Transition Risk in the Loan Book

Repricing Carbon, Power and Water Exposure

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Abstract

Climate-related transition risk is entering the conventional credit process. The Central Bank of the UAE's Climate-related Financial Risk Management Regulation, issued in October 2025 and currently in force, requires banks and insurance companies within scope to identify, gather data on, measure, report, control and mitigate climate-related financial risks. It requires these risks to enter credit, investment and underwriting processes at customer and portfolio levels throughout the relationship lifecycle. Earlier UAE supervisory principles also address governance, risk management, monitoring, capital, liquidity and scenario analysis.

This paper develops a borrower-to-portfolio framework for repricing carbon, electricity and water exposure in a UAE and Gulf loan book. These drivers affect different businesses through different channels. Carbon policy, technology and customer preferences can alter demand, operating cost and capital requirements. Electricity tariffs, fuel adjustments, reliability, efficiency and connection capacity can change production economics. Water tariff, availability, quality, treatment, discharge and recycling requirements can affect continuity, cost and asset viability.

The framework maps each driver into revenue, margin, free cash flow, leverage, debt-service coverage, collateral, covenant headroom, probability of default and recovery. It separates observed data from management assumptions and model outputs. It treats scenario analysis as a disciplined decision tool rather than a forecast. It connects the results to client engagement, rating review, pricing, tenor, amortisation, reserves, collateral haircuts, covenant design, capital planning and portfolio limits.

Six figures show the risk transmission chain, borrower exposure map, cash-flow bridge, scenario architecture, recovery waterfall and portfolio dashboard. Six tables provide an evidence dictionary, sector diagnostics, signal-to-action rules, facility controls, a hypothetical industrial case and a 100-day implementation plan. Every borrower, amount, intensity, price, probability, rating, recovery and outcome in the worked example is a management assumption created solely to demonstrate the method.

The paper draws on the in-force CBUAE regulation and supervisory principles, CBUAE stress-testing disclosures, Basel Committee credit and climate-risk principles, NGFS scenario materials, IFRS S2, the UAE's third Nationally Determined Contribution, the UAE carbon-credit register resolution, official water-security policy and current DEWA tariff mechanics. These sources have different scopes. They do not prescribe one universal carbon, power or water price for credit underwriting.

The applicable banking, fund, insurance, environmental, utility, tax, accounting, disclosure, data-protection, contract, insolvency and enforcement treatment depends on the institution, borrower, facility, asset, activity, jurisdiction and date. This paper provides general information for professional audiences and does not provide legal, regulatory, environmental, engineering, tax, accounting, valuation, credit or investment advice.

JEL Classification: G21, G28, G32, Q40, Q51, Q54

Keywords: climate-related financial risk, transition risk, loan pricing, carbon exposure, power exposure, water exposure, UAE credit risk, scenario analysis, covenant design, portfolio concentration

1. Translate transition risk into conventional credit risk

A lender is repaid from cash flow, collateral, support or recovery. Transition risk matters when a change in policy, law, technology, market preference, resource price or operating requirement affects those repayment sources.

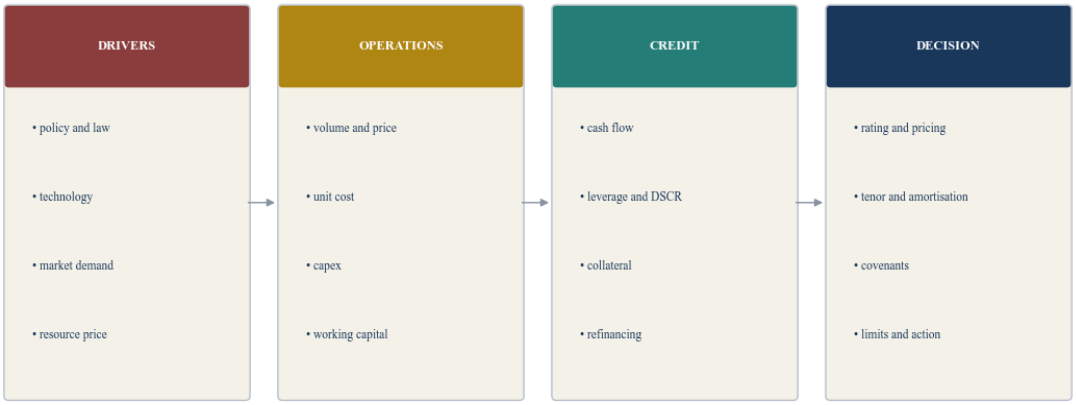
The transmission chain begins outside the financial statements. A carbon-related requirement can increase direct compliance cost, affect export competitiveness, change customer demand or require new equipment. A power shock can raise unit cost, reduce capacity utilisation or make a location less competitive. A water constraint can interrupt production, increase treatment cost, require recycling investment or impair an asset designed around an unavailable resource.

