How does the Nasdaq Clean Edge Smart Grid Infrastructure™ Index (QGRD™) stand to benefit from the Inflation Reduction Act of 2022? And how should investors approach index fundamentals in today's market environment?

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Historical in scope and appeal, the Inflation Reduction Act (IRA) of 2022 addresses two issues that have been top of mind for the average consumer, the Federal Reserve and the government—record high inflation and climate change. Inflation surged to a multi-decade high in 2021[1], necessitating one of the fastest and steepest rate hikes in history by the Federal Reserve. With additional shocks to the economy by way of supply shortages, the coronavirus pandemic and the Russia-Ukraine war, inflation continued to surge in 2022. As much of the inflation surge stemmed from supply-side factors, contractionary monetary policy was not seen as a silver bullet for bringing inflation down. The passage of the IRA has given the average American consumer a strong reason to be optimistic about inflation reduction while the effects of monetary policy take hold.

The central focus of the IRA is bolstering American leadership in clean energy to proactively address the climate crisis. Expanding the production of clean energy and lowering its cost will naturally act as an inflation dampener, given the sharp rebound in traditional energy prices and their significant contribution to overall price levels in the economy. Beyond its focus on energy, the IRA has begun to reduce prescription drug costs, another large spending bucket for the American consumer. 5-7 million Medicare beneficiaries could see their prescription drug costs decline because of a provision in the IRA that would allow Medicare to negotiate these costs[2].

The IRA makes the single largest investment in clean energy in history, with the aim of reducing carbon emissions by 40% by 2030. It empowers the average consumer to actively participate in the transition to clean energy by providing powerful incentives as prescribed by the field of behavioral economics. Consumers are incentivized to buy high-efficiency appliances, purchase electric cars, and install solar roof-top panels by way of tax credits (worth up to $7,500 for EVs). By 2030, the IRA anticipates powering homes and communities with 950 million solar panels, 120,000 wind turbines and 2,300 grid-scale battery plants through an expansion of production tax credits by $30 billion[2].

The IRA has the potential to be truly game-changing, not just through its impact on spiraling energy costs, but also for providing incentives to create manufacturing jobs in clean energy technologies such as solar, wind, clean hydrogen, and carbon capture. Additional clauses in the bill introduce certain complexities for companies to navigate, in terms of sourcing components that are "Made in the USA" and employing workers in lower income communities. While this could delay the observed impacts of the legislation, it is broadly in keeping with other goals of the Biden administration in growing US manufacturing, broadening equity across all American workers, and strengthening US self-sufficiency in crucial areas like clean energy, semiconductors, healthcare/pharmaceuticals, and defense.

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[1] https://www.wsj.com/articles/us-inflation-june-2022-consumer-price-index-11657664129
[2] https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/15/by-the-numbers-the-inflation-reduction-act/

The IRA addresses two other issues that concern the broader public, that of the tax code and fiscal deficit. Large corporations and wealthy, high-income taxpayers will pay more in taxes. With the implementation of a 15% minimum corporate tax on income for large corporations, up to $313 billion over 10 years in incremental tax revenue is projected[3]. Additionally, a better-funded IRS is expected to enforce greater tax compliance, reducing the cumulative deficit by $124 billion over 10 years[4]. From a historical perspective, the tax increases are moderate and are unlikely to weigh on growth. This is likely to allay any concerns about negative externalities.[5]

QGRD Index – Overview and Fundamentals

The Nasdaq Clean Edge Smart Grid Infrastructure Index (QGRD) is designed to track companies that are primarily involved in electric grid, electric meters, devices, and networks, energy storage and management, connected mobility and software used by the smart grid and electric infrastructure sector. It includes both pure-play companies focused on the smart grid sector and diversified multinationals with smart grid sector exposure.

According to the Department of Energy, to meet President Biden's goal of 100 percent clean electricity by 2035 and a zero-emission economy by 2050, the U.S. needs to expand electricity transmission systems by 60% by 2030 and triple it by 2050. To meet this target, companies operating in the space require funding to bring to the market a modernized grid that will support the transition to EVs and renewables. Fiscal support, by way of the IRA and the $1 trillion Bipartisan Infrastructure Law, will likely bridge the funding gap while also building the momentum for more private sector spending. An estimated $370 billion of new energy tax credits over the next 10 years are likely to provide a boost to the electric grid market, by way of the IRA. Microgrid development will see tremendous gains as the IRA includes up to 50 percent in tax credits and higher production tax-credits. The IRA also sets aside $5 billion for construction, modification, or repowering of generation and transmission facilities.

