

THE DECOMMISSIONING DISCOUNT IN LATE-LIFE WIND M&A: HOW EMBEDDED REMOVAL OBLIGATIONS DISTORT VALUATION AND TRANSFER RISK ACROSS TRANSACTIONS

Endenex, 5 February 2026

There is a specific type of wind energy transaction that has become increasingly common over the past three years. The asset is a first-generation onshore wind farm. It has five to eight years of remaining consented life, sometimes less. The turbines are ageing — availability is declining, component failures are increasing, and the maintenance cost curve is steepening. The power purchase agreement has expired or is approaching expiry, exposing the project to merchant price risk. The original sponsor wants out.

The selling narrative is straightforward: this is not an end-of-life asset. It is a repowering opportunity. The site has a proven wind resource, an existing grid connection, established planning precedent, and a willing landowner. A buyer with repowering capability can replace the existing fleet with modern turbines delivering two to three times the annual output. The value is not in the remaining cash flows from the old turbines. It is in the development option embedded in the site.

This narrative is not wrong. Many first-generation wind sites are excellent repowering candidates. The problem is not the opportunity. The problem is the price — and specifically, the treatment of the decommissioning obligation that sits between the buyer and the realisation of the repowering value.

That obligation — the full cost of removing the existing turbines, extracting the foundations, remediating the site, and disposing of the waste — is the toll that must be paid before the repowering option can be exercised. Its

quantum is uncertain. Its scope is negotiable only to a point. And in the vast majority of transactions, it is underestimated by both parties, for reasons that are structural rather than incidental.

The option that has a negative strike price

In financial terms, the buyer of a late-life wind farm with repowering potential is purchasing two things: a wasting operational asset with a limited remaining revenue stream, and a development option — the right, but not the obligation, to repower the site.

The operational asset is relatively straightforward to value. Its remaining cash flows can be modelled with reference to the contracted or forecast power price, the expected generation profile given the turbines' age-adjusted availability, and the operating and maintenance cost forecast. The asset is in decline. The cash flows are finite. The valuation is modest.

The development option is where the value lies. A repowered site with modern turbines, a new planning consent, and a long-duration revenue contract can be worth multiples of the residual operational asset. The buyer is paying a premium above the operational value because the site — the wind resource, the grid connection, the planning history — has option value.

But this is not a conventional development option with a known strike price. The strike

price — the cost of exercising the repowering option — includes the full decommissioning of the existing asset. And that cost is not fixed, not contracted, and not independently verifiable against market data.

The buyer is purchasing an option whose exercise cost includes a large, uncertain, unhedgeable component. The value of the option depends on the spread between the repowered asset value and the total exercise cost. If the decommissioning cost is higher than assumed, the option is worth less. If it is materially higher, the option may be worthless — or worse, the buyer may find themselves owning a liability they cannot economically exercise and cannot walk away from, because the decommissioning obligation exists regardless of whether repowering proceeds.

This is the asymmetry that defines late-life wind M&A: the buyer can choose not to repower, but cannot choose not to decommission. The obligation is unconditional. Only the opportunity is optional.

The seller's information advantage

The seller of a late-life wind asset knows things about the project that the buyer cannot fully discover through due diligence. Some of these things are documented. Many are not.

The seller knows the actual condition of the foundations — whether they were poured to specification, whether they have degraded, whether the as-built records match the design documents. They know whether the site access roads can support the heavy-lift equipment required for decommissioning, or whether they have deteriorated to the point where ground reinforcement will be required. They know the history of environmental incidents — oil spills, transformer fluid leaks, lubricant contamination — that may have affected the soil around the turbine bases and which may trigger remediation obligations during decommissioning. They know whether the landowner is cooperative or adversarial, and

whether the lease terms contain onerous restoration obligations that go beyond the planning condition.

The buyer can commission a technical due diligence report. They can inspect the turbines, review the maintenance logs, conduct a site walkover, and commission a desktop environmental assessment. But they cannot excavate a foundation to assess its condition before they own the asset. They cannot conduct an intrusive soil investigation around every turbine base. They cannot test the load-bearing capacity of every access track. And they cannot know what the seller has not documented.

