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When Energy Pays You: The Paradox of Negative Electricity Prices

Understanding the New Economics of Negative Electricity Pricing

An overview on the increasing frequency of negative pricing events and their implications for energy investors.

ABSTRACT

An analysis of energy efficiency financing opportunities in the European market. This white paper examines how the increasing variability in energy supply, the rise in negative pricing events, and changes in the Power Purchase Agreement (PPA) market are creating a more complex investment environment. It further explores how energy efficiency projects, exhibiting predictable cash flows, may offer an attractive alternative for investors seeking to match long-term liabilities in this evolving market.

Author: Sebastian Carneiro

Co-Author: Maria Tulgara

The Counter-Intuitive Concept of Negative Pricing

Energy's New Economics: The Rise of Sub-Zero Electricity Pricing

For many outside the energy sector, the concept seems absurd: power generators paying consumers to take their electricity. Yet negative pricing events have evolved from rare anomalies to regular occurrences. In Europe, negative prices quadrupled in 2023 to 821 hours and rose even higher to 1,031 hours by September 2024.[1]

The underlying cause is straightforward: when renewable supply exceeds demand and traditional generators face technical or economic constraints on reducing output, market prices can fall below zero. What was once theoretical is now a practical concern for every energy investor.

Historically, energy generation investments operated under relatively predictable market conditions. Conventional power plants with controllable output could reasonably forecast production patterns and revenues. The growth of renewable energy has transformed this landscape, introducing a more dynamic system where abundant clean energy production during favourable weather conditions can significantly lower prices, while creating opportunities for complementary technologies and market solutions during periods when renewable generation is more limited.

Data from 2024 confirms new trends across European markets:

- Finland recorded 717 hours of negative prices – almost 50% increase from 2023
- Germany experienced 455 negative price hours – also up 50% year-over-year
- Spain saw negative prices for the first time, registering 244 hours in 2024
- The Netherlands, Poland, and Great Britain all recorded significant increases [2]

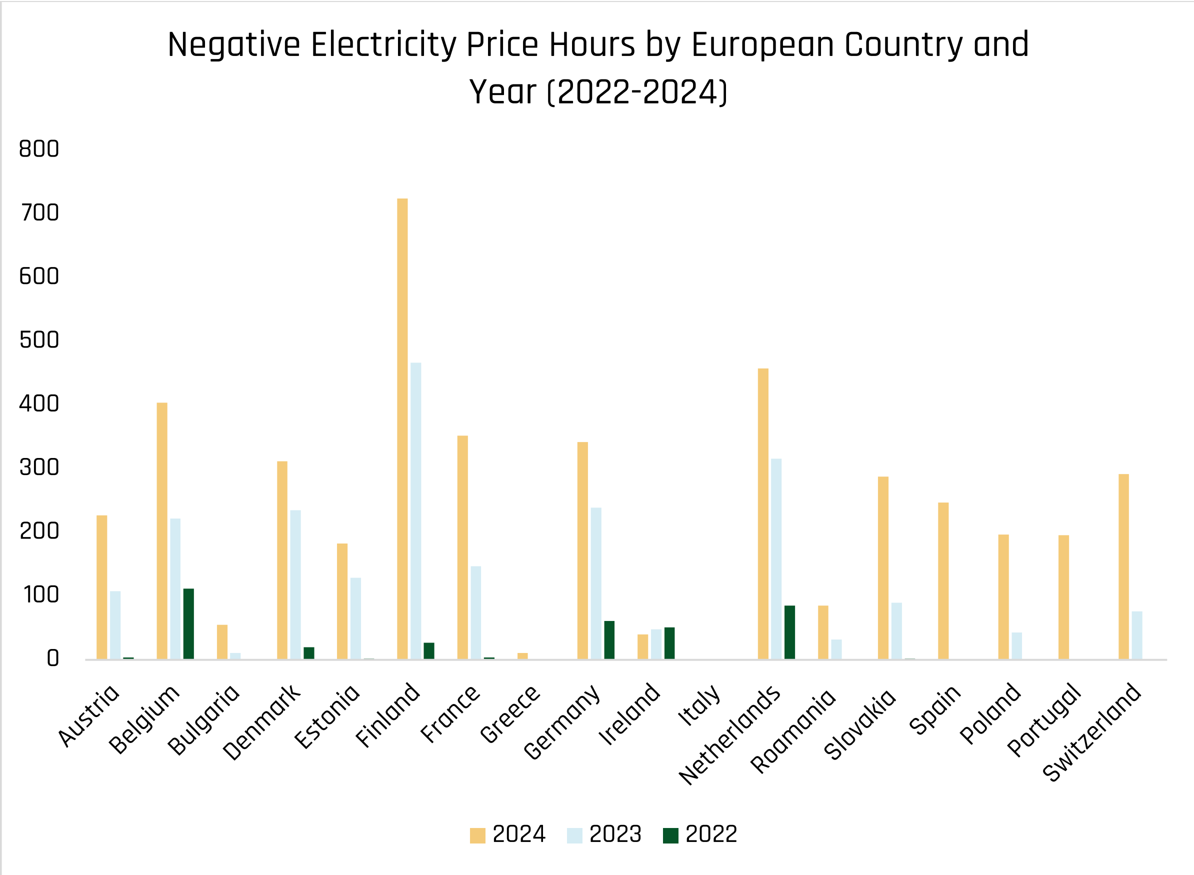
The financial impact of negative pricing is substantial. In April 2024, 37% of Spain's solar production occurred during negative pricing periods and 31% under zero pricing. Germany saw average negative prices dropping to around -19 EUR/MWh during some months[3]. These events directly undermine the revenue models that many renewable investments were built upon, creating a paradoxical situation: as renewable energy projects scale up and contribute to our climate goals, they simultaneously undermine their own economic foundations. The increasing frequency of negative pricing events stands as a stark warning that energy transition investment strategies must evolve beyond simply deploying more generation capacity.