Companies within QGRD that are likely to be the biggest beneficiaries include those with pure-play exposure to the electric grid (Eaton, General Electric Company, nVent Electric), and those providing energy storage (General Electric Company, Honeywell). Companies such as ABB, with an index weight of 8%, have indicated that they are likely to increase production of components for renewables, EV chargers and energy efficient solutions. Enphase Energy, with an index weight of 3.9%, announced recently that it is looking to add manufacturing capacity for microinverters in 2023. Panasonic, with an index weight of 0.2%, is planning a third EV battery plant in the US for a cost of up to $4-5 billion in Oklahoma. It also expects that its solar modules and energy storage systems will qualify for the 30% tax credit under IRA.

Overall, the IRA is seen as a material positive for companies that make up the Nasdaq Clean Edge Smart Grid Infrastructure Index (QGRD).

Revenue and Gross Margin Trends vs. Index Performance

The companies that make up the QGRD Index have shown significant strength in fundamentals over the past year despite a challenging macroeconomic backdrop of rising interest rates, recession fears, high inflation, and supply chain challenges.
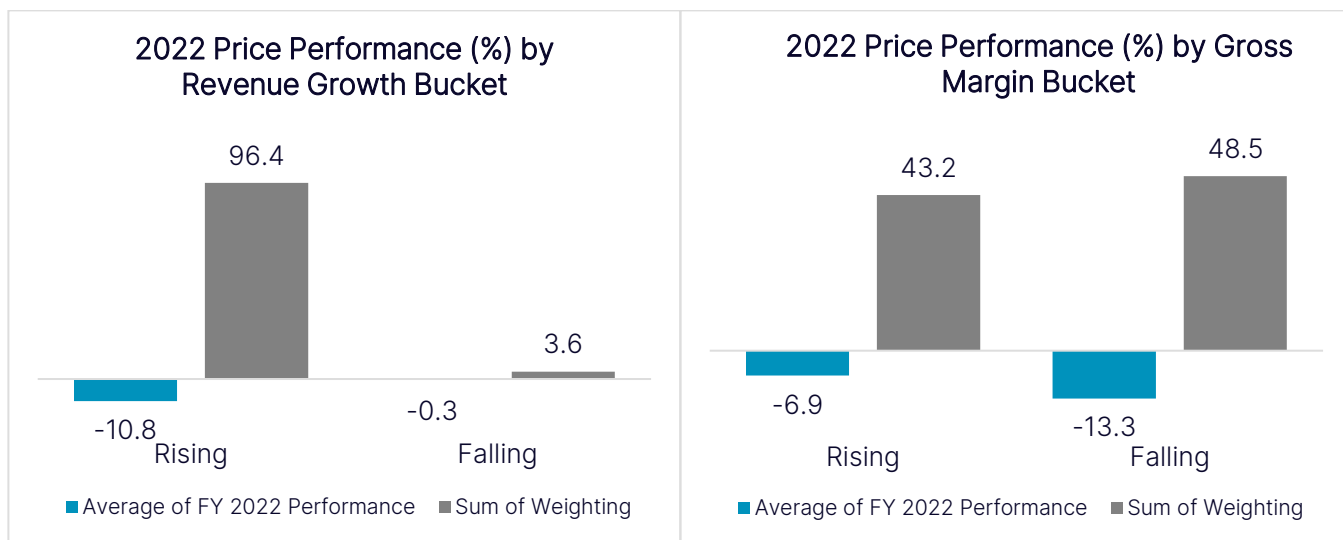
76 out of 85 companies (representing 96% of index weight) tracked by the index saw revenues increase in 2022 vs. 2021, driven by strength in industrial, data center computing and medical markets. This sub-group was down 11% on average in 2022, underperforming companies that saw revenues decline by 11 percentage points, suggesting a disconnect between performance and fundamentals.