The chain then enters operating performance. Revenue can decline through lost volume, lower price or customer migration. Gross margin can compress through energy, water, raw-material, transport and compliance cost. Capital expenditure can rise through equipment replacement, efficiency, metering, treatment or process redesign. Working capital can lengthen as inventories, receivables or supplier terms adjust.

Those effects alter free cash flow, leverage and debt-service capacity. They can also affect collateral value, insurance availability, useful life, refinancing and recovery. The lender should identify the material channel and trace it to an existing risk category. A transition score without that bridge has limited decision value.

The Central Bank of the UAE's current regulation explicitly requires financial institutions within scope to connect climate-related risk drivers to traditional risk categories and incorporate them into credit, investment and underwriting processes at customer and portfolio levels.[1] The Basel Committee similarly frames climate-related drivers as sources of conventional financial risk requiring integration into governance, credit processes, monitoring and control.[4]

Figure 1. Transition-risk transmission into a loan decision



Carbon, power and water enter the same credit architecture through different operating channels

Author framework. Materiality and available controls depend on the borrower, facility, evidence and scenario.

2. Start from the current regulatory and policy perimeter

The current UAE regulatory position is material to banks and insurers. CBUAE Regulation C 8/2025 was issued on 14 October 2025 and is shown as in force in the CBUAE Rulebook. It applies to banks and insurance companies, subject to the detailed scope and proportionality provisions. Other licensed financial institutions can be brought within scope in due course.[1]

The regulation establishes minimum standards for climate-related financial-risk governance and risk management. It addresses identification, data, assessment, measurement, reporting, control, mitigation, credit and underwriting, capital and solvency. The requirements include comprehensive identification across short, medium and long horizons; data frameworks; metrics and indicators; timely board and senior-management reporting; risk-appetite limits; and integration at customer and portfolio levels.[1]

The UAE Sustainable Finance Working Group principles published in 2023 address oversight, strategy, responsibility, risk frameworks, monitoring, reporting, capital, liquidity and scenario analysis.[2] CBUAE's 2024 annual report states that UAE banks conducted a pilot transition-risk stress test on corporate lending to climate-risk-vulnerable sectors, focused on the twenty largest corporate borrowers in those sectors and used NGFS scenarios.[3]

International standards provide context. The Basel Committee's 2025 revised Principles for the Management of Credit Risk address the credit environment, granting process, administration, measurement, monitoring and controls.[5] Its climate-risk principles require banks to understand material impacts on credit profiles and incorporate them through the credit lifecycle.[4]

Climate policy and disclosure context also matters. The UAE's NDC 3.0 records the country's national contribution under the Paris Agreement.[8] Cabinet Resolution No. 67 of 2024 regulates the National Register for Carbon Credits and applies specified registration requirements to entities meeting its scope and threshold.[9] IFRS S2 addresses decision-useful disclosure of climate-related risks and opportunities that could affect cash flows, access to finance or cost of capital.[7]

None of these sources supplies one mandatory borrower carbon price or a universal credit adjustment. The lender must choose, document and govern the scenarios and decision rules appropriate to its perimeter.

3. Separate carbon, power and water exposures

Carbon, electricity and water are related, yet they are not interchangeable. Each exposure needs its own unit, source, contract, baseline, forward driver and control.