For investors, this new reality demands a reassessment of traditional investment approaches and risk management strategies.

[1] Eurelectric. "Understanding ultra-low and negative power prices: causes, impacts and improvements." Position Paper, December 2024, p.3

[2] Pexapark. (2025). Renewables Market Outlook 2025: The Big Adjustment: New Risks Fueling Innovation. p. 25-26.

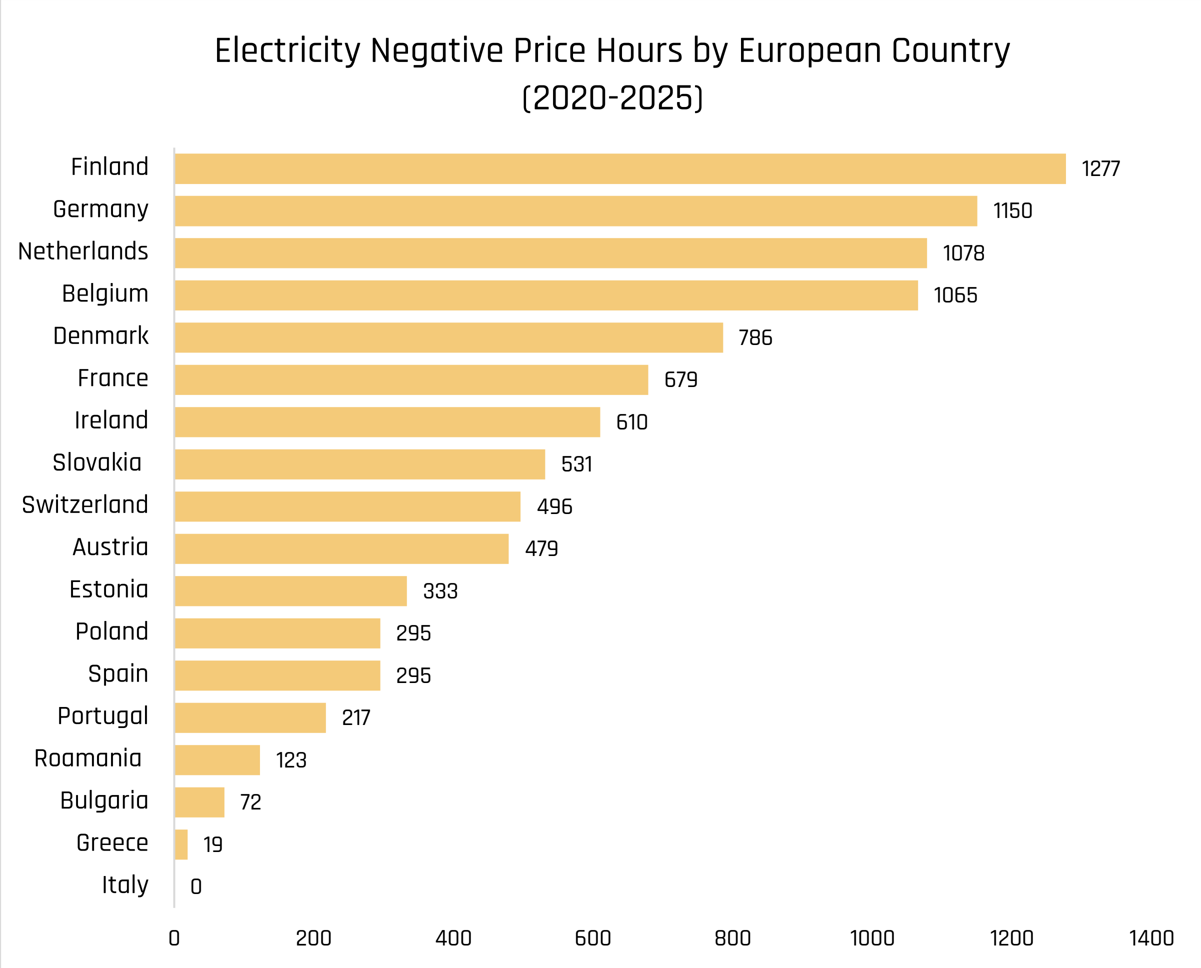
[3] Pexapark. (2025). Renewables Market Outlook 2025: The Big Adjustment: New Risks Fueling Innovation. p. 27-28



