



Electricity and Inflation

February 2023

First Tool to Hedge Electricity Inflation

After decades of low, single-digit inflation¹, the U.S. experienced an acceleration of CPI to over 8% in 2022. Electricity prices are a key component in the calculation of CPI, but until now there has been no commercially available financial instrument for hedging this exposure.

The introduction of the ICE U.S. Carbon Neutral Power Index² (“ICECNPI”) has created a new and better inflation hedge. ICECNPI combines the next 12 months of exchange-traded U.S. electricity futures with sufficient carbon allowance futures to achieve a net-zero carbon footprint, which is carbon neutral based on independently sourced data.

Why is power a better inflation hedge?

- **There is a strong link between electricity prices and inflation.** Electricity is the second-largest contributor to the energy sub-index of CPI and exhibits the strongest correlation to year-over-year changes in CPI. These relationships are expected to become stronger in coming years³.
- **Electricity is an input cost at many levels of the economy.** Electricity price increases have a direct effect on retail end-users⁴. The cost of electricity contributes to every stage of the production cycle and is passed through at every touchpoint in the manufacturing process.
- **Hedges for electricity inflation have been limited until now.** Traditional methods of hedging electricity inflation have been practically nonexistent until now because there has been no investable electricity index.

Electricity as a Proxy for Inflation

Electricity accounts for more than a third of the contribution to inflation in the Energy CPI Subindex and is the second largest component in the subindex after motor fuel. Overall, electricity contributed 2.541% to the CPI⁵ for the 12 months ended January 31, 2023, on 11.2% year-over-year inflation versus 6.41% for the CPI. Electricity will become even more important in the future as the U.S. economy moves toward an all-electric vehicle fleet by 2035⁶.

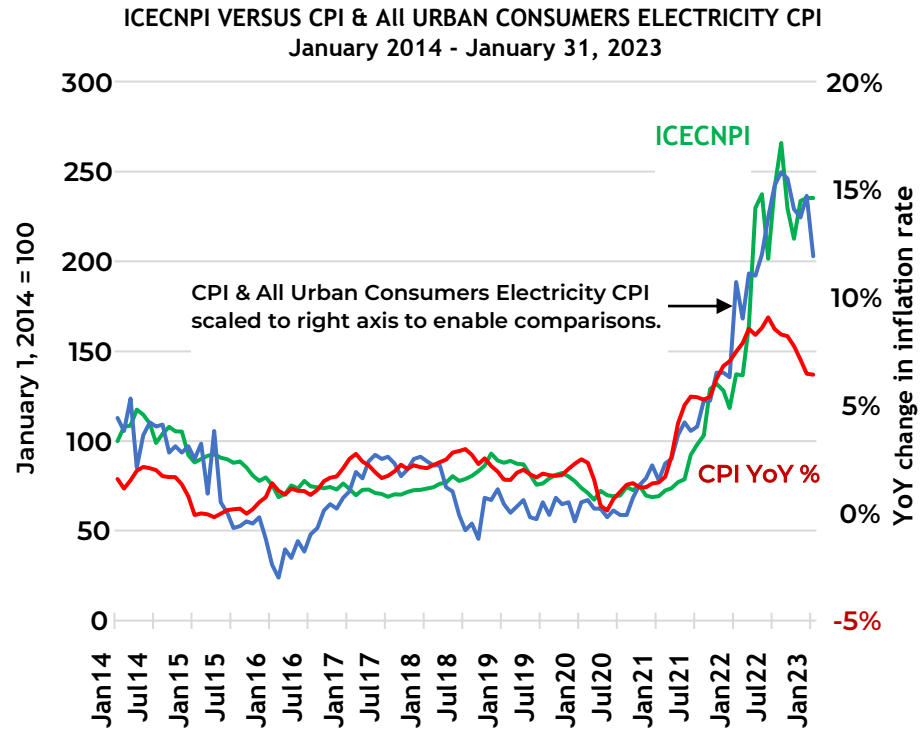
| January 2023 | % Energy CPI | % CPI |
|----------------------|--------------|-------|
| Motor Fuel | 50.4% | 3.49% |
| Electricity | 36.7% | 2.54% |
| Utility Gas Services | 12.9% | 0.89% |
| Energy CPI Subindex | 100.0% | 6.92% |

As a proxy for inflation, the CPI All Consumers Electricity Index tracks the CPI closely with a correlation since 2014 of over 85%, which creates the need for the hedging instrument that the ICE Carbon Neutral Power Index provides.