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[3] https://www.crfb.org/blogs/whats-inflation-reduction-act
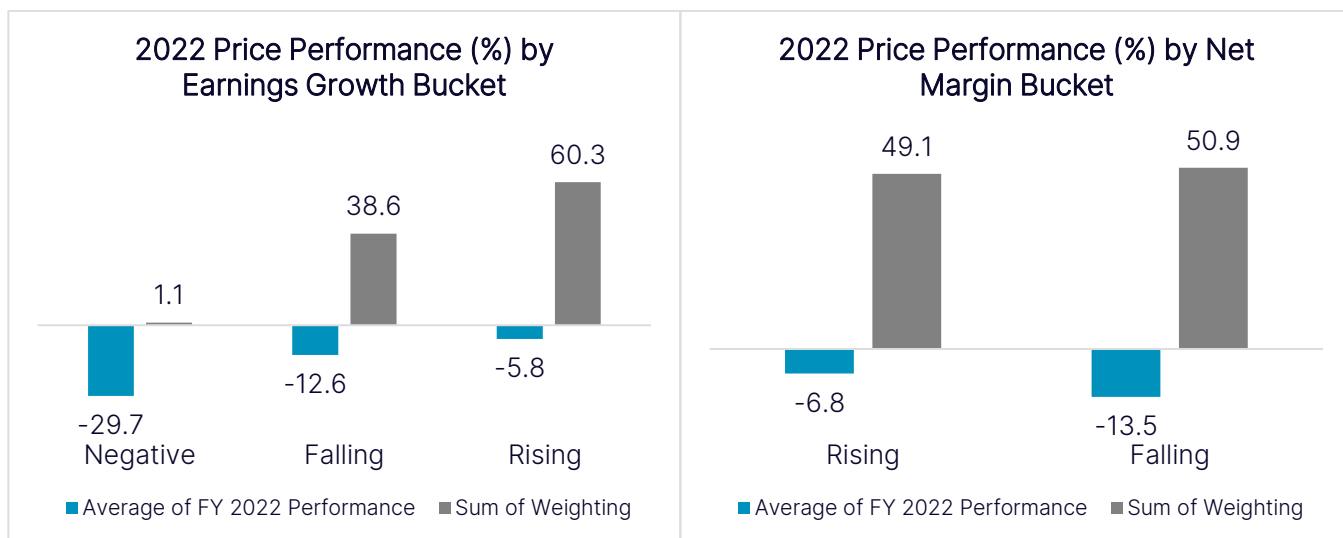[4] https://www.crfb.org/blogs/whats-inflation-reduction-act
[5] https://www.mckinsey.com/industries/public-and-social-sector/our-insights/the-inflation-reduction-act-heres-whats-in-it

Several companies reported record revenues driven by industry-specific and company-specific tailwinds such as demand for EV charging and energy storage, the elimination of the purchase tax for EVs and grid modernization efforts. Industry bellwethers such as Cisco expect strong revenue growth over the next 12 months as supply-chain pressures abate, led by declining freight costs. Only 9 companies saw revenues decline in 2022, representing approximately 3.6% of index weight. Of the companies that grew revenues, 49 of 76 companies grew revenues by double digits (by 30% on average). While the revenue profile for the index was robust in 2022, investors appear to have been less enthused, not rewarding topline growth within the index in the current market environment.

2022 Price Performance (%) by Revenue Growth Bucket

96.4

3.6

-0.3

-10.8

Rising   Falling

■ Average of FY 2022 Performance   ■ Sum of Weighting

2022 Price Performance (%) by Gross Margin Bucket

43.2   48.5

-6.9

-13.3

Rising   Falling

■ Average of FY 2022 Performance   ■ Sum of Weighting

44 out of 85 companies (representing 43% of index weight) tracked by the index saw gross margins increase in 2022 despite supply chain disruptions and inflationary challenges. This sub-group was down about 7% on average, outperforming companies that saw gross margins decline by a modest six percentage points, on average. 39 companies (representing 49% of index weight) saw gross margins decline in 2022 due to an unfavorable product mix, higher material costs and headwinds from component shortages. Investors appear to have been encouraged that a healthy percentage of the index generated improvements in gross margins in an inflationary environment and have rewarded companies as such. With some of the headwinds on margins expected to abate, it is reasonable to assume that the margin profile will improve in the near term.