Graph 1: Negative Energy Price Hours by European Country and Year (2022 – 2024)

Source: Analysis based on data from Ember, "European Wholesale Electricity Prices – Hourly" [4]

[4] Ember, 'European Wholesale Electricity Prices – Hourly' https://ember-energy.org/data/european-wholesale-electricity-price-data/ accessed 2 April 2025.



Graph 2: Electricity Negative Price Hours by European Country (2020-2025)

Source: Solas Capital Analysis based on data from Ember, "European Wholesale Electricity Prices – Hourly" [5]

Figure 1: Evolution of total negative prices across Europe[6]

[5] Ember, 'European Wholesale Electricity Prices – Hourly' https://ember-energy.org/data/european-wholesale-electricity-price-data/ accessed 2 April 2025.

[6] Figure by Nordpool, EPEX, SEMOpx

The Rise of Price Volatility in Electricity Markets

Unprecedented price volatility transforming electricity markets

The mismatch between supply and demand manifests as increased price volatility in wholesale electricity markets. During periods of high renewable generation and low demand, prices can plummet, occasionally becoming negative. Conversely, when renewable generation is low and demand is high, prices can spike dramatically.

Several factors contribute to this increasing volatility:

- **Weather-dependent generation**: Wind and solar output can vary significantly over short time periods, creating supply fluctuations in conditions like midday hours during spring and summer, coinciding with peak solar generation; nighttime hours during winter, when wind generation is high; weekends and holidays, when industrial and commercial demand decreases.
- **Limited storage capacity**: Despite advances in battery technology, grid-scale storage remains insufficient to fully smooth supply-demand imbalances.
- **Inflexible baseload generation**: Some plants cannot easily ramp production up or down, exacerbating oversupply situations. For nuclear or lignite plants, it may be economically rational to offer electricity at negative prices rather than shut down, especially if higher prices are anticipated in subsequent periods.
- **Transmission constraints**: Geographic concentration of renewable resources can create congestion in transmission networks, amplifying local price effects. Plants required for grid stability or district heating needs may operate regardless of price signals.

Drivers of Negative Pricing

Modern electricity markets: suppliers pay customers to consume excess power

Perhaps the most striking manifestation of the new market dynamics is the increasing frequency of negative electricity prices. Negative prices occur when generators are willing to pay consumers to take electricity rather than reduce output. This counterintuitive situation typically arises for several reasons:

- **Operational constraints**: Some thermal generators face significant costs and technical challenges in shutting down and restarting, making it economically preferable to continue generating at a loss for short periods.
- **Subsidy structures**: Many renewable generators receive production-based subsidies (such as Production Tax Credits in the US or certain Feed-in Tariffs in Europe) that allow them to remain profitable even when market prices are negative.
- **Must-run requirements**: Certain generators may have contractual obligations to produce regardless of price signals.

