

2021 U.S. Economic Outlook A Focus on Rural America



Prepared March 2021

In this issue, we consider economic conditions and the investment landscape, particularly in rural America, as the country emerges from the COVID-19 pandemic. Economists with the Business and Technology Strategies Department of the National Rural Electric Cooperative Association (NRECA) examine issues expected to be particularly impactful for rural electric co-ops and likely to play a big role in shaping the economic health of the communities they serve.

These insights are paired with a broad view of the health of the U.S. economy overall and portfolio management perspectives from RE Advisers, NRECA's money management subsidiary and the investment advisor for Homestead Funds. In comparing these different vantage points, you'll notice that an economic backdrop of uncertainty or increased volatility may present an opportunity for active money managers with a long-term view.

Created by NRECA, Homestead Funds offers a range of professionally managed strategies that can be used by cooperatives and individuals to meet their short-, intermediate- and long-term investment needs.

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The State of the U.S. Economy

RE Advisers

A momentous 2020 is behind us, and the country looks to be slowly emerging from the pandemic. Importantly, the vaccine rollout is progressing. Notwithstanding supply and distribution difficulties, more and more people are getting their shots; additional vaccines are nearing authorization, and we are seeing a decline in the daily number of new cases. This, along with critically important support from the Federal Reserve and fiscal stimulus packages, is helping to return the economy to health and boosting markets.

But the economic recovery is far from complete. The employment picture is better, but the jobless rate is still elevated relative to pre-pandemic lows. Many sectors and businesses suffered because of the pandemic and corresponding restrictions on travel and other activities. Data on consumer activities, particularly travel and restaurant dining, is starting to trend higher but has a long way to go.

RE Advisers, the investment manager for Homestead Funds, is forecasting a rebound in economic activity starting around the second quarter of 2021 — a point where we believe that vaccine distribution will have gathered momentum. Once Americans reach a confidence level about their safety, we anticipate that they'll return to pre-COVID-19 activities. In some sectors, there is quite a bit of pent-up demand after a year of limitations.

NRECA's Business and Technology Strategies Department offers insights on trends affecting operations, technology, consumer expectations and policy. The team engages directly with internal and external stakeholders and represents cooperative needs in key forums to help ensure the longevity and success of America's electric cooperatives.

The hardest-hit industries — including travel and accommodations, restaurant and health care — could see a surge of activity in the second half of 2021.

Very broadly, we see opportunities ahead for a number of sectors, notably information technology, health care, industrials and communication services. Our portfolio managers have long focused on themes of “disruption” in positioning the portfolios. A number of those trends accelerated at lightning speed in the pandemic-living environment. Consider the boom in online shopping, which is positive for businesses that focus on shipping logistics and technology, or health care, where spending and new options for service delivery could help boost profits. Change is a powerful opportunity, a theme we explore here with a focus on companies and industries that have a substantial footprint in rural America.

Unemployment Still Elevated as Health Crisis Continues

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After peaking at over 14% in April 2020 as social distancing measures took effect across much of the country,¹ the U.S. unemployment rate declined steadily through October 2020, before largely flattening out in November and December, according to data from the U.S. Bureau of Labor Statistics (BLS). Despite declines, at 6.8%, the January 2021 national unemployment rate remained considerably higher than the 4.0% rate in January 2020.²

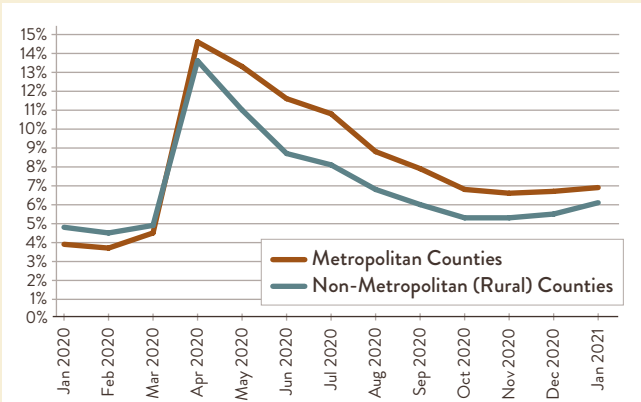
Throughout the COVID-19 health crisis, the unemployment rate in non-metropolitan (rural) counties has remained lower than in metropolitan counties. From April to June, unemployment rates declined more rapidly in rural counties, with the gap between rural and metropolitan county rates reaching 2.9% in June but narrowing to only 0.8% by January 2021 as the virus, which was first seen largely in major cities, spread nationwide during the summer, with many rural areas being hard hit. The unemployment rate in rural counties stood at 6.1% in January 2021, an increase from the previous months and significantly higher than the 4.8% rate reported in January 2020.³

¹ Homestead Funds, Mid-Year 2020 U.S. Economic Outlook: A Focus on Rural America, August 2020.

² U.S. Bureau of Labor Statistics.

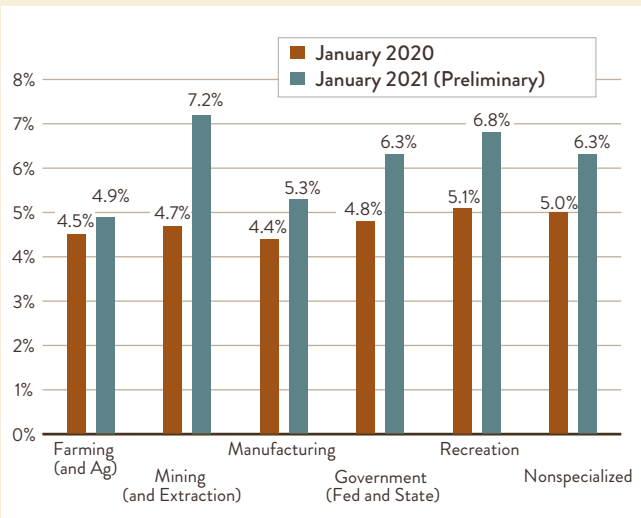
³ Aggregate unemployment rates for rural and metropolitan counties are calculated by NRECA using county-level unemployment data from the BLS Local Area Unemployment Statistics (LAUS) Program. All rates in this report are not seasonally adjusted (i.e., not adjusted for predictable seasonal patterns) because these adjustments are not applied below the state level. Preliminary county-level data for January 2021 was the latest available as of printing.

U.S. Unemployment Rate by County Type



Sources: NRECA analysis of data from the U.S. Bureau of Labor Statistics and U.S. Census (Dec 2020 and Jan 2021 are preliminary)

Year-Over-Year Unemployment Rate in Non-Metropolitan (Rural) Counties by Dominant Industry



Sources: NRECA analysis of data from the U.S. Bureau of Labor Statistics and USDA Economic Research Service.