Earnings and Net Margin Trends vs. Index Performance

2022 Price Performance (%) by Earnings Growth Bucket

60.3

38.6

1.1

-5.8

-12.6

-29.7

Negative   Falling   Rising

■ Average of FY 2022 Performance   ■ Sum of Weighting

2022 Price Performance (%) by Net Margin Bucket

49.1   50.9

-6.8

-13.5

Rising   Falling

■ Average of FY 2022 Performance   ■ Sum of Weighting

51 out of 85 companies (representing 60% of index weight) tracked by the index saw earnings increase y-o-y due to industry-specific tailwinds such as favorable demand conditions which are likely to continue, and company-specific drivers such as higher selling prices and FX gains (for e.g., BYD), cost-cutting and higher growth in returns on investments in capex (for e.g., E.ON).

Of the companies that saw earnings increase, 11 companies saw earnings increase y-o-y by double-digits. Only 6 companies (representing 1.1% of index weight) posted losses while 28 companies (representing about 40% of index weight) saw earnings decline y-o-y.

We observed a strong correlation between earnings and performance. Companies that posted losses (representing 1% of index weight) underperformed all three buckets by a significant margin, down 29.7% while companies that grew earnings (representing 60.3% of index weight) outperformed all three buckets by a significant margin, down only 5.8%. 31% of index weight had losses greater than 20% while 69% of index weight (the rest of the index) either had losses that were under 20% or gains in the range of 0%-70%. This suggests that the index has the potential for downside to be somewhat limited and upside to be more pronounced in choppy markets.

48 out of 85 companies (representing 49% of index weight) saw net margins increase while 37 out of 85 companies (representing 51% of index weight) saw net margins decrease. As a sub-group, companies that grew net margins were down 6.8%, outperforming companies that saw net margins decrease by 6 percentage points.