The emergence of negative prices stems from multiple converging factors that vary by country. Table 1 summarizes the key conditions driving downward price pressure across European electricity markets.

	High Renewable Energy Source Generation*	Low Electricity Demand**	Regulatory Issues	Grid Congestions at the Border
Finland	X	X		
France	X	X	X	X
Germany	X	X	X	X
Ireland	X	X	X	X
Italy	X	X	X	
Spain	X	X		
Poland	X	X	X	X

*during favourable weather conditions
**even after making use of flexibility

Table 1: Conditions leading to downward price pressure in European electricity markets[7]

Investment Implications

The Renewable Risk Paradox: Higher Risk Without Higher Returns

A critical disconnect has emerged in the renewable energy investment landscape: while project risks are dramatically increasing due to negative price events and market volatility, expected returns have not correspondingly risen to compensate investors. This asymmetry creates a fundamental valuation challenge that demands attention from institutional investors with fiduciary responsibilities.[8]

For investors with long-term liabilities to meet, the energy market evolution demands immediate attention and adaptation. The comfortable days of predictable energy investment returns are rapidly fading into history.

Unprecedented volatility in electricity prices create both extraordinary opportunities and existential threats depending on one's preparedness. Forward-thinking energy investors are deploying several strategies to manage negative pricing exposure:

For Existing Assets:

- Retrofitting flexibility capabilities where possible
- Renegotiating offtake arrangements
- Exploring physical or virtual storage options

[7] Eurelectric. "Understanding ultra-low and negative power prices: causes, impacts and improvements." Position Paper, December 2024, p.3
[8] *McKinsey & Company. (2023, March 21). "Managing risk in renewable-energy portfolios: The role of flexible assets". https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/managing-risk-in-renewable-energy-portfolios-the-role-of-flexible-assets*

- Implementing sophisticated trading strategies

For New Investments:

- Prioritizing flexible technologies
- Seeking geographical diversification
- Developing hybrid solutions
- Building in contractual protections

The Evolution of the PPA Market

PPA structures evolving from fixed-price to risk-sharing models amid market volatility

Traditional PPA Structures and Benefits

Power Purchase Agreements (PPAs) have traditionally served as the cornerstone of energy project financing, particularly for renewable projects. These long-term contracts, typically spanning 15-25 years, provide guaranteed offtake at predetermined prices, effectively insulating project owners from market price volatility.

The classic PPA structure offers several advantages:

1. **Revenue certainty**: Fixed or formulaically determined prices provide predictable cash flows.
2. **Bankability**: The guaranteed revenue stream facilitates debt financing on favourable terms.
3. **Risk allocation**: Price risk is transferred from the generator to the offtaker.
4. **Alignment with investment horizons**: Long-term PPAs match the extended operational life of renewable assets.

For institutional investors such as pension funds and insurance companies, these characteristics made renewable energy projects with PPAs attractive investments that aligned well with their long-term liabilities.

The Tightening PPA Market

The fundamental shift in PPA structures began as electricity markets experienced unprecedented volatility. Where traditional PPAs once offered complete protection from market risks through fixed pricing over 15-25 years, today's contracts increasingly require energy producers to share in market exposure. Offtakers, who previously absorbed all price risk are no longer willing to bear the full burden of negative pricing events and extreme volatility.

The PPA market has undergone significant changes in recent years, creating new challenges for investors. The shift reflects investors' response to new market risks, particularly the manifestation of cannibalization risk through increased negative price events.

1. **Declining PPA Volumes:** Total European PPA volumes decreased by 11% in 2024 compared to 2023 while the average size of corporate PPAs fell to 47 MW, down from 58 MW in 2023 and

68 MW in 2022[9]. Despite this volume reduction, deal count reached a new record with 316 long-term PPAs, representing a 14% increase from the previous year [10], indicating a more cautious approach to risk exposure

2. **Increasing price risk sharing**: Modern PPAs increasingly incorporate market-linked elements rather than purely fixed prices. Historically, most PPAs would remunerate for negative prices, meaning the risk primarily sat with the buyer. However, the accelerated frequency of low, zero, and negative pricing hours has brought this issue to the forefront of negotiations.

3. **Greater complexity**: Contract structures have become more sophisticated, with various sharing mechanisms for curtailment risk, profile risk, and balancing costs. Corporate offtakers are becoming more cautious about long-term fixed-price commitments as they seek to maintain flexibility in their energy procurement strategies.