There continues to be significant variation in unemployment across sectors. The U.S. Department of Agriculture (USDA) classifies counties by their dependence on particular economic sectors.⁴ While in January 2021 every type of rural county was experiencing elevated unemployment when compared with the previous January, the increases in unemployment were particularly prevalent in counties

dependent on mining and extraction (+2.5%), recreation (+1.7%), and government (+1.5%). The impact was less severe in rural counties dependent on manufacturing (+0.8%) and farming (+0.4%). This difference across economic sectors has been driven by the varying impacts of the virus and measures meant to contain it, which have affected consumer demand, supply chains, and state and local government revenues, and proven particularly challenging to industries that rely on delivering in-person services and those associated with transportation and travel.

Looking forward, a new report⁵ from the Congressional Budget Office (CBO) projects that U.S. GDP will reach pre-pandemic levels by mid-2021. Employment tends to lag economic growth, and CBO projects that total employment will not reach pre-pandemic levels until 2024. CBO bases its projections on the expectation that national vaccination efforts will be successful and reduce the need for social distancing significantly by this time, facilitating economic growth. While the CBO does not differentiate between metropolitan and rural counties, there are significant challenges to rural vaccine distribution given lower population density, lack of access to health care facilities and lack of major national pharmacy chains. This has been especially challenging with the earliest two-dose vaccines that require special refrigeration often not available at rural health care facilities. This may be eased as newer vaccines that do not require this special handling become available. Nevertheless, there are major hurdles to overcome if vaccination is to reach more rural areas and not delay their recovery.⁶

By Comparison, Stability in Agricultural Jobs

The strength of rural employment has been driven in part by agricultural jobs during the pandemic. Typically we think of the agricultural sector as being more volatile than non-agriculture work because of the big swings in seasonal hiring. In the off-season, we also usually see agricultural unemployment spike to about twice the non-ag unemployment rate. This year, however, we saw a change from the usual relationships between agricultural and non-agricultural job markets. While non-ag unemployment shot to a national peak of 15.6% in April 2020, agriculture-sector unemployment topped out at 12.5%, according to data provided by the Bureau of Labor Statistics.

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⁴Unemployment rates by county typology are calculated by NRECA using county-level unemployment rates from BLS and county economic typologies from the USDA's Economic Research Service. The USDA's county typologies are based on 2015 data.

⁵ Congressional Budget Office, An Overview of the Economic Outlook: 2021 to 2031, February 2021.

⁶National Rural Health Association, Policy Brief: Ensuring an Equitable Distribution of COVID-19 Vaccines in Rural Communities

Pandemic Sparks Changes in Consumer Spending

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The COVID-19 pandemic has quickly caused significant changes in the U.S. economy, including impacts on consumer spending habits. With stay-at-home orders, social distancing and other measures to abate the spread of the virus, many consumers have changed what they purchase and how they choose to make those purchases.

Although data from the U.S. Bureau of Economic Analysis (BEA) shows a 3.9% decline in consumer spending in 2020,⁷ changes in consumption have not been consistent across economic sectors. Consumption of services decreased by 7.3% overall, with spending on recreation, transportation and health care dropping by 31.7%, 23.3% and 8.2%, respectively. Meanwhile, purchases of goods went up by 3.9%, including an 18% increase in consumption of recreational goods (e.g., personal computers, video and audio devices) and recreational vehicles (e.g., bicycles, motorcycles and boats). Spending on food and beverages purchased for off-premises consumption increased by 6.9%, in contrast to the 21.9% decrease in spending on food services at dining establishments and accommodations at hotels and motels.

Consumption of furnishings and household equipment went up by 5.7% overall, driven largely by increases in purchases of tools, hardware, outdoor equipment and supplies of more than 10% from the previous year. As

Americans spent more time at home, they invested in upgrades, renovations and do-it-yourself projects, resulting in reported third-quarter sales increases of 30% and 24.6% for Lowe's and Home Depot, respectively.⁸

A research report from J.P. Morgan also examined the impacts of COVID-19 on consumer spending habits, finding that consumers spent more on particular products and less on others.⁹ Not surprisingly, sales of household cleaners and disinfectants were consistently up more than 50%-100% at the start of the pandemic, with sales of most of these types of products still up at least 20% by the third quarter of 2020. The study also pointed toward significant increases in the purchase of vitamins and supplements, home hair color products, coffee and alcohol, while sales of cosmetics — such as makeup, fragrance and sunscreen — decreased.

With social distancing measures and stay-at-home orders in many areas, consumers have been buying more products online rather than in person. Estimates from the U.S. Census Bureau show that while total retail sales were down, quarterly e-commerce increased by a record 31.9% in the second quarter of 2020.¹⁰ Even by the fourth quarter, e-commerce sales remained at levels 32.1% higher than in the fourth quarter of 2019.

Change in Real Personal Consumption for Select Expenditures — 2020 vs. 2019

Goods	3.9%	Services	-7.3%
Motor Vehicle and Parts	0.8%	Housing and Utilities	1.1%
Furnishings and Household	5.7%	Health Care	-8.2%
Recreational Goods and Vehicles	18.0%	Transportation	-23.3%
Other Durable Goods	-1.30%	Recreation	-31.7%
Food and Beverage (Off-Premises)	6.9%	Food and Accommodations	-21.9%
Clothing and Footwear	-7.7%	Financial and Insurance	1.0%
Gasoline and Other Energy Goods	-12.3%	Communication	2.2%
Other Nondurable Goods	6.4%	Professional, Legal, Accounting	-7.5%

Source: NRECA analysis of data from the U.S. Bureau of Economic Analysis, Table 2.4.3U.

⁷ NRECA analysis of data from the U.S. Bureau of Economic Analysis, Table 2.4.3U. Real Personal Consumption Expenditures.

⁸ CNBC, "Pandemic-induced 'nesting' fuels Home Depot and Lowe's sales—Why it's likely to continue," November 20, 2020.

⁹ J.P. Morgan, How COVID-19 Has Transformed Consumer Spending Habits, November 2020.

¹⁰ U.S. Census Bureau, Quarterly Retail E-Commerce Sales 4th Quarter 2020, February 2021.