Carbon exposure can include direct emissions, purchased-energy emissions, value-chain emissions, product intensity, carbon-credit obligations, customer requirements and border measures. Its financial effect can arise through a tax, credit, compliance expenditure, customer discount, lost market, technology change or reputational response. The lender should identify the legally relevant entity, reporting boundary and emission scope before calculating intensity.

Power exposure includes consumption, peak demand, tariff slab, fuel adjustment, contracted price, grid connection, reliability, generation source, on-site generation, storage, efficiency and critical-load resilience. The credit question concerns total delivered cost and continuity, not a

single tariff headline.

Water exposure includes intake, source, quality, tariff, treatment, recycling, discharge, scarcity, permit, emergency supply and process dependence. Volume alone can mislead. A high-volume user with closed-loop recycling and alternative supply can differ materially from a smaller user whose product fails when water quality or continuity changes.

The diagnostic preserves gross exposure, mitigation and residual exposure. A solar installation can reduce grid purchases while introducing capital, maintenance and operating assumptions. A water-recycling plant can reduce intake while creating treatment and energy needs. A carbon-reduction project can improve market access and require front-loaded expenditure.

Figure 2. Borrower carbon, power and water exposure map

Author framework. Residual credit exposure follows evidence-based mitigants and dependencies.

4. Build a source-controlled evidence dictionary

Every material field should carry a definition, unit, entity, period, source, owner, quality status and use. Carbon tonnes, kilowatt-hours and cubic metres cannot enter one score without traceable transformations.

Evidence can come from audited financial statements, management accounts, utility bills, smart meters, equipment records, production systems, environmental reports, permits, supplier contracts, customer specifications, insurance, engineering studies and independently assured disclosures. The lender should record whether each datum is measured, invoiced, calculated, estimated or management-provided.

The time basis matters. A full-year carbon inventory and a monthly utility bill should not be compared without normalisation. Production intensity can change because the numerator changes, the denominator changes or both. A lower emissions-per-unit figure can coexist with higher absolute emissions and higher cash cost.

The lender should retain the original value and transformation. Currency, unit conversion, calorific value, emission factor, weather normalisation, production adjustment and consolidation

changes need explicit version control. Where data is missing, a proxy or conservative assumption should be visible to the decision-maker.

Table 1. Evidence dictionary for carbon, power and water credit analysis

Field	Unit and boundary	Preferred evidence	Credit use	Quality challenge
Scope 1 emissions	tCO2e by legal entity and site	assured inventory and source records	direct transition exposure	boundary or factor changes
Purchased-energy emissions	tCO2e and electricity source	utility and supplier evidence	power-related carbon exposure	contractual versus physical attributes
Product carbon intensity	tCO2e per defined output	reconciled emissions and production	customer and market sensitivity	denominator and product-mix shifts
Electricity consumption	kWh by site and period	meter and utility bill	operating cost and efficiency	missing sites or estimated reads
Peak demand and capacity	kW or MW	meter, contract and connection	cost, expansion and continuity	contracted and available capacity differ
Delivered electricity cost	AED per kWh and fixed charges	invoice and contract	cash-flow sensitivity	tariff, fuel, demand and VAT components
Water intake	m3 by source and site	meter, invoice and permit	cost and resource dependency	unmetered or shared supply
Water quality	agreed technical parameters	laboratory and process records	yield, treatment and continuity	sampling frequency and source change
Water reuse	m3 and percentage of process demand	plant meter and balance	mitigation and operating resilience	claimed capacity versus realised use
Transition capital plan	AED, timing and committed status	approved budget, contracts and milestones	liquidity and execution risk	unfunded or aspirational projects
Customer requirement	revenue share and specification	contracts, tenders and buyer correspondence	market-access risk	informal statements or uncertain timing
Residual value	asset, life and market	valuation and technical review	collateral and recovery	scenario and market liquidity

Data availability, rights and reliability vary by borrower and jurisdiction.

5. Diagnose exposure at borrower and sector level

A sector label is a screening device. The credit decision requires borrower-level evidence. Two manufacturers in the same industry can use different processes, energy sources, water systems, customer markets and assets.

The diagnostic begins with the operating model: product, site, process, input, customer, route to market and critical equipment. It then maps carbon, electricity and water to the income statement, balance sheet and cash flow. Management actions are evaluated for authority, funding, timing, technology, suppliers and milestones.

