1, 2022. This continuation seeks to align the HCV program with the recently resumed NSPIRE physical inspection protocols. As part of this extension, HUD is lifting the three-year limitation on PHA participation, enabling current PHA volunteers to continue to participate for the duration of this demonstration.

Welcome HUD Deputy Secretary Adrianne Todman

NAHRO CEO **Adrianne Todman** was confirmed as Deputy Secretary of the U.S. Department of Housing and Urban Development on June 10. Todman was easily confirmed by a **unanimous voice vote**.

"NAHRO's loss is our country's gain. We are grateful for the fearless and effective leadership she brought to NAHRO, and for the many ways in which she strengthened our association. We are thrilled to see such an experienced houser and proven leader, with such a deep understanding of affordable housing policy and practice, serve as Deputy Secretary at HUD, and we look forward to working with her in her new capacity."

- Sunny Shaw, NAHRO President

WattsHotNewsletter® wishes Ms. Todman much success in her new role as Deputy Secretary.

Contact Us

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