Such changes in consumer spending are already affecting rural economies. In response to increases in online shopping, Amazon added more than 427,000 employees through October of 2020.¹¹ Many of these employees work in warehouses located in rural communities. BLS data show that employment in the warehousing and storage industry in January 2021 was 8.1% higher than in January 2020.¹²

Of course, increases in e-commerce can also have negative consequences, particularly for brick-and-mortar retailers.¹³ A record 12,200 U.S. stores closed in 2020, including a number of large retailers. However, like Lowe's and Home Depot, some businesses have fared better. Rural retailer Tractor Supply reported record earnings in fiscal year 2020, including a net sales increase of 31.3% in the fourth quarter.¹⁴

For rural areas, where many local communities depend on small businesses, changes in consumer spending can have lingering impacts. Businesses that are able to weather these effects are likely to see an encouraging outlook for 2021 as the economy rebounds. It is still unclear to what degree these changes will persist as the pandemic abates, but to the extent that some shifts prove permanent, local economies may experience continued structural reshaping.

Rural Retail Proves Resilient

Brick-and-mortar retail businesses in rural communities have been outperforming their non-rural counterparts during the pandemic. Many of the larger retailers in these sparsely populated areas, such as home-improvement centers and discount stores, have materially outpaced their non-rural peers with double-digit same-store sales growth. In fact, the lower the population density around a particular store, the better its performance, as some of the big retailers have observed. While online shopping and curbside pickup have taken on a more prevalent role across America during the pandemic, these options are still less popular in remote locations where broadband infrastructure may be limited. All told, the local retail champions in small-town America have been able to carve out an enduring foothold with rural consumers. Indeed, the strong stock performance of these rural-focused retailers relative to their urban peers in the past year is starting to reflect these favorable dynamics.

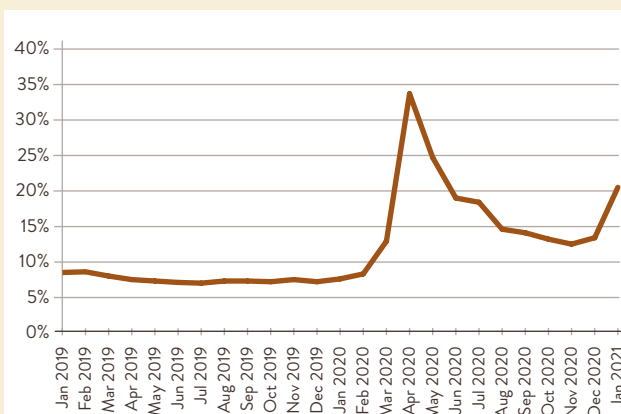
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Pent-Up Savings May Lead to Economic Boost

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The COVID-19 pandemic has impacted consumer spending in numerous ways, but it has also had an effect on consumer saving. BEA data show that the personal savings rate has been up substantially throughout the pandemic, reaching a record 33.7% in April 2020, and remaining at an elevated 20.5% even by January 2021.¹⁵ The rate, calculated as the percentage of personal disposable income (after taxes) not spent on consumption, interest or transfer payments, indicates that although spending was down in 2020,¹⁶ consumers have excess spending power saved up that could potentially provide a future boost for the U.S. economy.

U.S. Monthly Personal Saving as a Percentage of Disposable Personal Income, 2019-2020



Sources: U.S. Bureau of Economic Analysis, Table 2.6.

Intuitively, it makes sense for the savings rate to rise during and in the aftermath of economic recessions, as consumers may lose confidence and spend less out of precaution, but government stimulus can also play a role in increasing savings by adding to personal income. Indeed, BEA data show that personal income went up by 6.1% in 2020, driven primarily by a 37.2% increase in income through government benefits.¹⁷ Of course, some of this income went toward spending, as personal consumption expenditures rose 9% in the third quarter of 2020 after dropping 1.8% and 9.6%

¹¹ *The New York Times*, "Pushed by Pandemic, Amazon Goes on a Hiring Spree Without Equal," November 27, 2020.

¹² U.S. Bureau of Labor Statistics, All employees, thousands, warehousing and storage, seasonally adjusted, Series ID CES4349300001.

¹³ *Fortune*, "A record 12,200 U.S. stores closed in 2020 as e-commerce, pandemic changed retail forever," January 7, 2021.

¹⁴ Tractor Supply Company, "Tractor Supply Company Reports Fourth Quarter and Fiscal 2020 Results and Increases Quarterly Dividend By 30%," January 28, 2021.

¹⁵ U.S. Bureau of Economic Analysis, Table 2.6 Personal Income and Its Disposition, Monthly. Full data back to 1959.

¹⁶ Data from the U.S. Bureau of Economic Analysis, Table 2.4.3U. Real Personal Consumption Expenditures, shows that spending decreased 3.9% in 2020.

¹⁷ Calculated by NRECA using data from the U.S. Bureau of Economic Analysis, Table 2.6 Personal Income and Its Disposition, Monthly.

in the first and second quarters, respectively.¹⁸ But analysis from the Federal Reserve Bank of Kansas City found that government transfers have induced savings and contributed to the elevated personal savings rate.¹⁹

There is limited evidence that increased savings lead directly to significant economic expansion, as past increases in the savings rate have historically failed to predict future consumption.²⁰ However, the nature of our current economic situation, spurred by the COVID-19 health crisis and its resulting abatement measures, is largely unprecedented. Impacts across the economy have been uneven, with some industries, such as leisure and hospitality, experiencing more disruption than others. In many cases, these disruptions are not caused directly by changing consumer tastes or preferences but rather by measures to slow the spread of the virus. As a result, there is pent-up demand for travel, restaurants, movie theaters and other areas of the economy that many Americans have been avoiding for the past year.

More (and Rural) Retailers Pivot to Online Shopping

The pandemic has ushered in a new era of online shopping, including the now-mainstream trend of curbside pickup. The BOPIS option (retailer speak for buy-online-pickup-in-store) had already been gaining traction in recent years, but COVID-19 helped to propel the trend forward drastically. According to Yahoo Finance, online shopping peaked at 44.5% of all retail in Q2 of 2020, up from a pre-pandemic level of 10.8%. While Americans have begun to resume more typical shopping habits, they have fallen in love with the convenience and flexibility that curbside pickup affords. In rural parts of our country, it is not necessarily as easy to flip the switch, but Dollar General's management in particular noted an uptick in mobile usage by their customers. In order for the rural community to participate in this part of the economy, broadband and telecom infrastructure is desperately needed. This shift toward online shopping could finally be the catalyst that moves governments toward stimulus for this infrastructure.

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As the rollout of vaccines continues in 2021, this pent-up demand could be unleashed and, combined with increased consumer savings, could lead to a boom for several industries and the economy as a whole.

