

PIENAAR ENERGY (PTY) LTD

Solar power generation costs more



Overview

As of 2023, solar is 14% cheaper than energy produced by gas. Different methods of electricity generation can incur a variety of different costs, which can be divided into three general categories: 1) wholesale costs, or all costs paid by utilities associated with acquiring and distributing electricity to consumers, 2) retail costs paid by consumers, and 3). A recent study published in *Energy*, a peer-reviewed energy and engineering journal, found that—after accounting for backup, energy storage and associated indirect costs—solar power costs skyrocket from US\$36 per megawatt hour (MWh) to as high as US\$1,548 and wind generation costs increase from. Storage Costs Have Plummeted: Battery storage costs have fallen by 89% between 2010 and 2023, now ranging from \$988-4,774 per kW, making energy storage increasingly viable for addressing renewable intermittency challenges. Hidden Costs Are Manageable: While grid integration and intermittency. Solar and wind power have become increasingly cost-competitive over the past decade, prompting claims that they are now the cheapest sources of new electricity. Federal and state incentives have accelerated this transformation, leading to a massive expansion in U. These were some of the reasons for solar being largely commercially unviable until 2016, when solar power became more affordable than gaspowered energy sources for the first time. This data is expressed in US dollars per kilowatt-hour. It is adjusted for inflation but does not account for differences in living costs between countries. Data source: IRENA (2025); IRENA (2024) - Learn more.

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Cost Of Renewable Energy 2025: Complete Guide To Solar, Wind

The cost of renewable energy has reached a historic tipping point in 2025, with solar and wind power now representing the cheapest sources of electricity generation in most regions worldwide.

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Cost of electricity by source

Solar power was by far the most expensive renewable source of electricity among the technologies studied, although increasing efficiency and longer lifespan of photovoltaic panels together with ...



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91% of New Renewable Projects Now Cheaper Than Fossil Fuels ...

In 2024, solar photovoltaics (PV) were, on average, 41% cheaper than the lowest-cost fossil fuel alternatives, while onshore wind projects were 53% cheaper. Onshore wind remained the ...

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IRENA's 2024 Renewable Power Generation Costs Report Confirms

In 2024, solar photovoltaics (PV) were on average 41% cheaper than the lowest-cost fossil fuel alternatives, while onshore wind was 53% cheaper. Onshore wind also remained the ...

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Wind and Solar Energy Are Cheaper Than Electricity from Fossil-Fuel

This year's report concludes that renewables are the "most cost-competitive form of generation," even without subsidies. "As such, renewable energy will continue to play a key role in the

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Cost of Electricity Generation by Source

As of 2023, solar is 14% cheaper than energy produced by gas. But if we look back to 2009, solar was 433% more costly than energy generated by gas. Today, wind is the lowest cost ...

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New renewable projects now cheaper than fossil fuel



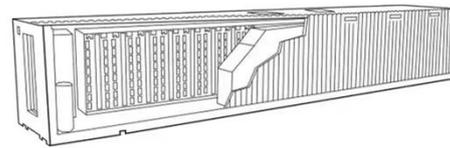
alternatives: ...

The agency's latest 'Renewable Power Generation Costs in 2024' report highlights that 91% of new renewable projects were more cost-effective than new fossil fuel alternatives last year, ...

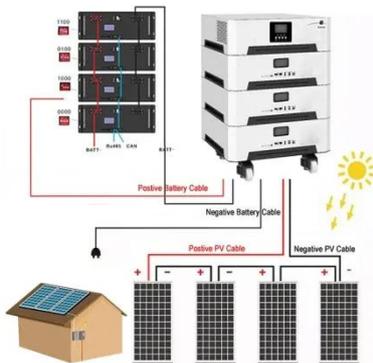
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Levelized cost of energy for renewables, World

The average cost per unit of energy generated across the lifetime of a new power plant. This data is expressed in US dollars per kilowatt-hour. It is adjusted for inflation but does not account for ...



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Solar and wind power make electricity more expensive--that's a fact

A recent study published in Energy, a peer-reviewed energy and engineering journal, found that--after accounting for backup, energy storage and associated indirect costs--solar power ...

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Solar and Wind's Hidden Price Tag: Why Cost Isn't the Whole Story

Solar and wind power have become increasingly cost-competitive over the past decade, prompting claims that they are now the cheapest sources of new electricity. Federal and state ...

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