This information asymmetry runs in one direction and it affects one line item in the transaction model more than any other: the decommissioning cost. The buyer's estimate is based on observable inputs — turbine specifications, site layout, planning conditions, published cost rates. The seller's knowledge includes the unobservable inputs — the actual site conditions, the actual foundation specifications, the actual environmental history — that drive the variance between a budgeted cost and an outturn cost.

The seller has no incentive to volunteer information that would increase the buyer's estimate of the decommissioning liability and thereby reduce the transaction price. The seller's disclosure obligations are defined by the sale and purchase agreement, and they are limited by what the buyer knows to ask. If the buyer's due diligence does not investigate a specific risk — and decommissioning due diligence is, in most transactions, significantly less rigorous than operational or commercial due diligence — the seller is not compelled to raise it.

The consequence is a transaction in which the buyer systematically underestimates the decommissioning cost, because the information that would correct the estimate is held by the counterparty with an incentive to withhold it.

The provision as a pricing fiction

In almost every late-life wind asset transaction, the decommissioning provision plays a role in the pricing negotiation. The seller points to the provision — accumulated over the project's operating life — as evidence that the decommissioning obligation is funded. The buyer credits the provision in their valuation model, treating it as cash available to offset the future decommissioning cost. This creates a circular problem.

The provision was calculated at the point of original financial close, using a cost estimate prepared before the project was built, escalated by CPI or a fixed percentage over the intervening years. It was not recalculated when blade disposal regulations tightened. It was not recalculated when planning authorities began requiring full foundation removal rather than cut-and-cap. It was not benchmarked against actual decommissioning costs from completed projects, because no such benchmark exists.

The provision is a number. It may bear a reasonable relationship to the actual decommissioning cost, or it may not. No one in the transaction — not the seller, not the buyer, not either party's technical advisor — can determine which, because there is no independent reference point against which to test it.

Yet the provision anchors the negotiation. The seller presents it as adequate. The buyer, lacking better data, accepts it as a starting point. The technical advisor reviews the underlying assumptions, finds them "within a reasonable range" — a phrase that conceals the absence of any empirical basis for the range — and the provision passes into the transaction model as a credited asset.

The provision is functioning as a shared convenient fiction. Both parties prefer a number they can agree on over the admission that neither knows what the work will actually cost. The provision provides that number. Its ancestry — a two-decade-old estimate,

escalated by an index that does not track the underlying cost drivers — is not examined with the rigour that either party would apply to, say, the wind resource assessment or the turbine availability forecast.

When a buyer inherits a provision that understates the liability by, say, 30% that understatement is not a rounding error in the transaction model. Even on a 50MW wind farm, it can represent a seven-figure shortfall that the buyer will fund from equity or from the repowering project's contingency, neither of which was sized for it.

The repowering premium and its hidden cost

The premium that a buyer pays above the operational asset value — the price attributed to the repowering option — is determined by a spread calculation. The repowered asset value, minus the cost of repowering (including decommissioning), minus the residual operational value, equals the option value. The buyer pays a fraction of this option value as a premium to the seller.

The sensitivity of this calculation to the decommissioning cost assumption is acute and underappreciated.

Consider a simplified example. A 50MW first-generation wind farm has three years of remaining life and residual cash flows worth around EUR10m. A repowered version of the site — with modern turbines and a new long-term revenue contract — is worth EUR100m.

Repowering capex is assumed at roughly EUR1.3m per MW, or EUR65m in total. Decommissioning is modelled at EUR50,000 per MW — EUR2.5m. On that basis, the buyer calculates a substantial development option and pays a premium of EUR12m to secure it.

Now assume the decommissioning cost proves to be EUR150,000 per MW — EUR7.5m rather than EUR2.5m. Nothing else changes. But the

economics do. The option value falls by approximately EUR5m purely because the removal cost was understated.