Housing and Population Growth in Rural Areas

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While the COVID-19 health crisis caused a sharp drop in new permitting and home starts in the first half of the year, both have recovered rapidly and there does not appear to have been a significant slowdown in completions. In January 2021, building permits for new houses hit their highest annualized rate since 2006 and remained elevated in February, signaling potential for strong growth in 2021.²¹ Regionally, permitting growth continues to be fastest in the South and the West, with smaller permitting upticks in the Northeast and Midwest.²²

According to estimates from the U.S. Census Bureau, growth in housing stock has trended upward over the past decade. While growth was faster in metropolitan counties, rising from 0.4% in 2011 to 0.9% in 2019, there was also an uptick in growth in non-metropolitan counties from 0.2% in 2011 to 0.4% in 2019, so accelerating homebuilding should benefit both metropolitan and rural counties.²³

Ultimately, housing growth is tied to population growth. In recent years, most of the internal migration within the U.S. has been toward smaller metropolitan areas. A Brookings analysis of U.S. census data shows that since 2015, Americans have been moving from larger, more expensive, major metro areas to metro areas with populations below 1 million.²⁴ According to the U.S. Census Bureau, while non-metropolitan counties experienced net outmigration from 2015 to 2020, it occurred at a much lower rate than in the first half of the decade, and rural counties actually experienced positive net domestic migration in 2019 for the first time since the 1990s.²⁵

¹⁸ NRECA analysis of data from the U.S. Bureau of Economic Analysis, Table 2.4.3U.

¹⁹ Federal Reserve Bank of Kansas City, "Why Are Americans Saving So Much of Their Income?" December 4, 2020.

²⁰ *Id.*

²¹ Annual and Monthly Data spreadsheets for Housing Units Authorized In Permit-Issuing Places, Housing Units Started, and Housing Units Completed (all seasonally adjusted monthly data).

²² U.S. Census Bureau, "Monthly New Residential Construction, February 2021," March 17, 2021.

²³ NRECA analysis of data from the U.S. Census Bureau, using Annual Estimates of County Housing Units for States: 2010 to 2019 for all U.S. counties, metropolitan and non-metropolitan county classification.

²⁴ Brookings Institution, "Even before coronavirus, census shows U.S. cities' growth was stagnating," April 6, 2020.

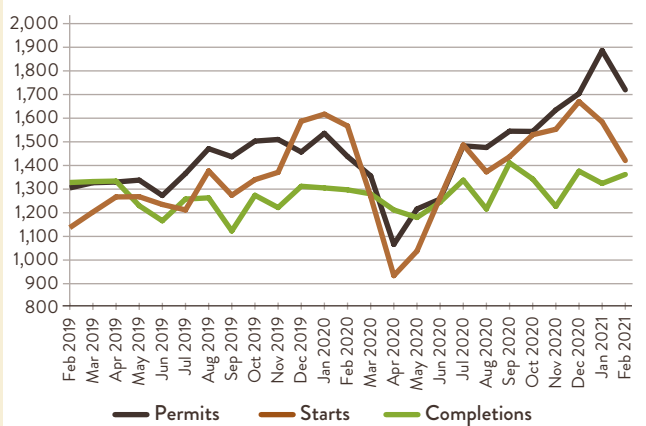
²⁵ U.S. Census Bureau, CPS Historical Migration/Geographic Mobility Tables, Table A-3 Immigration, Outmigration, and Net Migration by Metropolitan Status: 1986-2020.

While it is too soon to project the long-term effects, there are early indications that increased teleworking during the health crisis may lead to a more permanent shift toward greater allowance of remote work.²⁶ If more Americans have flexibility to telework, more may choose to live in rural areas where cost of living, especially housing, is significantly more affordable. This could lead to net immigration into non-metropolitan counties, as well as continued growth of suburbs and exurbs farther from the major cities in more rural parts of suburban counties.²⁷ At best, if remote work becomes more prevalent, it could help reverse the “brain drain” that sees many younger rural residents leave to pursue education and jobs. This will be especially true in rural areas that have attractive amenities, good services and infrastructure (especially schools

and broadband connectivity), and reasonable access to transportation such as regional airports. Obviously, access to high-speed, reliable internet will be crucial, which is a challenge in many rural areas.²⁸

If there is an influx of new or returning residents to rural America, then new housing will need to be built, which will further stimulate local economies. A recent study by the National Association of Homebuilders found that building 1,000 single-family homes generates nearly \$111 million in taxes and fees, many of which support local government, and creates 2,900 full-time jobs during construction. Multi-unit housing produced about half that impact per unit. Homebuilding also produces demand for a large number of associated industries for supplies and services, many of which tend to be concentrated locally.²⁹

U.S. New Residential Construction (Seasonally Adjusted Annual Rate)



Sources: U.S. Census Bureau and U.S. Department of Housing and Urban Development.

If remote work becomes more prevalent, it could help reverse the “brain drain” that sees many younger rural residents leave to pursue education and jobs.

Housing Roars Back, Supported by Low Mortgage Rates

Housing in the U.S. has been systematically underinvested in since the 2008/2009 financial crisis as millennials have put off moving into single-family homes – until now. In the months before COVID-19, millennials were finally starting to buy and build new homes. But when the pandemic hit – bringing low mortgage rates and higher demand for residential space – the flood gates opened. Housing sector analysts estimate that the long-run equilibrium for homebuilding in the U.S. happens at a rate of 1.5 million units per year; that’s how many housing starts you need each year to replace old housing stock and keep up with population growth. The U.S. housing market hit that new-unit level late in 2019 for the first time since 2007. In fact, from late 2008 to 2013, annual housing starts ran at less than half of the long-term rate. Single-family housing units are leading the trend, while multifamily starts are lagging. Regionally, new housing starts are lowest in the Northeast corridor, but regions outside of the Northeast are booming.

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²⁶ Gartner, Inc., “Gartner Survey Finds 90% Of HR Leaders Will Allow Employees To Work Remotely Even After COVID-19 Vaccine Is Available,” December 15, 2020.

²⁷ Pew Research Center, “About a fifth of U.S. adults moved due to COVID-19 or know someone who did,” July 6, 2020.

²⁸ Forbes, “Time To Move? Data Suggests Americans May Flee To Rural Areas Post-COVID,” August 6, 2020.

²⁹ National Association of Home Builders, “What Building 1,000 Homes Means to the U.S. Economy,” April 2, 2020.