These trends reflect broader market maturation but also signal increasing reluctance among offtakers to assume the full spectrum of electricity market risks over extended periods. This reluctance stems partly from lessons learned in markets where rapid renewable deployment led to unforeseen market dynamics and partly from corporate strategies that increasingly value flexibility.

Implications for Investment Strategies

The Shifting Risk Paradigm

For many institutional investors, particularly pension funds and insurance companies, renewable energy investments were attractive not only for their ESG benefits but also for their ability to match long-term liabilities with steady, inflation-linked cash flows. The convergence of increasing price volatility and contracting PPA availability has fundamentally altered the risk allocation in energy investments. Risks that were previously absorbed by utilities or corporate offtakers are increasingly retained by project owners and their investors.

This shift requires investment managers to develop capabilities that were previously less critical:

1. **Power market modelling**: Sophisticated forecasting of price patterns across different timeframes (day-ahead, intraday, balancing) to keep up with the greater merchant exposure and increased correlation with broader market forces.

2. **Portfolio construction**: Strategic diversification across technologies and geographies to reduce correlation of production and revenue patterns.

3. **Trading expertise**: Active management of market exposures through various hedging instruments.

The development of these capabilities represents a significant evolution from the more passive asset management approach that sufficed when projects were fully contracted under long-term PPAs.

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[9] Pexapark. (2025). Renewables Market Outlook 2025: The Big Adjustment: New Risks Fueling Innovation. p. 18
[10] Pexapark. (2025). Renewables Market Outlook 2025: The Big Adjustment: New Risks Fueling Innovation. p. 11

From "Build and Hold" to Active Management

Traditionally, renewable energy investments followed a relatively straightforward "build and hold" model. Once operational and contracted under a PPA, projects required limited active management beyond ensuring technical performance. The emerging landscape demands a more dynamic approach:

1. **Shorter investment horizons**: Many funds now plan exit strategies that align with PPA expirations rather than the full project life.
2. **Hybrid revenue models**: Combining partial PPA coverage with merchant exposure managed through active trading.
3. **Value-stack optimization**: Maximizing revenue by targeting multiple value streams (energy, capacity, ancillary services).
4. **Operational flexibility**: Configuring assets to respond to price signals, particularly with battery-coupled projects.

These strategies require investment teams with deeper market expertise and more sophisticated analytical capabilities than were typically found in renewable investment platforms during the industry's early growth phase. To achieve the required risk management sophistication, investors need enhanced capabilities in:

- Price forecasting
- Portfolio optimization
- Risk management
- Negative price mitigation strategies
- Battery storage optimization (where applicable)

Battery Energy Storage Systems: A Partial Solution with Growing Potential

Battery Energy Storage Systems (BESS) represent promising technological solutions to address electricity market volatility and the increasing frequency of negative pricing events. BESS function as rechargeable batteries for the electricity grid, capable of absorbing excess power when it's abundant and releasing it when needed. BESS capture energy during periods of excess renewable generation when prices are low or negative, storing it for discharge during high-demand periods when prices are more favourable. This fundamental capability makes BESS particularly valuable for grid stabilization, effectively smoothing the supply-demand imbalances that drive price volatility.

As renewable penetration increases across European markets, BESS can help integrate these intermittent resources by providing essential flexibility to power systems. The technology delivers multiple value streams beyond simple arbitrage, including frequency regulation, voltage support, and backup power during outages. For investors, BESS projects can generate revenue through energy arbitrage (buying low, selling high), capacity payments for grid reliability, and ancillary services that help maintain grid stability.

However, shifting from focusing on the benefits of BESS to recognizing their limitations requires acknowledging a key reality: despite their promise, current battery technologies face significant constraints that prevent them from being a complete solution to negative pricing challenges. BESS deployment faces significant challenges that limit its immediate impact on negative pricing events.

First, the economics remain challenging. Despite battery costs falling dramatically year-over-year[11], the upfront investment remains prohibitively high for many applications. Second, technical limitations constrain their effectiveness**.** The lifespan limitations of current battery technologies—typically 5-15 years before significant capacity degradation—further complicate the economic case, requiring replacement cycles that add to lifetime costs. Third, and perhaps most critically, scale remains insufficient. While BESS can absorb excess generation for hours or days, their current capacity remains insufficient to fully address seasonal imbalances or extended periods of renewable overproduction[12]. Europe reached only 61 GWh of battery storage capacity by end-2024. While this is projected to grow to 400 GWh by 2029, it falls far short of the 780 GWh needed by 2030 just for the European Union to support the renewable transition[13]. This massive gap means BESS alone cannot solve the negative pricing challenge.

