JAG CAPITAL MANAGEMENT LLC

JAG Team Insights

# An Electric Opportunity: Renewable Energy Generation

Total reading time = 3 minutes


## Summary

**The US and much of the world is engaged in a multi-decade effort to replace fossil fuels with renewable, non-CO2 emitting sources of energy. This is an enormous project that will require vast amounts of capital to implement. JAG believes the adoption of the new technologies involved in this transition has and will continue to create multiple attractive investment opportunities for our clients.**


## Investment Opportunities

In the solar category, power inverter makers, like Enphase (ENPH) and SolarEdge (SEDG), that convert the direct current (DC) generated from sunlight to alternating current (AC) to connect to the grid and electronic devices, have been strong performers in recent years. Domestic solar panels manufacturers like First Solar (FSLR) are well positioned to benefit from increased demand and take full advantage of the Inflation Reduction Act.

Installing and connecting new solar panels and wind turbines to the electrical grid requires much planning, specialized skills, and experience. In this area, we think Quanta (PWR) and MasTec (MTZ) have the expertise and resources to capitalize on the renewable opportunity.

The effort to replace fossil fuels with renewable energy sources will play out over the next 10, 20, and perhaps 30 years. Trillions of dollars will be needed for the transition, creating winners and losers along the way.

## Wind & Solar Energy

The Renewables category includes a variety of fuels including wood, waste, biofuels, geothermal, nuclear, wind and solar. This article will focus on the largest and most scalable sources — wind and solar. According to JP Morgan, global investment in renewable energy generation has exceeded new investment in conventional generation each year since 2014 and is the fastest electricity generation source. In Table 1, we see the growth in electricity generated in the US from selected sources over the 12 years ending May-2022. Over this interval solar grew at a 46.6% annualized rate vs. 14% for wind and 4.7% for natural gas. As of May-2022 wind and solar combined accounted for 16.6% of the electricity generated in the US, more than quadrupling since 2010. If current trends continue, wind and solar will eclipse coal and nuclear power by 2024 and move into second place behind natural gas.

**Table 1: Electricity Generated in US 2010 - 2022**

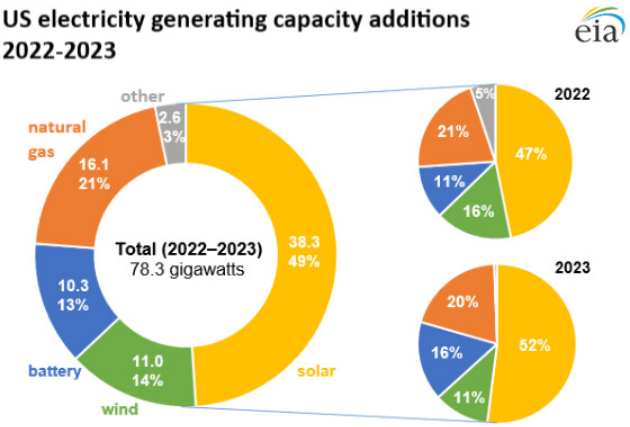
| Electricity Generated in US (millions of kwh) | | | CAGR* |
|---|---|---|---|
| | May-2010 | May-2022 | 12 years |
| Wind | 8,698 | 41,892 | 14.0% |
| Solar | 153 | 15,151 | 46.6% |
| Coal | 143,272 | 62,288 | -6.7% |
| Nat Gas | 73,665 | 127,926 | 4.7% |
| Nuclear | 66,658 | 63,382 | -0.4% |
| Hydro | 25,079 | 23,952 | -0.4% |
| Total all sources | 327,936 | 343,502 | 0.4% |
| % of Electricity Generated in US | | | Chg (+/-) |
| Wind | 2.65% | 12.20% | 9.5% |
| Solar | 0.05% | 4.41% | 4.4% |
| Coal | 43.69% | 18.13% | -25.6% |
| Nat Gas | 22.46% | 37.24% | 14.8% |
| Nuclear | 20.33% | 18.45% | -1.9% |
| Hydro | 7.65% | 6.97% | -0.7% |
| *CAGR: Compound Annual Growth Rate | | | |
| Source: EIA, JAG Capital Management | | | |

Wind energy is the largest renewable energy source and new onshore (on-land) wind farms are cheaper than new coal or gas plants. Small onshore wind farms can feed energy into the grid or provide power to isolated off-grid locations. Offshore wind farms provide a steadier and stronger source of energy, but construction and maintenance costs are substantially higher.

