Power and Clean Energy:

Digging Deeper into the 2021 Infrastructure Bill

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Today, electrical power is one of the most fundamental infrastructure systems to people and businesses across the globe. It's a huge part of our everyday lives, from turning on lights, to heating and cooling our homes, to using our appliances and electronics that keeps us connected to the rest of the world. Other sectors such as transportation, water, emergency services, telecommunications, and manufacturing to name a few, are critically dependent on the power system as well.

The need for readily available, uninterrupted electricity is at an all-time high and although spending has been increasing to improve our electrical grids and transmission lines, we still face vulnerabilities to our power system, such as power outages due to severe weather and other major issues, like cyber and terrorist attacks.[i] Over the last decade however, there has been the creation of smarter and more energy efficient ways to improve our power infrastructure.

A Brief History of Our Power System

The oldest American power lines date back to around the 1880's, with the first distribution systems built in Manhattan, NY and New Jersey.[ii] Most of the power infrastructure we use today, was built in the 1950's and 60's. In the hope that the demand would grow over time, the system was overbuilt with an approximate 50-year life span.[iii] But today as we reach that capacity, much of the equipment is dying and needs to be upgraded or replaced.

The Need to Upgrade Our Power Infrastructure Systems

Every year there are thousands of people without power, mainly due to high winds, trees falling and other natural related disasters, but also because of how old and unmaintained a lot of our power lines and grids are. By investing more money and using the advanced technology and resources we have today, which is what this Infrastructure Bill will help accomplish, there's no reason why we can't transform how we get and maintain our power for the better.

Now is the best time to start preparing your business for all the new opportunities that your business will be able to bid on.

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*proposed infrastructure bill

What's in the Proposed Infrastructure Bill

The Infrastructure Bill sits at $1.2 trillion; $550 billion in new spending plus the annual baseline spending. Of that $550 billion, $73 billion is currently set aside for power infrastructure. Specifically for new power and transmission lines, rebuilding old electrical grids, expanding clean energy, and increasing electric vehicle use. Although it's still unclear as to how much money each state will receive to fund these projects, it's likely that every state will receive funding based off the amount of power lines and grids they have, as well as which structures need the most work done.

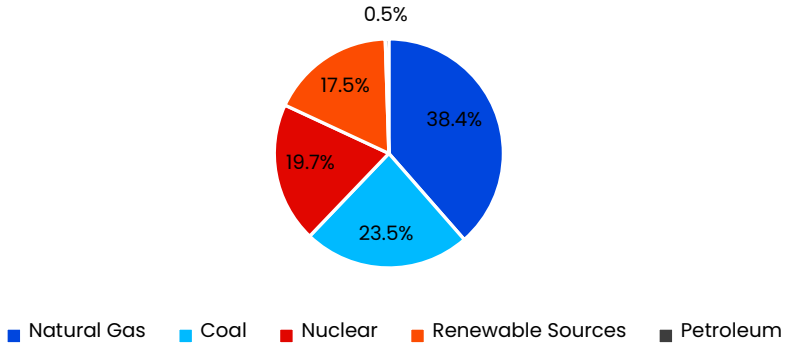
The Current State of U.S. Energy

According to a report done by the American Society of Civil Engineers, U.S. energy has been rated a "C- ". To begin efforts to raise our score, we'll need to focus on investing time, money, and planning into these new projects that are to come.

How we generate our electricity comes from a variety of different energy sources, with the main ones being natural gas, coal, and nuclear. As shown in the chart below, there are five main sources where we get out energy from.

Main Energy Sources Used for Electricity Generation in the U.S.

(Data from 2019)



(Source: "2021 Report Card for America's Infrastructure: Energy." Infrastructurereportcard.org, 25. Mar. 21)

As we continue to advance and find more environmentally friendly ways to produce energy, we will start seeing renewable energy sources (clean energy), such as solar, wind, hydropower, biomass, and geothermal systems increase at a faster rate. In fact, in 2020 renewable energy represented the largest chunk of new generating capacity, increasing from 18% in 2019 to 20% in 2020.[iv] Over the next few years, it will be crucial to continue investing to improve our current power systems, as well as funding more renewable energy options to help combat climate change.

State Energy Rankings

Each state can vary dramatically in how reliable their energy sources are. In a report created by U.S. News, they ranked all 50 states energy infrastructures from best to worst, basing the evaluation on three main categories: renewable energy usage, power grid reliability, and the average cost of electricity. Here are the top ten best and worst states in the U.S. for energy based off data from 2019:

Best States for Energy	Worst States for Energy
1. Oregon	1. West Virginia
2. Washington	2. Hawaii
3. South Dakota	3. Connecticut
4. Montana	4. Alaska
5. Idaho	5. Massachusetts
6. Iowa	6. Rhode Island
7. North Dakota	7. New Hampshire
8. Nebraska	8. Michigan
9. Nevada	9. Mississippi
10. Oklahoma	10. Louisiana

(Source: 2020. "Energy Rankings | Measuring States' Energy Infrastructure." Usnews.com)

Based off these results, it's very telling where improvements are needed. We will have to wait and see how much money is allocated to each state from the Infrastructure Bill, but they will likely take into consideration the current state of our infrastructure across the country before doing so.

Power Outages in the U.S.

Power outages are also a sign that our electrical grids and transmission lines need to be updated. Although there are circumstances we can't control like the weather, if we update or built new and improved structures, there's a higher chance that it'll reduce the annual number of power outages across the U.S. Below you'll find the top ten states with the most frequent power outages from data collected between 2015-2019:

States	Average Number of Outages
1. Maine	3.9
2. West Virginia	2.8
3. Louisiana	2.3
4. Alaska	2.2
5. Tennessee	2.2
6. Florida	2.2
7. Montana	2.1
8. Mississippi	2.1
9. Georgia	2.1
10. Oklahoma	2.0

(Source: Kaminski, Joe. "The Most & Least Power Outages by State: MRO Electric." Mroelectric.com, 3. Mar. 21)

If you compare this table to the one above, you'll notice that a few of these states were also listed in the top ten worst states for energy, proving that deteriorating and less reliable power sources can in fact cause more power outages. No matter what state you live in there will be some amount of funding set to invest back into power infrastructure, so keep a look out and start thinking of ways your business can get involved.

The Future of Power Looks Bright

As we look to the future, it'll be important for the government to continue investing in power infrastructure so we can completely revamp our old power systems and grid lines. As we've become so reliant on power to fuel our everyday lives, reliable and long-lasting infrastructure is what we really need to focus on. Renewable energy options are becoming a great alternative as they are better for the environment, cheaper, and are creating more jobs in manufacturing and installation.

This $1.2 trillion Infrastructure Bill will provide a massive influx in new bidding opportunities at the federal, state, and local levels as a result of the billions of dollars in funding. If you want to be a part of this historic infrastructure transformation, start preparing now.

References:

i “United States Electricity Industry Primer”. Office of Electricity Delivery and Energy Reliability. U.S. Department of Energy. July 2015. Industry Overview. Page 4. Energy.gov, 06. Oct. 21

ii “Power Grid History”. ITC-Holdings.com, 06. Oct. 21

iii Chrobak, Ula. “The US Has More Power Outages than Any Other Developed Country. Here’s Why.” Popsci.com, 17. Aug. 20

iv “2021 Report Card for America’s Infrastructure: Energy.” Infrastructurereportcard.org, 25. Mar. 21