COVID-19 Exacerbates Rural Health Care Issues

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When the COVID-19 virus first spread to the United States, metropolitan areas were initially hit hardest. In a matter of months, however, infection rates in rural areas rose drastically. From August 2020 through the end of the year, the weekly rate of new COVID-19 infections and deaths in rural areas was higher than in metro regions, as shown in the graphs below.³⁰

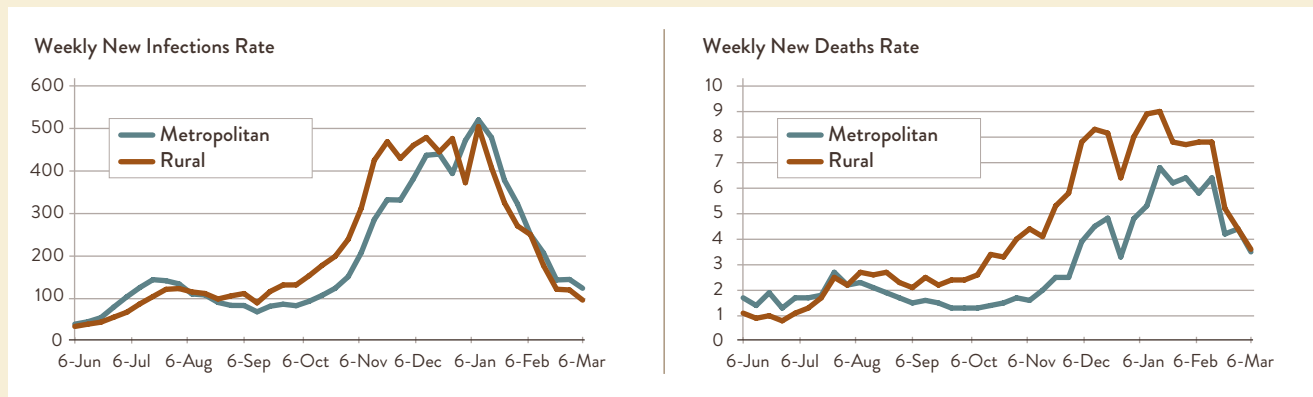
Many rural hospitals were already facing financial struggles, with 135 closures since 2010 and 19 closures in 2020 alone.³¹ According to the Center for Healthcare Quality and Payment Reform, more than 500, roughly a quarter of all rural hospitals, were at an immediate risk of closure even before the pandemic. An additional 300 rural hospitals were identified as being at a high risk of closure.³²

COVID-19 has had a substantial impact on hospitals nationwide. The American Hospital Association estimates that hospitals experienced losses totaling \$323.1 billion from March to December 2020. The financial impact was greater in the beginning months of the pandemic, with an estimated loss of \$202.6 billion from March to June 2020, or an average loss of \$50.7 billion per month. The projected loss from July to December 2020 was estimated to be

\$120.5 billion, or \$20.1 billion per month.³³ Roughly one-third of all hospitals in the country are in rural areas,³⁴ and these additional financial losses can put even more pressure on rural hospitals that were already at risk of closure.

These losses can be largely attributed to three main factors: revenue losses from reduced nonessential elective surgeries, new costs of treating COVID-19 patients and increased spending on personal protective equipment (PPE) for hospital staff. Elective surgeries normally contribute approximately \$200 billion in revenue for U.S. hospitals each year,³⁵ but the pandemic has created a backlog of these nonessential surgeries in order to provide enough resources for COVID-19 patients. The estimated cost of treating COVID-19 patients can be more than \$20,000 per patient, and more than \$80,000 for patients who require ventilators.³⁶ Additionally, as demand for PPE spiked and created supply shortages, PPE prices skyrocketed in April 2020, marking an estimated 1,000% increase from pre-COVID-19 prices.³⁷

Weekly Rate of New COVID-19 Infections and Deaths – Per 100K Population



Source: Daily Yonder, Covid-19 Dashboard for Rural America

³⁰The Daily Yonder, Covid-19 Dashboard for Rural America.

³¹The Cecil G. Sheps Center for Health Services Research, 179 Rural Hospital Closures: 2005 – Present (135 Since 2010).

³²The Center for Healthcare Quality and Payment Reform, “Rural Hospitals at Risk of Closing,” January 21, 2021.

³³The American Hospital Association, “Hospitals and Health Systems Continue to Face Unprecedented Financial Challenges due to COVID-19,” June 2020.

³⁴The American Hospital Association “Fast Facts on U.S. Hospitals, 2021,” January 2021.

³⁵Elsevier Public Health Emergency Collection, “The likely economic impact of fewer elective surgical procedures on US hospitals during the COVID-19 pandemic,” November 2020.

³⁶Health System Tracker, “Potential costs of COVID-19 treatment for people with employer coverage,” March 13, 2020.

³⁷The Society for Healthcare Organization Procurement Professionals, “PPD Costs Analysis,” April 14, 2020.

Rural Americans already have a greater risk of poor health outcomes due to less access to health care and higher poverty rates.³⁸ As more rural hospitals close or become vulnerable to closing, more rural Americans will lose access to vital nearby health care.

Telemedicine Fills a Gap in Rural Care

Telehealth service providers have been some of the biggest beneficiaries of the pandemic, significantly outperforming traditional primary care providers (e.g., hospitals, clinics) that have been overwhelmed by COVID-19 patients and have failed to adapt to the digital age. Virtual physician visits, from the comfort of patients' homes, provide a safe and flexible alternative for patients who are in need of nonemergency medical help. However, as with other economic issues in rural America, the lack of broadband access remains a hurdle in enabling telehealth services for people in remote areas. But the promises of telehealth are real and significant, especially for rural communities that are medically underserved. Over 120 rural hospitals have shuttered since 2010, and rural regions have struggled to recruit and retain health care professionals. The Centers for Medicare & Medicaid Services (CMS), which oversees health coverage for millions of Americans, has expanded the type of health care visits and reimbursement rate for telehealth during the pandemic and is advocating making these telehealth policies permanent and widely accessible even in the post-pandemic world. With government support and the advent of video technology, we expect health care providers that embrace telehealth will be the most successful going forward.

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Virtual physician visits, from the comfort of patients' homes, provide a safe and flexible alternative for patients who are in need of nonemergency medical help.

Expected Recovery for Agriculture Sector

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The COVID-19 pandemic has affected most areas of the U.S. economy, and the agricultural sector is no exception. In 2020, the virus, and associated response measures, caused severe disruptions for the industry, including reduced demand for crops, livestock and dairy, which led to unused product and lowered commodity prices.³⁹

However, the outlook turned more positive toward the end of 2020 and into 2021. USDA data show that prices received for most major agriculture products recovered to approach, and in many cases exceed, 2019 levels by the end of 2020, after falling earlier in the year. Corn prices, for example, dropped nearly 23% below 2019 prices in July but by December they were 7% higher than the previous December and by January 12% higher than in January 2020.⁴⁰ Other products, such as wheat and soybeans, experienced comparatively smaller price drops but are now at levels not seen since 2015.⁴¹

U.S. agricultural commodity futures prices have similarly recovered in early 2021, with many commodities trading at higher prices than at the beginning of the year,⁴² after seeing significant declines during the late summer of 2020.⁴³ These price increases are also accompanied by expected increases in production. In its 2021 commodity outlook reports, the USDA projects that combined planted acreage for corn, soybeans and wheat will increase by 3.9% and reach its highest level since 2016,⁴⁴ while beef and pork production are projected to both increase by 1.4% in 2021.⁴⁵

The USDA forecasts that cash receipts for both crops and animals will each increase by more than 5% in 2021.⁴⁶ After increasing by 44.2% in 2020, net farm income, or profit, is expected to be 8.1% lower in 2021, which is primarily due to an expected decrease in direct federal government payments. Such payments in 2020, composed mostly of assistance for COVID-19 relief, were more than double 2019 levels and are forecast to be 11.3% higher in 2021 than in 2019.⁴⁷ In spite of the decline relative to 2020, net farm income in 2021 is forecast to be 21% above the average of \$92.1 billion for years 2000 through 2019.⁴⁸

³⁸ Centers for Disease Control and Prevention, About Rural Health.