The path forward requires a nuanced understanding of BESS as one tool among many. These limitations mean that while BESS will become an increasingly important part of the solution to negative pricing, they must be complemented by other flexibility mechanisms, including demand response, transmission expansion, and market reforms to fully address the structural challenges in evolving

[11] BloombergNEF, 'Lithium-ion battery pack prices see largest drop since 2017, falling to $115 per kilowatt-hour – BloombergNEF' (10 December 2024) https://about.bnef.com/blog/lithium-ion-battery-pack-prices-see-largest-drop-since-2017-falling-to-115-per-kilowatt-hour-bloombergnef/

[12] SolarPower Europe. (2024). *European Market Outlook for Battery Storage 2024-2028*. Brussels: SolarPower Europe. https://www.solarpowereurope.org, p.48

[13] SolarPower Europe. (2025). *European Market Outlook for Battery Storage 2025-2029*. Brussels: SolarPower Europe. Available at: https://www.solarpowereurope.org

electricity markets. Investors should view BESS not as a silver bullet, but as a critical component of a diversified approach to managing the new realities of electricity systems.

Energy Efficiency: Complementary Energy Transition Investment with Fixed Cashflows

Energy efficiency investments offer stable returns independent of electricity market price volatility

Energy efficiency is the cornerstone of climate action, delivering over a third of required CO_2 emission reductions by 2030 while reducing fossil fuel dependence and lowering energy costs. Current global energy efficiency progress of just 1% annually must quadruple to 4% per year to align with net zero pathways, requiring a dramatic acceleration from today's levels. Annual investment in energy efficiency currently stands at approximately USD 660 billion but needs to triple to about USD 1.9 trillion by 2030 to support Paris Agreement goals. This investment gap is particularly acute in emerging economies, where funding must increase four to seven times current levels, while even advanced economies need to double their efficiency investments this decade.[14]

While much attention was focused on generation assets, energy efficiency projects represent an alternative investment category with different risk characteristics. Energy efficiency projects offer investors strategic opportunities to address the challenge of negative electricity prices, particularly in European markets experiencing high renewable penetration. Unlike renewable generation investments which face increasing market risks from price cannibalization during high production periods, energy efficiency projects typically offer more stable and predictable long-term cash flows. This predictability makes them particularly suitable for investors seeking to match long-term liabilities, such as pension funds and insurance companies.

Institutional investors aiming to support climate transition goals must recognize the complementary nature of generation and efficiency investments. By balancing portfolios between these approaches, investors can both accelerate decarbonization and maintain appropriate risk profiles for their fiduciary obligations.

Energy efficiency projects typically involve implementing technical improvements, operational changes, or behavioural adjustments that reduce energy consumption in buildings, industrial processes, or other systems. These can include:

- Installing more efficient lighting, HVAC systems, or industrial equipment
- Improving building insulation and envelope
- Optimizing control systems and operational procedures
- Replacing outdated technology with more efficient alternatives

Key Attributes of Energy Efficient Investments include:

[14] International Energy Agency. "Energy Efficiency 2024." IEA, 2024, p.11

1. **Predictable cashflows Independent of Market Prices:** Energy Efficiency investments are primarily structured based on fixed payments, offering investors fixed-income like investment profiles.
2. **Consumption-based economics**: The business case is derived from avoided energy costs rather than energy production revenues.
3. **Reduced price exposure**: While sensitive to absolute price levels, energy efficiency projects are generally less exposed to short-term price volatility.
4. **Diversification across end-users**: Portfolio approaches can spread risk across numerous facilities and sectors.
5. **Multiple value streams**: Beyond energy savings, projects often deliver maintenance savings, productivity improvements, and carbon reduction.
6. **Strong alignment with institutional investors' liability profiles**

These characteristics create cash flow patterns that can be more predictable than those of generation assets in volatile markets.

Predictable Cash Flow Generation

What makes energy efficiency projects especially attractive from a financial perspective is that cash flows from underlying project contracts are predominantly fixed, measured, and often guaranteed through contractual arrangements.

