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Posted on September 26, 2024 September 26, 2024 by Thunder Said Energy. LFP batteries: cathode glow? LFP batteries are fundamentally different from incumbent NMC cells: 2x more stable, 2x longer-lasting, $15/kWh cheaper reagents, $5/kWh cheaper manufacturing, and $25/kWh cheaper again when made in China. This 15-page report argues LFP will ...

Posted on December 11, 2024 December 11, 2024 by Thunder Said Energy. Energy transition: classic blunders?! Classic blunders famously include "never start a land war in Asia" and "never go up against a Sicilian when death is on the line". But this video sets out what we believe are the three classic blunders that should be avoided by ...

Some commentators argue that energy demand will naturally plateau as GDP rises in the future - or at least the beta between energy use and GDP will fall dramatically. As evidence, the energy consumption within developed world countries has hardly increased over the past 20-years, even as GDP per capita rose by 25%.

This data-file captures the development pipeline of new US power capacity, based on 860M reports from the EIA, which cover all existing and proposed generating units of >1MW of greater.As a leading indicator for wind, solar, gas turbine and battery demand, we have aggregated the data in these c110 monthly reports, from 2015 to 2024, to track the pipeline ...

But the shift to coal is higher, as the utilization rates of coal plants also stepped up from 53% in 2019 to 68% in 2023.Thus coal fired generation has grown at a 1.5% pa CAGR over the past five years. If anything, high utilization rates at existing coal plants may augur for a step-up in construction for coal-fired generators, per our coal outlook.

This 13-page on note presents 10 hypotheses on Russia"s conflict implications in energy markets. Energy supplies will very likely get disrupted, as Putin no longer needs to break the will of Ukraine, but also the West. Results include energy rationing and economic pain. Climate goals get shelved in this war-time scramble.

There are many different reasons that might motivate the deployment of a grid-scale battery, as tabulated on page 2.The most common is at a grid node, for load shifting and power price arbitrage, in ever-steeper duck curves.. But interestingly, we have seen a different model gaining traction in 2022-24, which is co-deploying renewables plus batteries, as ...

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If the data-center is computation heavy, e.g., for AI applications, this might equate to a cost of around $3/EFLOP of compute in 2023.This fits with disclosures from OpenAI, stating that training GPT 4 had a total compute of 60M EFLOPs and a training cost of around $160M.. However, new generations of chips from NVIDIA will increase the proportionate hardware costs and may ...

This data-file tabulates the key features of a dozen energy crisis, caused by shortages of coal, oil, gas or electricity, since the start of the twentieth century; including the 1973-74 and 1979-80 oil shocks, UK coal miners" strikes, Russia-Ukraine gas disputes, California electricity crisis. Most recently, price action in 2021-22 is not dissimilar from that of prior crises.

We screen new energy technologies with world-changing potential, including: The Energy Transition. Our work points to an economic decarbonization of the entire energy industry by 2050, with a CO2 price that averages $40/ton.

Hence as of 2024, the world has 2 TW of operating as turbines, of which 30% is in the US, 15% is in Europe, 40% is in other Asia, and around 5% is in both Africa and LatAm.Numbers are available in the data-file. Utilization rates of the world"s gas turbines provide another way to sense-check the historical data, peaking at 50% in 1999 on a global basis, then declining to ...

World changing themes often emerge from niches, which initially seem peripheral, technical, easy to overlook ("the internet" in the 1990s, "sub prime mortgages" in 2007, some strange new virus cases in January ...

To contextualize the growth that lies ahead, we have compiled data on US power generation installations, year by year, technology by technology, running back to 1950, including implications for turbine manufacturers, on pages 14-16.. The impacts of AI on US gas and power markets sharply accelerate US electricity demand, upgrade our US shale forecasts, especially ...

We have spent much of 2024 writing about the rise of AI, and how it will change the energy industry: unlocking new step-changes in industrial efficiency, next-gen DAC or autonomous vehicles; while re-exciting gas generation, compounding grid bottlenecks, wolfing up grids" spare capacity, boosting fiber-optics, industrial cooling, transformers and harmonic filters.

25% of global electricity came from burning 150bcfd of natural gas in 2023, generating 6,750 TWH of electricity from a fleet of 1.9 TW of gas turbines. The basic functioning, cost and efficiency of a typical gas turbine are described on pages 2-3.. Our goal in this report is to forecast the market for gas turbines through 2030.To predict the future, however, it is first ...

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