³⁹ Homestead Funds, Mid-Year 2020 U.S. Economic Outlook: A Focus on Rural America, August 2020, pp.7-8,

⁴⁰ NRECA analysis of data from the U.S. Department of Agriculture National Agricultural Statistics Service, Prices Received.

⁴¹ *Id.*

⁴² NRECA analysis of commodity price data provided by the American Farm Bureau Federation.

⁴³ U.S. Department of Agriculture, "America's Farmers: Resilient Throughout the COVID Pandemic," October 13, 2020, Chart 2.

⁴⁴ U.S. Department of Agriculture, Grains and Oilseeds Outlook for 2021, February 19, 2021.

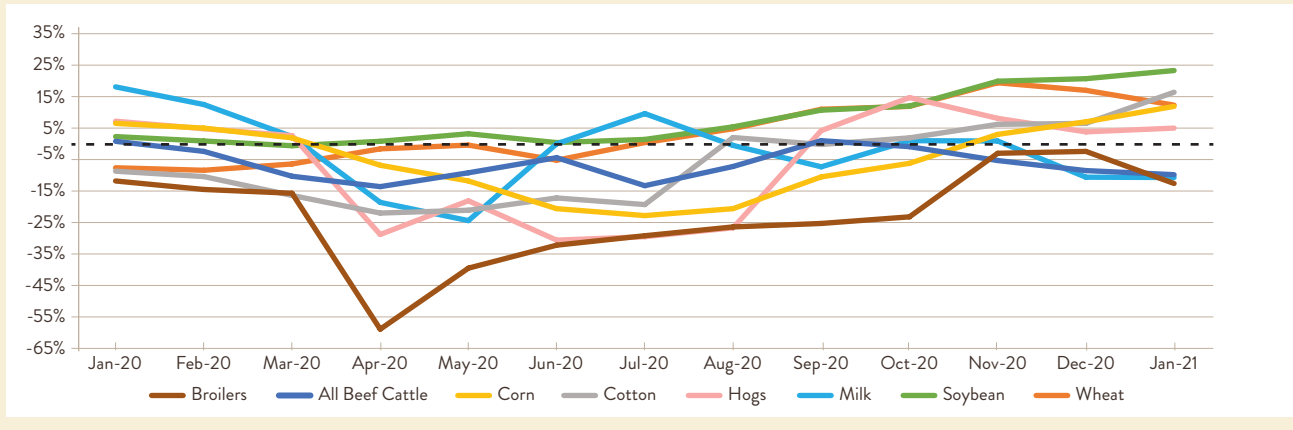
⁴⁵ U.S. Department of Agriculture, U.S. Livestock and Poultry Outlook, February 19, 2021.

⁴⁶ U.S. Department of Agriculture, Highlights from the February 2021 Farm Income Forecast, updated February 5, 2021.

⁴⁷ NRECA calculations based on data from the U.S. Department of Agriculture, Summary of U.S. Farm Income Financial Indicators.

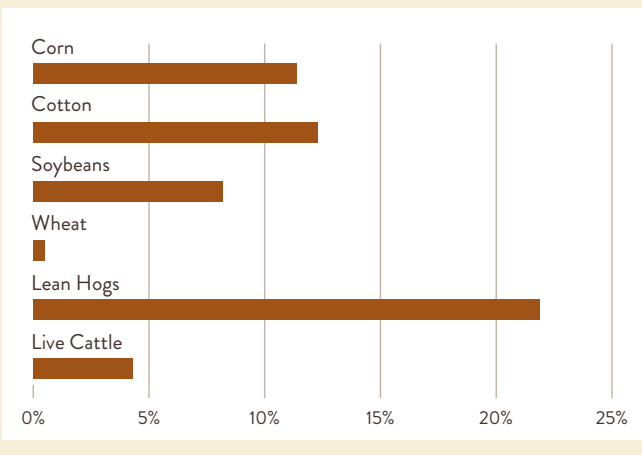
⁴⁸ U.S. Department of Agriculture, Highlights from the February 2021 Farm Income Forecast, updated February 5, 2021.

Monthly Prices Received for Select U.S. Agricultural Products — Percent Change From Previous Year



Source: NRECA analysis of data from the U.S. Department of Agriculture National Agricultural Statistics Service

Agricultural Commodity Futures Prices — Percent Change YTD (Through Mid-March 2021)



Source: NRECA analysis of commodity futures prices from the American Farm Bureau Federation

Higher income levels for some may lead to increased investments in new technologies. The COVID-19 pandemic, and attempts to limit its financial impact for the food industry, has led to a greater interest in automation technologies, suggesting potential for acceleration of existing trends.⁴⁹ In the agricultural sector, this could mean further adoption of advanced irrigation, harvesting, fertilization and breeding practices through digital applications enabled by broadband connectivity. Precision agriculture involves applying new technologies to improve productivity and sustainability, making farming more efficient by managing and minimizing crop production inputs, such as raw materials and labor, and maximizing

outputs. In a 2019 report, the USDA estimated that the full potential of these digital technologies is between \$47 billion and \$65 billion annually.⁵⁰ The USDA's report notes the importance of rural broadband connectivity, which is necessary for unlocking more than one-third of that potential value, or \$18 billion to \$23 billion per year. Just as the COVID-19 pandemic has already highlighted the role that broadband can play in the daily lives of many Americans through telework and telehealth, it also further underscores the economic potential that high-speed communications technologies can have for American farms.