Risk Mitigation Features

Energy efficiency investments offer a distinctive risk profile compared to traditional energy projects. While renewable energy generation depends on natural resource availability and market prices, efficiency cash flows stem directly from operational cost reduction with minimal exposure to energy price volatility. The primary risks centre on implementation quality, proper maintenance, and the financial stability of the client facility where measures are installed. Performance guarantees from energy service companies further mitigate technical risks, while carefully structured contracts can protect against counterparty risks through provisions for early repayment, equipment ownership, and continuity options in case of client bankruptcy or facility sale.[15]

Energy efficiency projects essentially transform future energy expenditures into immediate savings, creating a reliable stream of cash flows that can be leveraged for financing while simultaneously reducing operational costs and environmental impact.

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[15] Amann, Leutgöb, and Bachner, 'Quality Criteria for Financing of Energy Efficiency Projects: Financial Guidelines', Version 2.0, January 2019, p.14-15

Case Studies: Navigating the New Landscape

Solas Capital specializes in energy efficiency investments across multiple sectors. Our risk assessment methodologies and structured financing approaches have successfully addressed the traditional barriers limiting institutional investment in this sector.

Solas and Resalta Case Study: Unlocking Superior Returns Through Energy Efficiency

Winner of the 2024 Impact Awards – Infrastructure Project of the Year (Excluding Renewables)

The partnership between Solas Sustainable Energy Fund (SSEF) and Resalta demonstrates how innovative financing can revitalize public infrastructure and deliver strong, risk-adjusted returns. With buildings accounting for 40% of Europe's energy consumption and 36% of its emissions, energy efficiency offers one of the continent's greatest opportunities for climate impact and financial performance.

In 2023, SSEF and Resalta completed a deep energy retrofit of a school and health centre in Ilirska Bistrica, Slovenia—entirely funded without upfront municipal investment. The project featured advanced insulation, high-efficiency windows and doors, modern heating systems, LED lighting, and state-of-the-art ventilation. Outcomes include annual energy savings of 757,387 kWh, emissions reductions of 351,390 kg CO_2e, and significantly improved indoor comfort for students and healthcare professionals.

SSEF's structured financing approach—via a Framework Receivables Financing Agreement (FRFA)—offers a 5.75% discount rate for public sector projects and 6.50% for private clients, tailored by jurisdictional risk. This model delivers stable quarterly cash flows over 7–10 years, offering liquidity and resilience even in volatile markets.

Endorsed by leading institutions such as the European Investment Bank and Munich Re, SSEF's model blends contractually secured energy savings with a diversified, recession-resilient investment strategy. Moreover, as an Article 9 fund under SFDR, SSEF aligns with the most rigorous sustainability criteria for institutional investors.

As EU regulations tighten and the demand for retrofitting grows, SSEF is positioned to scale this model across Europe—delivering measurable impact and market-leading returns.

Solas and PAUL Tech Case Study: Pioneering Intelligent Heating Solutions with Zero Upfront CostsThe collaboration between Solas Sustainable Energy Fund (SSEF) and PAUL Tech exemplifies how cutting-edge internet-connected technology and innovative financing can transform Germany's aging residential heating infrastructure[16]. With half of German heating systems over 30 years old and buildings remaining one of the most challenging sectors to decarbonize, this partnership addresses both technological and financial barriers to energy efficiency.

SSEF provided over €30 million in funding to PAUL Tech, enabling the deployment of advanced AI-powered heating optimization systems across properties managed by over 150 real-estate companies—all without requiring upfront investment from property owners. PAUL Tech's proprietary technology uses sensors and smart valves to continuously monitor and adjust the flow of hot water to each radiator, ensuring every room receives exactly the heating it needs—a process called adaptive hydraulic

[16] **European Investment Bank, 'Internet of Things: Energy Efficiency Fund', EIB.org, 2024** https://www.eib.org/en/stories/internet-of-things-energy-efficiency-fund

balancing. The results: energy consumption reductions of up to 40%, dramatically lower heating bills for tenants, and enhanced property values through improved regulatory compliance.

SSEF's financing model eliminates the traditional capital expenditure barrier that has long prevented widespread adoption of energy efficiency upgrades. By structuring the investment to align with energy savings over time, property owners can modernize their heating systems immediately while tenants benefit from reduced energy costs—solving the classic landlord-tenant split incentive problem.