That EUR5m does not disappear. It reduces the buyer's equity returns, erodes contingency in the repowering budget, or requires additional capital to complete the project. The premium was calculated on an option value that assumed a lower decommissioning cost than will ultimately be incurred. Once the true cost emerges, the economics adjust — but the price paid does not.

In a competitive auction — and late-life wind assets with repowering potential are attracting competitive interest — the pressure to bid aggressively on the repowering premium compounds this problem. The buyer who uses the most conservative decommissioning assumption calculates a lower option value, bids a lower premium, and loses the auction. The buyer who wins is, by construction, the one who underestimated the decommissioning cost the most — or at least, the one whose model was most optimistic about the spread.

This is the winner's curse applied to decommissioning: the winning bidder in a competitive process for a late-life wind asset with repowering potential is likely to be the one who has most significantly underpriced the embedded decommissioning liability.

The warranty gap

In a standard infrastructure M&A transaction, the buyer protects itself against unknown liabilities through the warranty and indemnity regime in the sale and purchase agreement. The seller gives warranties about the condition of the asset, the completeness of disclosure, and the absence of undisclosed liabilities. The buyer can claim against these warranties if the asset turns out to be materially different from what was represented.

For decommissioning risk, this protection is structurally weak.

The seller's standard warranties will include representations about compliance with planning conditions, the existence of the decommissioning obligation, and the current balance of the decommissioning provision. These are factual warranties — the seller is confirming what exists, not what it will cost. The warranty that the provision balance is EUR2.5m is not a warranty that this amount is sufficient to discharge the underlying obligation.

The buyer can negotiate a specific indemnity for decommissioning cost overruns — a commitment from the seller to fund any excess above the provisioned amount. But sellers resist this. Their argument is reasonable from their perspective: the decommissioning will occur years after completion, in market conditions neither party can predict, under a scope that the buyer (as the new operator) will control. The seller is being asked to indemnify a future cost that they can neither influence nor verify.

Where a decommissioning indemnity is agreed, it is typically capped — often at the provision amount itself, which is precisely the number whose adequacy is in question. And it is time-limited. A warranty period of 18 to 24 months is typical in infrastructure M&A. The decommissioning obligation may not crystallise for five to ten years. By the time the buyer discovers that the provision was inadequate, the warranty has expired and the indemnity is unenforceable.

The buyer's recourse, in practice, is limited to what was discoverable through due diligence. If the due diligence did not identify the risk — because the buyer did not commission an independent decommissioning cost assessment, or because the assessment was based on the same inadequate data that underpins every other estimate in the market — the buyer owns the risk in full.

Warranty and indemnity insurance, common in infrastructure transactions, faces the same constraint. The insurer underwrites against the

seller's disclosures and the buyer's due diligence. If the decommissioning risk was not identified in either, it is unlikely to be covered by the policy. W&I insurers are becoming more attentive to decommissioning exposure — some now require specific decommissioning diligence as a condition of coverage — but the market is still catching up.

The lease problem

The relationship between the wind farm operator and the landowner is governed by the site lease. In a late-life asset transaction, the lease is assigned from the seller to the buyer as part of the sale. The buyer inherits the lease terms — including the restoration obligations that define what must happen to the land when the project ends.

Lease restoration obligations and planning decommissioning conditions are not the same thing. They may overlap, but they are negotiated separately, by different parties, at different times, with different incentives. The planning condition defines the minimum the local authority requires. The lease defines what the landowner has negotiated.

In many first-generation wind leases, the landowner secured restoration obligations that go beyond the planning condition. Full removal of all foundations to base depth. Reinstatement of original ground levels. Restoration of agricultural drainage. Removal of all access roads, including sub-base material. Reinstatement of topsoil to pre-construction condition. These obligations were negotiated when the landowner had leverage — before the project was built — and they are enforceable regardless of whether the planning authority requires the same scope.

The buyer's decommissioning cost estimate, prepared during due diligence, may have been scoped against the planning condition — the regulatory minimum. If the lease imposes additional obligations, the cost of compliance is higher. The gap between the planning scope

and the lease scope is a cost that the buyer will bear.