The lender should identify thresholds and cliffs. A gradual energy-cost increase can compress margin over several years. A customer standard can remove revenue at one contract renewal. A grid-capacity constraint can prevent expansion. A water-quality failure can stop production immediately. A permit or equipment deadline can require concentrated capital expenditure.

Concentration matters within the borrower. One site can generate most EBITDA. One power connection can support several production lines. One water source can serve a complete facility. One export customer can impose a carbon requirement across the supplier's output.

Table 2. Borrower transition-risk diagnostic by operating archetype

Operating archetype	Carbon question	Power question	Water question	Credit consequence to test
Export manufacturer	will buyer or border requirements affect price or volume?	can cost and reliability preserve delivered competitiveness?	does water affect process, quality or licence?	margin, capex, working capital and customer concentration
Logistics operator	how quickly can fleet and fuel mix change?	is charging or depot capacity available?	is washing or cooling material?	asset life, utilisation, capex and residual value
Food processor	what emissions sit in process and supply chain?	can refrigeration and heat cost be controlled?	how exposed are intake, hygiene and discharge?	continuity, yield, inventory and customer compliance
Real-estate owner	how do asset standards affect occupancy and value?	can systems meet efficiency and cooling needs?	can consumption and leakage be reduced?	net operating income, retrofit capex and valuation
Data-centre operator	how is power-source and customer carbon demand managed?	is capacity firm, redundant and economic?	what cooling system and water intensity apply?	utilisation, expansion, contracts and terminal value
Materials producer	what process route and abatement options exist?	can electrification or efficiency be delivered?	is water needed for process, cooling or dust control?	unit cost, plant life, capex and market access
Agricultural business	what energy and fertiliser drivers matter?	are pumps and cooling reliable?	what source, quality, permit and depletion risk apply?	yield, continuity, asset value and insurance
Hospitality asset	how do customer and brand standards change?	what is the cooling and efficiency profile?	how material are pools, landscaping and laundry?	occupancy, opex, refurbishment and value

The table provides questions for diligence and does not assign a sector rating.

6. Establish present economics before applying scenarios

Scenario analysis needs a reconciled base case. The lender should begin with actual production, sales, operating costs, utility volumes, tariffs, cash flow, debt, collateral and approved capital plans.

Current power and water economics can be decomposed from bills. DEWA's official tariff page, for example, publishes consumption slabs and monthly fuel surcharges for its customer categories.[11] The July 2026 page shows progressive electricity and water slabs and identifies separate fuel surcharges. Those published values are time-specific and utility-specific. A borrower model should use the actual supplier, category, location, contract, bill and date.

Carbon economics can be direct or indirect. A facility within the scope of the UAE carbon-credit register resolution can have reporting and registration considerations.[9] Other borrowers can experience carbon economics through customers, products, procurement, finance, technology or overseas markets. The model should state which mechanism creates the assumed cash effect.

Water economics includes more than the tariff. Treatment chemicals, pumping, heating, cooling, wastewater, discharge, downtime, alternative supply and capital maintenance can exceed the invoice price. Official UAE policy describes water security as a national priority and includes demand-reduction and reuse objectives under the Water Security Strategy 2036.[10]

The base case reconciles physical volumes to expense and cash. Where figures do not reconcile, the lender opens an exception before applying a scenario.