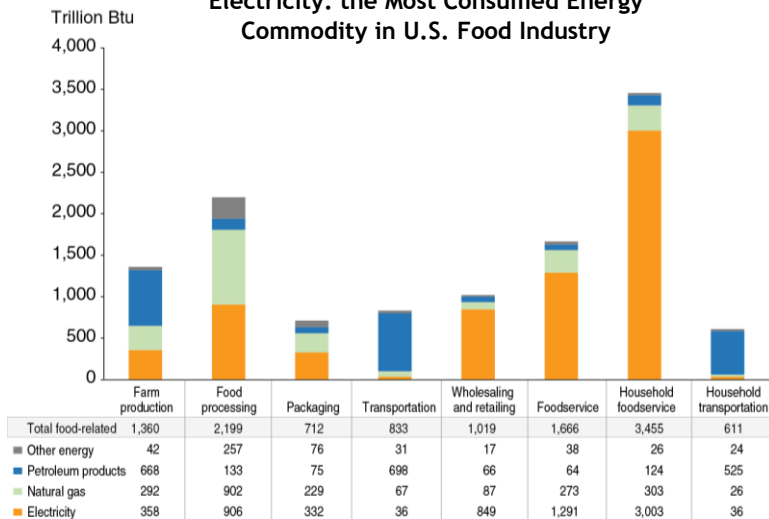
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A comparison of ICECNPI with the All Urban Consumers Electricity CPI shows how both closely track each other and the CPI itself. As power generation evolves from baseline and dispatchable power sources to renewables in the future, power supply and prices will become less reliable and more volatile⁷, which only increases the need for an effective hedge for power.



Electricity as a Universal Cost

Electricity: the Most Consumed Energy Commodity in U.S. Food Industry



1,000 trillion = 1 quadrillion.

Other energy includes coal (except used to produce electricity), ethanol for vehicle fuel blends, and renewable fuels such as solar and geothermal.

Source: USDA, Economic Research Service.

Electricity is a cost that is passed through at every touchpoint in the manufacturing process. For example, in a study by the USDA⁸ the U.S. food system consumed 6.8 quadrillion Btus from electricity versus 5 quadrillion Btus from all other energy sources, such as petroleum products, natural gas, and other energy sources.

The US. food industry includes farm production, processing, packaging, transportation, wholesale, retail, foodservice, household foodservice, and household transportation.



Electricity Hedges

The vast majority of investors have few tools for hedging inflation from rising electricity prices. Common hedging strategies include the following⁹:

- **Minimize consumption.** Conservation methods can be an effective tool for managing exposure through improved energy efficiency, but many industries cannot access competing sources for their power requirements and physical constraints of operations generally limit the scale of any available hedge.
- **Contracts with price escalation.** Counterparty credit exposure, commodity price volatility, and limited, if any, competitive requirements for utilities and distributors to accommodate small business and retail consumers essentially eliminate price escalation clauses as a practical hedging strategy.
- **Procure electricity directly from utility.** Industrial customers with significant power needs can manage their exposure by purchasing of electricity directly from a utility or distributor for an agreed-upon price and tenor, but will have difficulty in obtaining long-term pricing and must deal with sellers who “pancake” margin by adding in extra costs and layers of profit. These constraints together with the investment required in back office services make this an impractical strategy for all but the largest consumers of power.
- **Commodity Futures.** Commodity futures offer the most flexible and scalable strategy for hedging electricity prices and inflation. Traditional commodity futures such as gold, oil, the Bloomberg Commodity Index (BCOM), and TIPS have historically been the most common tools for hedging inflation, and the most scalable.

The comparison below of CPI with ICECNPI and common commodity indexes, however, shows that the other indexes generally follow the trend of inflation, but with significantly greater tracking error than ICECNPI.