Free Cash Flow and Operating Margin Trends vs. Index Performance
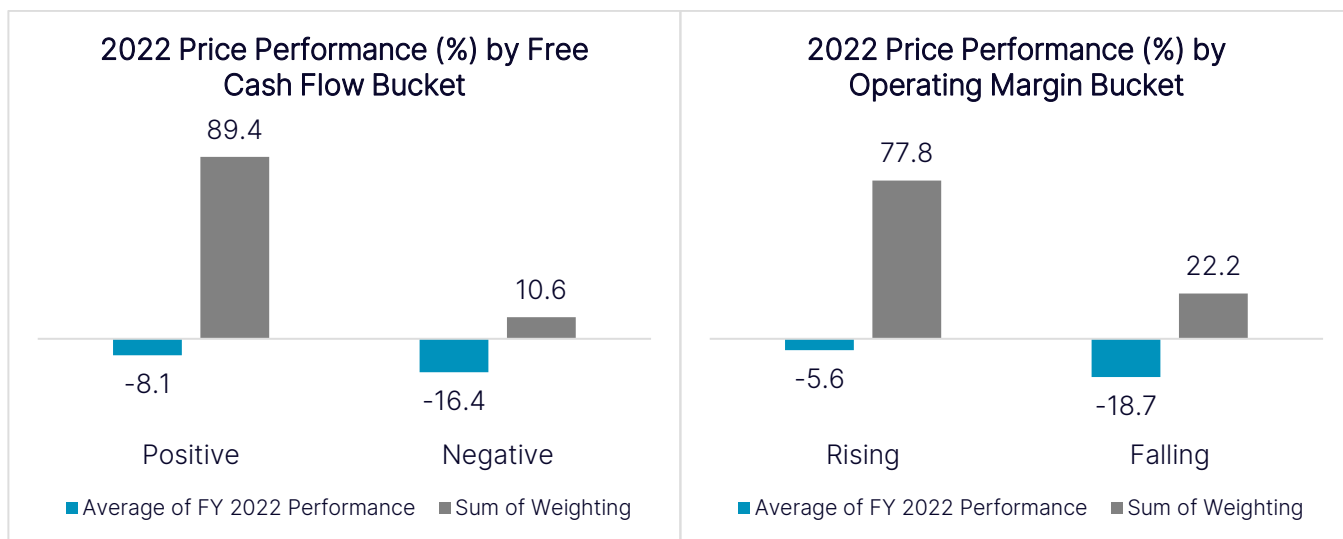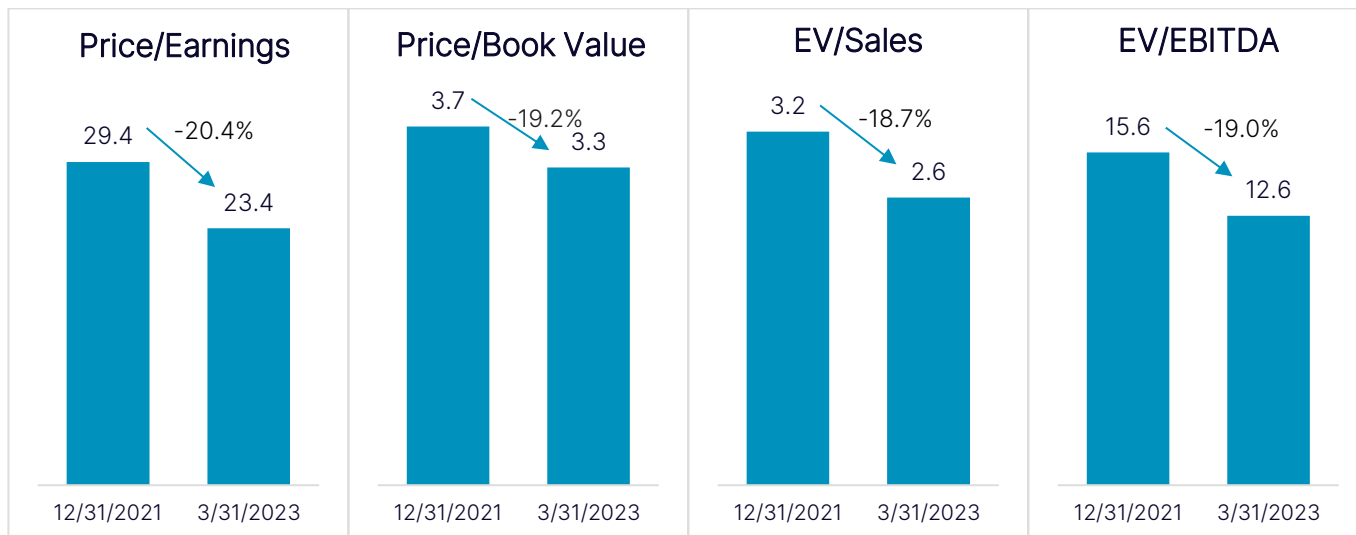

65 out of 85 companies (representing 89% of index weight) were free cash flow positive in 2022 due to a combination of factors including working capital inflows and earnings growth. This sub-group was down 8% on average, outperforming companies that were free cash flow negative by 8 percentage points. Only 19 out of 85 companies (representing 11% of index weight) were free cash flow negative.

58 out of 85 companies (representing 78% of index weight) saw operating margins increase while 27 out of 85 companies (representing 22% of index weight) saw operating margins decrease. As a sub-group, companies that grew operating margins were down 5.6% on average, outperforming companies that saw operating margins decrease by 13 percentage points.

Investors have generally rewarded QGRD companies that reported earnings growth, improving margins and positive FCF, while not necessarily rewarding companies that grew topline revenues across the board. Given

the current macroeconomic environment, investors have become more focused on these metrics and should thus be encouraged by the broad strength in fundamentals across QGRD constituents.

Current Valuations vs. Year-End 2021

Price/Earnings	Price/Book Value	EV/Sales	EV/EBITDA
29.4 → -20.4% → 23.4	3.7 → -19.2% → 3.3	3.2 → -18.7% → 2.6	15.6 → -19.0% → 12.6
12/31/2021 3/31/2023	12/31/2021 3/31/2023	12/31/2021 3/31/2023	12/31/2021 3/31/2023

Source: Bloomberg as of March 31, 2023

Over the course of 2022, the Nasdaq Clean Edge Smart Grid Infrastructure Index (QGRD) has become significantly cheaper on a wide-variety of index-weighted valuation metrics, including price-to-earnings, price-to-book (P/B), enterprise value-to-sales (EV/Sales) and enterprise value-to-EBITDA (EV/EBITDA).