In the worst case, the lease restoration obligations were negotiated by the original developer, documented in a lease that was novated through two or three subsequent sales, and not reviewed with decommissioning-specific attention by any of the intermediate buyers. The current buyer may discover the full scope of the lease obligation only when they commission a detailed decommissioning plan — which may not happen until years after the acquisition.

This is compounded by landowner dynamics at end-of-life. A landowner who has hosted turbines for twenty years may have a different relationship with the wind farm operator than the one who signed the original lease. The landowner may have specific demands about the restoration scope — informed by their own plans for the land, their experience during operations, or simply their negotiating leverage at a moment when the operator needs their cooperation.

If the buyer is acquiring a late-life asset with the intention of repowering, the landowner's consent is essential — not just for the decommissioning, but for the new lease that will govern the repowered project. The landowner knows this. The buyer's repowering option is, in part, contingent on a negotiation with a counterparty who holds significant leverage and whose economic interests are not aligned with minimising the buyer's decommissioning cost.

The portfolio transaction trap

Many late-life wind assets do not trade individually. They trade as part of portfolios — bundles of projects at different stages of life, in different jurisdictions, with different characteristics. The portfolio structure allows the seller to blend attractive and less attractive assets, and it allows the buyer to achieve scale and geographic diversification.

For decommissioning risk, portfolio transactions create a specific problem: aggregation obscures asset-level liability.

The portfolio financial model presents aggregate cash flows, aggregate capex, and an aggregate decommissioning provision. The buyer's valuation is driven by the portfolio-level returns. Individual project economics are reviewed, but the bid price is determined by the blended picture.

Within this blend, the decommissioning liability is not evenly distributed. A portfolio of twenty wind farms will include projects where the decommissioning obligation is modest and well-provisioned — newer turbines, straightforward sites, clear planning conditions. It will also include projects where the obligation is large and underprovided — first-generation turbines on difficult sites, with ambiguous planning conditions, inadequate provisions, and lease terms that no one has reviewed since the original signing.

The aggregate provision may appear adequate at the portfolio level. The sum of provisions across twenty projects may approximate the sum of estimated decommissioning costs. But within that aggregate, individual projects may be overprovided or underprovided by large margins. The portfolio average conceals the project-level variance.

The buyer who acquires the portfolio at a price that reflects the aggregate economics may find that the problematic projects — the ones with the largest decommissioning exposure relative to their provision — are disproportionately expensive to resolve. The well-provisioned projects do not generate surplus that can be transferred to the underprovided ones, because each project is typically a separate SPV with ring-fenced liabilities.

Portfolio transactions also compress the due diligence timeline. The buyer's advisors have weeks, not months, to review twenty projects across multiple jurisdictions. The decommissioning assessment for each project

is necessarily less thorough than it would be in a single-asset transaction. The projects with the most complex decommissioning exposure — the ones that need the most scrutiny — are the ones most likely to be under-examined.

The seller knows which projects in the portfolio have decommissioning problems. The buyer may not discover them until after completion, when the aggregate provision has been allocated to individual SPVs and the project-level shortfalls become visible.

The orphaned asset

The most acute pain point in late-life wind M&A — the scenario that no participant wants to contemplate but all should — is the orphaned asset.

An orphaned asset is a wind farm whose owner cannot fund the decommissioning obligation and cannot find a buyer willing to assume it. The project is at or beyond its consented life. The turbines may have been shut down. The site is generating no revenue. The decommissioning obligation exists — in the planning condition, in the lease, and possibly in statute — but no one is performing it. How does this happen?

A first-generation wind farm reaches end-of-life. The owner — a small independent developer, or an SPV that has passed through multiple transactions — investigates repowering but finds that the site is unsuitable: the planning authority is hostile, or the wind resource does not justify the investment. Decommissioning is the only option, but the cost exceeds the project's available resources — the provision is inadequate, the SPV has no other assets, and the sponsors are unwilling to inject further equity into a project that generates no returns.