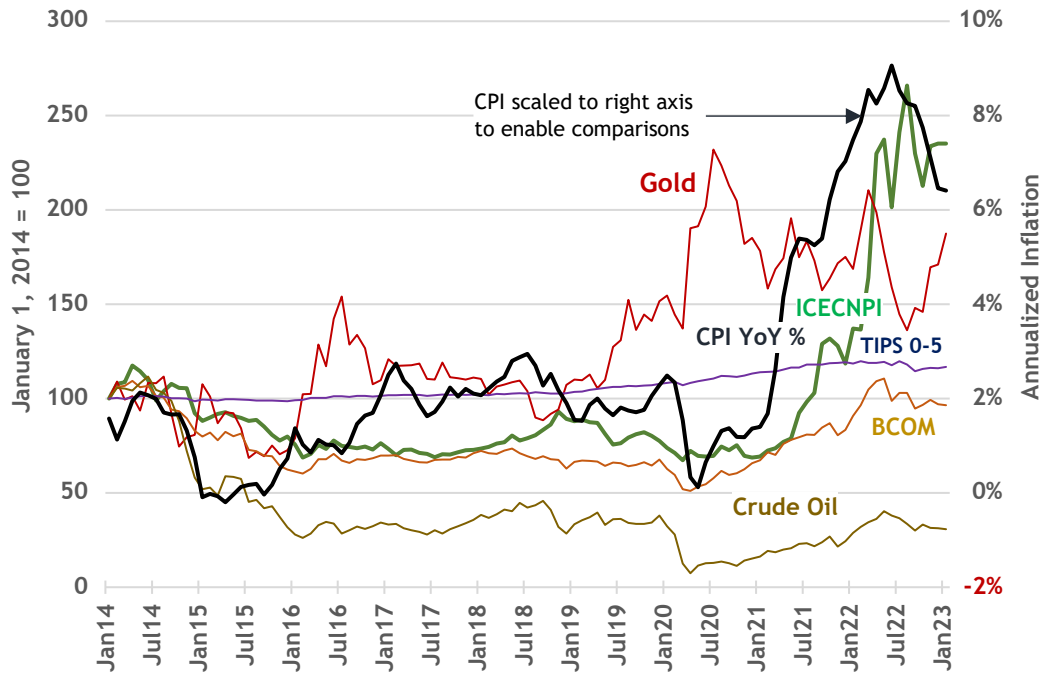
ICECNPI provides direct exposure to rising electricity prices and a better inflation hedge than existing carbon intensive commodities, TIPs, and indexes that exclude power.



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CPI versus ICECNPI and Selected Commodity Indexes

January 1, 2014 – January 31, 2023



¹ Federal Reserve Bank of New York, <https://tradingeconomics.com/united-states/inflation-expectations#:~:text=Inflation%20Expectations%20in%20the%20United,percent%20in%20October%20of%202019>.

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³ EIA Annual Energy Outlook 2022; https://www.eia.gov/outlooks/aeo/pdf/AEO2022_ReleasePresentation.pdf

⁴ "National Responses to Protect End-Users from Surging Energy Prices", ETUI 15Sep22 <https://www.etui.org/news/national-responses-protect-end-users-surging-energy-prices>

⁵ BLS Consumer Price Index – October 2022; USDL-22-2140; <https://www.bls.gov/news.release/pdf/cpi.pdf>

⁶ White House Press Release 14Sep2022; <https://www.whitehouse.gov/briefing-room/statements-releases/2022/09/14/fact-sheet-president-bidens-economic-plan-drives-americas-electric-vehicle-manufacturing-boom>

⁷ Forbes, The Paradox of Declining Renewable Costs and Rising Electricity Prices, July 2019

<https://www.forbes.com/sites/brianmurray1/2019/06/17/the-paradox-of-declining-renewable-costs-and-rising-electricity-prices/?sh=5d60c94661d5>

⁸ USDA Economic Research Service, Electricity was the most used energy commodity throughout the U.S. food system in 2012, <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=83732>

⁹ ING, "The Ripple Effects of Soaring Energy Prices", 17Feb2022 <https://think.ing.com/articles/the-ripple-effects-of-soaring-energy-prices/>