Farms Embracing New 'Smart' Equipment

Precision agriculture, the ability to collect and analyze farm data to improve decision-making, is hitting an inflection point. Farmers are investing in new equipment, and like appliances and vehicles, the new options have all kinds of technology capabilities. As some industry experts have noted recently, the industry is now on the verge of the "Fourth Agricultural Revolution." Precision technology, which includes such tools as GPS guidance systems, variable-rate controls and yield-monitoring software, can potentially unlock crop yields that are three to four times higher than today's. We are seeing this potential reflected among companies in the agriculture-machinery sector, whose new offerings could translate to higher profitability over time. John Deere, the leading agricultural-equipment manufacturer, now has over 200,000 connected machines on 190 million technologically engaged acres across the U.S. The number of engaged acres has tripled in the past year alone.

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⁴⁹ Brookings Institution, "Automation from farm to table: Technology's impact on the food industry," November 23, 2020.

⁵⁰ U.S. Department of Agriculture, A Case for Rural Broadband: Insights on Rural Broadband Infrastructure and Next Generation Precision Agriculture Technologies, April 2019.

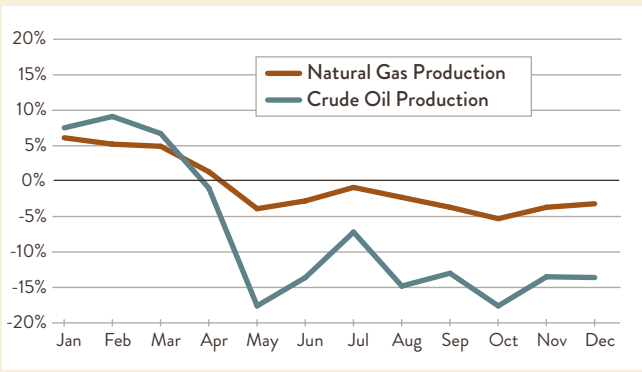
Oil and Gas Extraction Impacts for State Revenues

NRECA

The COVID-19 pandemic has led to extended impacts on the U.S. natural resources and mining sector, particularly for oil and gas production. According to the U.S. Energy Information Administration (EIA), 22 states produce crude oil and 34 states produce natural gas, with a majority of extraction occurring in rural areas.^{51, 52} Large downturns in oil and gas production can significantly affect local economies in states that collect taxes on extraction and impact royalty owners who receive income based on production.

After a strong start in the early months of 2020, natural gas production dropped in May and has consistently remained below 2019 levels, with December production still more than 3% below levels in the previous December.⁵³ Crude oil production saw a similar trend, with the first three months of 2020 exceeding 2019 levels, followed by a steep decline. Since May, monthly production has remained down, often at least 10%-15% below 2019 production levels.⁵⁴

U.S. 2020 Monthly Production of Natural Gas and Crude Oil — Percent Change From Previous Year



Source: NRECA analysis of data from the U.S. Energy Information Administration

In 2019, 34 states⁵⁵ levied approximately \$14.9 billion in severance taxes, which the U.S. Census Bureau defines as, “Taxes imposed distinctively on removal (severance) of natural resources (e.g., oil, gas, coal, other minerals, timber, fish, etc.) from land or water and measured by the value or quantity of products removed or sold.”⁵⁶ States use those taxes to fund numerous local priorities, such as schools, law enforcement and hospitals. Based on data from the U.S. Census Bureau, total severance taxes collected in 2020 were 39.5% lower than in 2019.⁵⁷ This large shortfall in tax collection will put additional pressure on state and local governments to find new avenues to make up those losses in revenue or reduce their own spending budgets. For example, in 2019, Texas collected \$3.7 billion⁵⁸ in sales, state and local taxes on extraction, but in 2020 collections on these taxes fell to \$2.3 billion,⁵⁹ leading to a 38% decrease in annual revenue from these taxes. In 2019, severance taxes made up 2.8% of all taxes received by the state of Texas.⁶⁰

For royalty owners who receive payments for extraction from their land, lower production also means a decline in income, which can further translate to less spending in their local economies. Less production also means that there are fewer oil and gas workers, who would typically spend some of their income within the community.

Lower tax revenues in 2020 has been a widespread issue, with many states facing revenue shortfalls going forward. An October report from the Center on Budget and Policy Priorities estimated that shortfalls faced by states, localities, tribal nations and U.S. territories will reach between \$480 billion and \$620 billion through 2022.⁶¹ As the U.S. continues to recover from the pandemic, state and local entities will face revenue challenges that could have lasting impacts for their communities and economies.

⁵¹ U.S. Energy Information Administration, Monthly Production Report.

⁵² U.S. Department of Agriculture Economic Research Service, Emerging Energy Industries and Rural Growth, November 2013, p.2.

⁵³ NRECA analysis of data from the U.S. Energy Information Administration, Monthly Crude Oil and Natural Gas Production.

⁵⁴ Id.

⁵⁵ Urban-Brookings Tax Policy Center, The State of State (and Local) Tax Policy, p.33.

⁵⁶ U.S. Census Bureau, Government Finance and Employment Classification Manual, Description of Tax Categories Manual, Code: T53, p.161.

⁵⁷ U.S. Census Bureau, Annual Survey of State Government Tax Collections.

⁵⁸ Texas Oil & Natural Gas Industry, Annual Energy & Economic Impact Report 2019.

⁵⁹ Texas Oil & Natural Gas Industry, Annual Energy & Economic Impact Report 2020.

⁶⁰ U.S. Census Bureau, 2019 State Government Tax Tables.

⁶¹ Center on Budget and Policy Priorities, “Pandemic’s Impact on State Revenues Less Than Earlier Expected But Still Severe,” October 30, 2020.

How Work-From-Home Affects Natural Gas

You might not expect it, but natural gas supply in the U.S. is driven by oil prices. How? Although some natural gas is produced on a standalone basis, natural gas is also a byproduct of fracking for oil, and the Texas Railroad Commission, which regulates the industry, requires that gas be piped into storage, increasing supply and holding natural gas prices down. When oil prices are high, there's more fracking and more natural gas supply. In the pandemic, oil demand collapsed as the commute changed from a drive to a walk to the other side of the house, thus pressuring natural gas supply. Meanwhile, natural gas demand has remained steady. As such, natural gas pricing has doubled from mid-2020 lows. Looking ahead, this trend could reverse somewhat, as people return to work and oil demand returns to more normal levels, creating more natural gas supply again.

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Utility-scale wind and solar projects represent major investments that can be an economic boon for rural areas, creating construction jobs over a one- or two-year period that bring money into local rural communities. Many wind turbine manufacturing facilities are also located in rural areas. Once operational, wind and solar projects require continued maintenance over their lifetime.