The owner attempts to sell the project. But a wind farm with no remaining operational life, no repowering potential, and a decommissioning liability that exceeds the sale

price has negative value. No rational buyer will pay for the privilege of inheriting a net liability. The project is unsaleable.

The owner may attempt to transfer the obligation — to the landowner, to the local authority, to anyone willing to take it. But the obligation follows the permit holder. The landowner is not liable for the decommissioning unless the lease has defaulted and the lease terms provide for it. The local authority is not liable unless it steps in to enforce the planning condition, at which point it incurs costs it may seek to recover from the permit holder — who is, by this point, an empty SPV with no realisable assets.

This scenario has already played out in other sectors. The United States has tens of thousands of orphan oil and gas wells — sites where the operator has disappeared and the plugging and abandonment cost falls to the state or the landowner. The UK's coal mining legacy includes thousands of unreclaimed sites whose remediation is funded by the taxpayer. In both cases, the pattern is the same: the obligation was created at the point of permitting, the financial assurance was inadequate, the entity responsible became insolvent or dissolved, and the liability was socialised.

The clean energy sector is not yet producing orphaned wind farms at scale. But the conditions for it are present. An ageing first-generation fleet. Provisions that understate the liability. SPV structures that limit recourse. And a secondary market that, for assets without repowering potential, may not clear at any positive price.

For M&A participants, the orphan risk is not an abstract concern. It is a direct question: when you acquire a late-life wind asset, are you confident that you can fund the decommissioning if repowering proves infeasible? Have you stress-tested the scenario in which the repowering option has zero value and the decommissioning obligation must be funded from sources outside the project? If that

scenario produces a negative equity return, you have purchased a liability.

The bid-ask spread nobody can explain

The cumulative effect of these dynamics is a market in which the bid-ask spread on late-life wind assets is driven not by disagreement about operational value — that is relatively easy to converge on — but by disagreement about the magnitude of the embedded decommissioning liability.

The seller values the decommissioning obligation at the provisioned amount. The buyer adds a risk premium. Neither can demonstrate that their number is correct, because neither has access to independent cost data from comparable completed projects. The spread between the two estimates — which can be twenty to fifty per cent of the provisioned amount — is effectively an argument about a number that neither party can verify.

In a functional market, this spread would narrow as transactions accumulate and cost data becomes available. Completed decommissioning projects would provide reference points. Buyers and sellers would converge on a market-standard view of what the work costs, adjusted for project-specific variables. The bid-ask spread would reflect genuine disagreement about risk, not ignorance about cost.

That convergence has not occurred, because the data has not been collected. Each transaction reinvents the decommissioning estimate from first principles. Each buyer commissions a new independent assessment. Each seller prepares a new cost estimate. No one compares the result against a structured dataset of observed outcomes, because no such dataset exists.

The consequence is a market that is less efficient than it should be. Transactions that should close do not, because the bid-ask spread on decommissioning cost is too wide to bridge.

Transactions that do close transfer risk in ways that neither party fully understands. And the market as a whole cannot learn from its own experience, because the experience is locked

inside individual transactions and never aggregated.

Important Information

White papers published by Endenex Ltd represent the independent analytical views of Endenex based on publicly available information, industry data and proprietary market analysis. They are provided for informational purposes only and do not constitute financial, investment, legal, technical or regulatory advice. Nothing in this publication should be relied upon as the basis for any investment, lending, underwriting or operational decision.

Data & Sources

Analysis draws on publicly available datasets, industry publications and Endenex's own market research. While reasonable care is taken to ensure accuracy, Endenex does not warrant the completeness or currency of third-party data referenced herein. Views and estimates are subject to change without notice as market conditions and available data evolve.

Distribution

This publication is made freely available by Endenex Ltd for informational and educational purposes. It may be shared provided it is reproduced in full with attribution to Endenex Ltd and without modification. Endenex Ltd retains all intellectual property rights in the content.

© 2026 Endenex Ltd. All rights reserved.