Conclusion

According to the U.S. Department of Energy (DOE), nearly 70% of the nation's grid is more than 25 years old and was designed for much simpler times. Additionally, the DOE estimates that electricity transmission systems need to expand by 60% by 2030 and may need to triple current capacity by 2050 to meet the demands of a growing renewable energy sector and increased power demand for electric vehicles (EVs) and home heating[6].

Over the past few decades, there have been changes in the way consumers and businesses interact with the electric grid prompting historic investments in modernizing the grid. On November 18th 2022, the Biden Administration, through the DOE, announced $13 billion in new financing opportunities for the expansion and modernization of the electric grid. The Grid Resilience Innovative Partnership Program and the Transmission Facilitation Program which are funded by the Bipartisan Infrastructure Law are historical in scope and appeal. These programs are expected to bridge the funding gap involved in upgrading the grid to meet the demand for EVs.

Grid modernization efforts are likely to be more rapid in some states of the United States versus some others. For example, states such as California which are looking to rapidly boost the sale of electric cars and trucks over the next decade must likely triple their power generation capacity and deploy solar and wind energy at almost five times the pace of the past decade.

EVs and the electric grid are likely to be symbiotically interconnected, with EVs likely to raise demand on the grid while also sustaining the grid. In this respect, the QGRD Index represents the convergence of multiple themes such as renewable energy, EVs, IoT grid devices, smart transformers, and energy storage. Many

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[6] https://www.powermag.com/enhancing-and-hardening-the-u-s-power-grid/

energy generation and distribution companies see charging infrastructure as a necessary means of diversifying to safeguard future revenue.

In addition to modernizing the grid to meet rising EV demand, huge investments in energy storage are also needed to secure the stability of the grid. Vehicle-to-grid integration technology has been proposed as a solution which allows energy to be reabsorbed by the grid when the vehicle is parked. This demand for energy storage is likely to result in further revenue opportunities for companies that make up the QGRD Index.

The shift to a more modernized electric grid is likely to be based on advances in big data, AI, distributed networks, and other technologies that have been transforming industries such as cybersecurity, retail, e-commerce, and medicine. What is worth noting is that companies must move at a rapid pace to enable the transition to clean energy and to meet decarbonization goals.

The fundamentals of the QGRD Index are broadly strong for an industry seeing rapid changes in the operating, demand, and policy environment. The environment has necessitated historical investments, forcing companies to go back to the drawing board to bring to the table new technologies. It is encouraging that a healthy percentage of the index showed improving fundamentals in 2022 despite operating in a backdrop of supply-chain challenges, inflationary pressures, and an industry-wide transition to a more modernized grid. This suggests that the business models of companies that make up the index are likely resilient and can thrive in an altered environment.

QGRD was down 15.0% for full year 2022, significantly outperforming the tech-heavy Nasdaq-100® which was down 32.9%. The index's tilted exposure to more value-oriented sectors such as Industrials, Energy and Utilities (approximately 80% of index weight), combined with a relatively small exposure to growth-oriented sectors like Consumer Discretionary and Technology (20% of index weight), contributed to its relative outperformance versus the Nasdaq-100. Macroeconomic concerns weighed less heavily on these sectors when compared to Technology, limiting downside.

Investors looking to gain exposure to companies that are engaged in the smart grid and electric infrastructure sector can invest in products tracking the Nasdaq Clean Edge Smart Grid Infrastructure Index (QGRD), including the First Trust Nasdaq Clean Edge Smart Grid Infrastructure Index Fund (Nasdaq: GRID) and First Trust Nasdaq Clean Edge Smart Grid Infrastructure UCITS ETF (London: GRDU).

Sources: Nasdaq Global Indexes, FactSet, Bloomberg, Wall Street Journal, McKinsey, Committee for a Responsible Federal Budget