Solar energy only produces 4.4% of the electricity generated in the US, but it is the fastest growing source of renewable energy generation. Current technology and equipment make installation easy and convenient on residential rooftops and associated costs have dropped drastically over the last decade, making it one of the cheapest sources of electricity. Total investment in solar generating capacity is averaging approximately $150 billion annually and Bloomberg New Energy Finance forecasts $4.2 trillion will be invested over the next three decades.

In 2022, we expect 46.1 gigawatts of new electric generating capacity would be added to the US power grid, according to the EIA's Preliminary Monthly Electric Generator Inventory. Chart 2 below illustrates that almost half of the planned 2022 capacity additions are solar, followed by natural gas at 21% and wind at 17%. Solar new capacity additions are expected to exceed other sources again in 2023 and represent even a higher portion (52%).

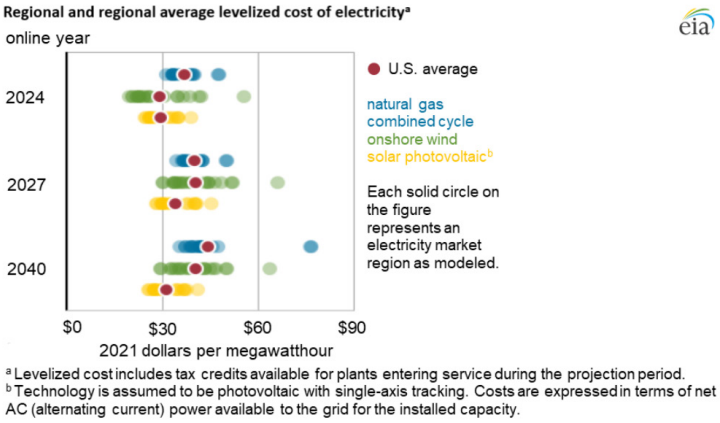
### Chart 2: 2022 - 2023 Planned US Electricity Generating Capacity Additions




Source: US Energy Information Administration (EIA)

With the help of improved technology, tax credits, and higher costs for natural gas, wind and solar are projected to be cost competitive with traditional energy sources in the years to come. Per the EIA analysis summarized in the figure below, Chart 3, the average cost of solar electricity power will have the lowest average cost by 2027 and increase its lead over both wind and natural gas by 2040.

### Chart 3: US Average Cost of Electricity




[a] Levelized cost includes tax credits available for plants entering service during the projection period.
[b] Technology is assumed to be photovoltaic with single-axis tracking. Costs are expressed in terms of net AC (alternating current) power available to the grid for the installed capacity.

Source: US Energy Information Administration (EIA)

## Inflation Reduction Act Impact

The Inflation Reduction Act (IRA) contains a host of subsidies and incentives to help accelerate the transition to renewable energy sources. The act is designed to lower carbon emissions and energy costs, increase energy reliability and security, and provide support for rural and low-income communities and the domestic workforce.

While Federal attempts to implement efficient industrial policies have a mixed record, there is some optimism that this legislation will be more effective. The US and the world are almost absolutely dependent on China for many renewable finished products or key components. It is hoped that Federal support will help the US begin to develop the capacity to produce its own renewable energy products. Below are highlights from the bill that relate to wind and solar:

- $10 billion **investment tax credit (ITC) to build clean technology manufacturing facilities**, like facilities that make electric vehicles, wind turbines, and solar panels.
- **Production tax credits (PTC)** to accelerate US manufacturing of solar panels, wind turbines, batteries, and critical minerals processing, estimated at $30 billion.
- 10 years of **consumer tax credits to make homes energy efficient and run on clean energy**, making heat pumps, rooftop solar, electric, HVAC, and water heaters more affordable.

**JAG's investment approach helps us identify great companies that can capitalize on durable sector and industry-specific trends and opportunities. We welcome your comments and questions any time!**

**– Nico Falkinhoff & Mike Buck, JAG Investment Team**

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**Ownership:** Fifty-one percent ownership by a Veteran or Veterans. The applicant must share in all risk and profits commensurate with their ownership interest.

**Control and Management:** Proof of active management of the business. Veteran must possess the power to direct or cause to direct the management and policies of the business.

**Contribution of Expertise and Capital:** Contribution of capital and/or expertise by Veteran owner(s) to acquire their ownership interest shall be real and substantial and be in proportion of the interest acquired.

**Independence:** The Veteran owner(s) shall have the ability to perform in their area of specialty/expertise without substantial reliance on non-Veteran-owned businesses.

# About JAG

JAG Capital Management (JAG) actively invests for institutions and individuals in highly selective, customizable, and nimble equity and fixed income strategies. JAG is a boutique, independent, employee-owned investment management firm with offices in St. Louis and Chicago.

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