As EU energy efficiency requirements intensify and fossil fuel phase-outs accelerate, the PAUL Tech-Solas partnership demonstrates a scalable model for modernizing Europe's building stock—delivering immediate environmental impact, tenant savings, and attractive risk-adjusted returns for investors.

Case Study: The 2021 Texas Winter Storm and Its Impact on PPAs: Austin Energy

During Winter Storm Uri in February 2021, Texas experienced catastrophic power outages and extreme market volatility.

Austin Energy, like many utilities, had entered into Power Purchase Agreements (PPAs) with various energy projects, including wind power producers, some of which were structured as baseload PPAs. These contracts required the wind projects to deliver a steady, predetermined amount of electricity regardless of actual generation. As the storm hit, frigid temperatures and icing conditions forced much of Texas's wind generation offline, drastically reducing output at the very moment demand soared. Despite operational challenges, wind projects with baseload PPAs remained contractually obligated to deliver power to their buyers, including Austin Energy. To honour these obligations, the wind projects had to purchase electricity from the ERCOT spot market at emergency prices, which spiked to the regulatory cap of $9,000 per megawatt-hour-hundreds of times the usual rate[17].

The cumulative effect was so severe that some projects went bankrupt, unable to absorb the financial shock caused in the nine days by the extreme price environment and their contractual commitments.

Austin Energy itself faced a bill of $1.7 billion for just six days of operation, equivalent to four years of normal expenses, due to the need to procure replacement power for contracted resources that could not deliver[18].

Conclusion

The energy investment landscape has entered a new era characterized by greater complexity, increased price volatility, and shifting risk allocations. The reliable returns of the early renewable expansion, driven by generous subsidies and abundant long-term PPAs, are giving way to a more nuanced environment requiring sophisticated analysis and active management.

For investors, this transition presents both challenges and opportunities. Those who develop the capabilities to understand and navigate volatile electricity markets may find attractive risk-adjusted

[17] *The University of Texas at Austin Energy Institute. 2021. The Timeline and Events of the February 2021 Texas Electric Grid Blackouts. July 2021, p.61*

[18] *Austin Energy, Austin Energy Resource, Generation and Climate Protection Plan to 2035: Appendix (2020), p.18 https://p01.austinenergy.com/-/media/project/websites/austinenergy/about/austin-energy-resource-generation-and-climate-protection-plan-2025--appendix.pdf*

returns in assets that others misprice due to inadequate risk assessment. Meanwhile, energy efficiency investments offer a complementary approach with benefitting from predictable fixed-income like cashflows that align well with liability-matching objectives of institutional investors.

About Sebastian Carneiro

Sebastian Carneiro is the Chief Executive Officer and Co-founder of Solas Capital AG, a specialised investment advisory firm that pioneers financing solutions for decentralised energy efficiency and behind-the-meter assets across Europe. Sebastian has over 15 years of experience in project finance, including his previous role as Director at Europe's largest private energy efficiency fund. As a CFA Charterholder and engineer by trade, Sebastian is driven by developing innovative investment solutions that accelerate the deployment of green assets and make the energy transition a reality.

About Maria Tulgara

Maria Tulgara is an Investment Analyst at Solas Capital AG in Zurich, with previous experience as a Risk Management Analyst in Luxembourg. She holds a Master's degree in Economics and Finance from the University of Luxembourg and a Bachelor's in Business Mathematics from the University of Mannheim. With her analytical background and various experience, Maria brings valuable insights.

About Solas Capital

At Solas Capital we provide specialised financing solutions for demand-side energy projects, bridging the gap between institutional investors and high-impact energy efficiency projects. Unlike traditional renewable energy investments focusing on supply, we specialise in reducing energy demand at scale—an often-overlooked but equally important pillar to reach Net-Zero.

We focus on the building sector—responsible for 40% of Europe's energy consumption—and industrial efficiency, providing capital to project developers to offer zero upfront cost solutions. Our team of experts structures funding solutions for distributed energy transition projects across Europe, delivering cost savings while reducing fossil fuel dependence.

Our asset-backed private credit strategy offers investors fixed-income like returns from EU Taxonomy eligible assets while accelerating Europe's transition to a carbon-neutral economy. We firmly believe that the best energy is the energy we don't use.

www.solas.capital

info@solas.capital

Solas Capital AG
Seestrasse 353
8038, Zurich
Switzerland

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