7. Convert resource drivers into a cash-flow bridge

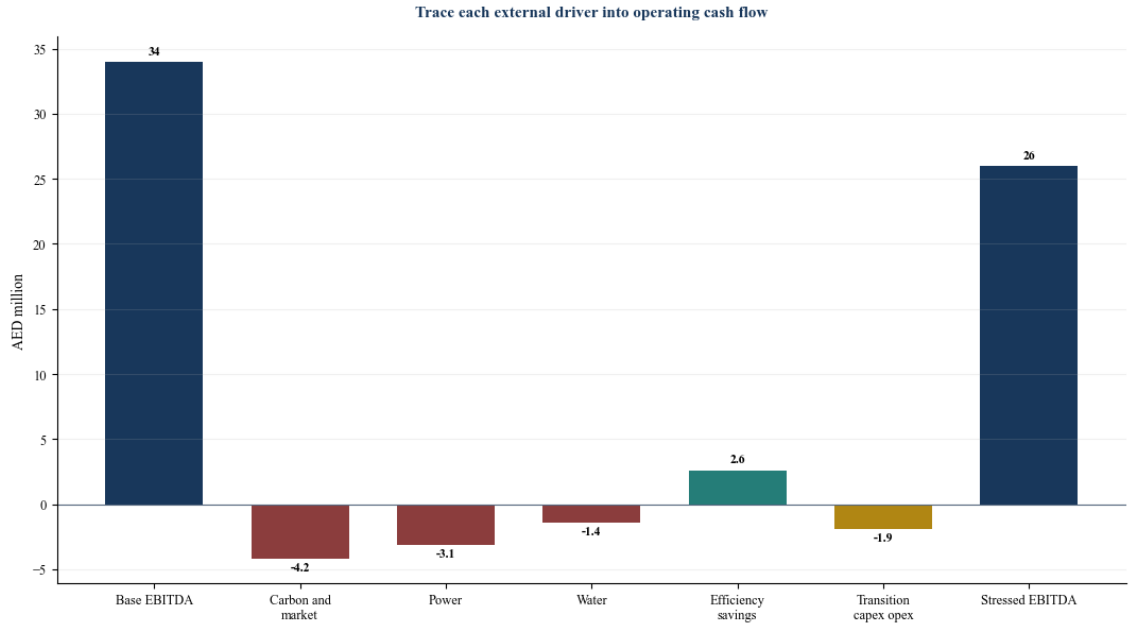
The transition bridge links an external scenario to borrower cash flow in transparent steps. Each step has a unit and formula.

A carbon-cost assumption can be multiplied by covered emissions after eligible free allocation, credits or other specified treatment. A power-cost assumption can combine volume, tariff, fuel surcharge, fixed charge, demand and contractual adjustments. A water-cost assumption can combine intake, tariff, treatment, discharge, recycling, alternative supply and downtime.

Revenue effects require an explicit commercial mechanism. Volume can decline when a customer requirement is unmet. Price can change when a product receives a premium or discount. Market access can depend on verification or product standards. The lender should avoid applying a generic revenue haircut without a defined transmission channel.

Capital expenditure and savings should be timed. A project can require construction cash before efficiency benefits emerge. Commissioning can be delayed. Savings can depend on utilisation, maintenance, resource price and operating performance. The model should include debt funding, equity funding, grants or internal cash only where support exists.

Figure 3. Hypothetical transition cash-flow bridge



Every amount is an illustrative management assumption in AED millions.

8. Use scenarios as conditional pathways

A scenario describes a coherent pathway under stated assumptions. It is not a probability-weighted forecast unless the methodology explicitly supports probabilities.

The NGFS long-term scenarios combine transition and physical pathways under varying assumptions and highlight important limitations, including uncertainty and omitted effects.[6] A lender can use NGFS pathways as macro context and translate them into borrower-relevant variables. It should document the translation from global or regional variables to the borrower.

The scenario library can include an orderly pathway with earlier investment and gradual operating changes; a delayed pathway with later, sharper cost and capital effects; and a current-policy or higher-physical-risk pathway. The institution can add a short-horizon sensitivity for near-term tariffs, customer requirements, supply constraints or capital deadlines.

Carbon, power and water assumptions should remain internally coherent. An electrification strategy can lower direct emissions and raise electricity demand. Desalination and treatment can increase power use. Cooling choices can shift between electricity and water. Capital spending can reduce later operating exposure.

Every scenario should state source, date, horizon, units, variables, borrower mapping, management actions, limitations and decision use. The credit committee should see which assumptions drive the result and where data quality is weak.

Figure 4. Scenario architecture from pathway to credit action

Author framework. Scenarios are conditional pathways and should preserve uncertainty.

9. Recalculate debt-service capacity and risk grade

The lender should run the transition bridge through its existing credit model. Revenue, EBITDA, working capital, tax, maintenance capital, transition capital, interest, amortisation and liquidity should reconcile to the normal underwriting case.