Wind and Solar Growth Contributes to Rural Economies

NRECA

At the end of 2019, U.S. wind capacity stood at 104.3 gigawatts (GW), while utility-scale⁶² solar capacity stood at 37.8 GW,⁶³ representing more than \$240 billion in economic investment.⁶⁴ One GW of wind is enough to power over 280,000 homes, while one GW of solar can power nearly 200,000.⁶⁵

When the COVID-19 health crisis hit, there were significant concerns that the virus and the social distancing measures to contain it would delay many new wind and solar projects planned to come online in 2020. While there is not yet a final reporting of new capacity additions in 2020, preliminary data from EIA indicate that the U.S. added 14.2 GW of new wind and 10.4 GW of new solar capacity at utility scale plants last year, well exceeding previous annual records for both technologies. EIA expects that an additional 21.7 GW of wind capacity and 30.4 GW of solar capacity will be added by the end of 2022, and that growth will continue over the next two decades even without major changes in federal or state energy and climate policies.⁶⁶

Large wind projects require significant amounts of land without obstructions that can impact airflow. For this reason, 99% of all U.S. wind capacity is in rural areas, with the greatest concentration in the Midwest and Texas. As the size of utility-scale solar photovoltaic (PV) projects has grown in recent years, they too are being sited in rural areas.⁶⁷ In 2019, wind and solar projects combined to contribute \$2.2 billion in state and local taxes and lease payments to private landowners, and this figure will grow as deployment increases.⁶⁸ These funds can provide a steady and predictable stream of tax and lease revenues over the life of the project, generally 20 to 30 years, with far less volatility than is found in agricultural or oil and

⁶² Statistics are for utility-scale wind and solar projects of 1 MW or larger. Unlike rooftop solar that is common in urban and suburban areas, utility-scale solar projects are generally mounted on the ground.

⁶³ NRECA calculations using data from the U.S. Energy Information Administration, Form EIA-860.

⁶⁴ American Clean Power Association, Onshore wind power facts, and utility-scale solar fact.

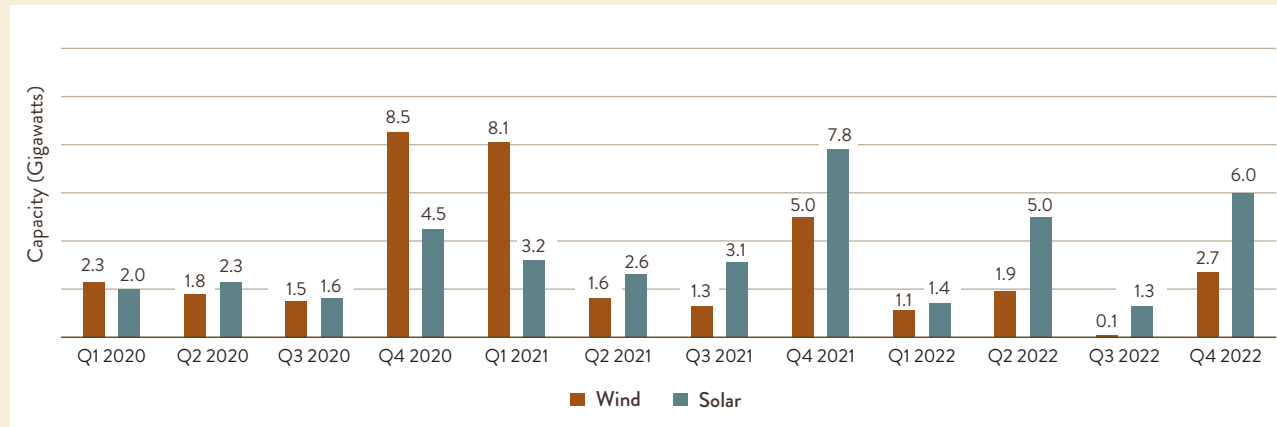
⁶⁵ NRECA calculations using EIA data from 2019. Average residential usage and average capacity factors for wind and solar are from EIA's *Electric Power Monthly*, Table 6.07.B.

⁶⁶ Estimates and forecasts for 2020 through 2023 are from EIA's Short Term Energy Outlook, March 2021.

⁶⁷ Natural Resources Defense Council, Clean Energy Sweeps Across Rural America, November 2018.

⁶⁸ American Clean Power Association, Onshore Wind Power Facts, and Utility-Scale Solar Facts.

Recent and Planned Utility-Scale Wind and Solar Capacity Additions



Source: U.S. Energy Information Administration Short-Term Energy Outlook, March 2021

gas extraction.⁶⁹ Wind turbines have a fairly small footprint at ground level at the base of each tower, so portions of farmland leased for wind can still be used for crops and grazing.⁷⁰ Dual usage of land leased for solar PV is more limited because panels cover much of the land used, but there are opportunities for some continued agricultural use, including pollinators and grazing.⁷¹

Utility-scale wind and solar projects represent major investments that can be an economic boon for rural areas, creating construction jobs over a one- or two-year period that bring money into local rural communities. Many wind turbine manufacturing facilities are also located in rural areas.⁷² Once operational, wind and solar projects require continued maintenance over their lifetime. Though the number of workers needed is small compared with traditional fossil-fuel and nuclear power plants,⁷³ the sheer scale of recent and projected deployment means that these projects will support a significant number of well-paying high-skilled jobs, especially in areas where there is already skilled labor locally from community technical colleges or existing manufacturing facilities.⁷⁴

Green Tech Trends Outside the U.S.

Outside of the U.S., in particular Europe and Asia, governments have been quicker to embrace green energy policies. In Europe, the EU Green Deal is being billed as the “largest economic stimulus Europe has seen since the Marshall Plan following World War II.” The deal aims for a 50%-55% cut in emissions by 2030 and net zero carbon emissions by 2050. From an investment standpoint, we see some beneficiaries of this green revolution. For instance, many of the largest electric utilities in Europe could see a spike in ‘rate base’ — i.e., the average price per unit of energy. They may also have higher earnings growth, perhaps as high as 15%-20% per year, as government-funded spending on clean infrastructure ramps up in the coming years. The automotive and transportation industries are also potential beneficiaries of the green revolution, with the French government proposing a support package to boost demand for electric vehicles.

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⁶⁹ Rocky Mountain Institute, Seeds of Opportunity, 2021.

⁷⁰ U.S. Department of Energy Office of Energy Efficiency & Renewable Energy, Wind Energy’s Economic Impacts to Communities.

⁷¹ GreenBiz, “Dual-use solar farms welcome nature back to the land,” June 10, 2020.

⁷² Rocky Mountain Institute (RMI), Seeds of Opportunity, 2021.

⁷³ Forbes, The Challenge Facing Biden’s Green Jobs Agenda? Green Jobs, January 19, 2021.

⁷⁴ RMI, Seeds of Opportunity, 2021. See also: National Renewable Energy Laboratory, The Wind Energy Workforce in the United States: Training, Hiring, and Future Needs, July 2019.

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