Debt-service coverage can deteriorate even when EBITDA remains positive. Front-loaded capital expenditure, higher inventory, customer losses or reduced refinancing capacity can create a cash deficit. A borrower with strong current coverage can face a maturity wall before the transition investment produces benefits.

Risk grading should reflect the institution's approved methodology. Transition results can affect the grade through expected cash flow, volatility, management capability, industry outlook, collateral, liquidity or support. The lender should avoid an ungoverned climate overlay that double counts risks already captured in the model.

Probability of default and loss given default require validation. A scenario-driven downgrade is not an observed default frequency. A collateral haircut is not an observed sale price. Where models are immature, the lender can use transparent sensitivities, qualitative factors, watch-list criteria and conservative structure while building evidence.

10. Connect the analysis to facility terms

A transition diagnostic creates value when it changes a credit decision. The response should be proportionate to materiality, evidence and controllability.

Pricing can reflect expected loss, capital, liquidity, tenor, complexity and monitoring cost under the institution's approved framework. A pricing premium cannot cure an unfinanceable business model or an unsupported repayment case.

Tenor and amortisation can align debt exposure with asset life, capital milestones and customer transitions. A revolving facility can include borrowing-base or availability controls where working capital is exposed. Project or equipment funding can release against verified expenditure and commissioning.

Covenants should have a clear credit mechanism. Examples include minimum debt-service coverage, leverage, liquidity, permitted capital expenditure, information delivery, resource-intensity reporting, customer-retention thresholds, project milestones, insurance and asset maintenance. A covenant should state definition, frequency, source, cure and consequence.

Table 3. Facility controls for material transition exposure

Credit issue	Evidence	Potential control	Decision purpose
Margin sensitivity	reconciled volume, tariff, contract and cost bridge	pricing, cash sweep or minimum coverage	preserve debt-service capacity
Transition capital need	approved plan, contract, funding and milestones	capex reserve, equity first or staged draw	prevent underfunded execution
Customer access	contracts, tenders and transition requirements	reporting, retention trigger or concentration limit	detect revenue cliff early
Power continuity	connection, redundancy and outage record	contingency plan, insurance or reserve	protect production and cash flow
Water continuity	source, permit, quality, recycling and backup	operational milestone or liquidity buffer	manage interruption and capex risk
Asset obsolescence	engineering life, market and valuation	shorter tenor, amortisation or haircut	reduce terminal exposure
Data weakness	field inventory, quality and assurance	information undertaking and conservative assumption	make uncertainty visible and actionable
Project execution	contracts, supplier, schedule and commissioning	milestone testing and controlled disbursement	link funding to delivered mitigation
Scenario breach	approved scenario and trigger	review, limit, cure or stop-draw	prevent risk accumulation
Concentration	borrower, sector, technology and location aggregation	portfolio limit and senior escalation	contain common-driver exposure

Terms depend on the borrower, facility documents, authority and applicable law.

11. Establish signal-to-action monitoring

Monitoring should focus on variables that can change the credit conclusion. A long indicator list can obscure the few signals that affect cash, collateral or control.

The borrower pack can include utility volumes and bills, production, emissions evidence, customer changes, capital-project progress, permits, asset performance, insurance, liquidity and covenant calculations. Frequency should match risk speed. Monthly power and water signals can matter more than an annual sustainability report.

Thresholds need verification and consequence. A power-intensity increase can arise from lower production rather than equipment deterioration. A missed capital milestone can reflect a supplier delay or a cancelled project. The credit team should establish cause before selecting an action.

Table 4. Transition-risk signal-to-action rules

Signal	Verification	Credit question	Controlled action
Electricity cost per unit rises	reconcile volume, tariff, fuel, output and mix	structural cost or temporary variance?	refresh margin and coverage sensitivity
Water intake rises	inspect output, leakage, quality and process	does continuity or treatment risk increase?	engineering review, reserve or milestone
Carbon intensity misses plan	validate boundary, factors, output and project status	does market access or capex need change?	client plan, rating review or facility condition
Major customer adds requirement	obtain contract, tender and timing evidence	what revenue and capex are exposed?	downside case and concentration action
Transition project delayed	review supplier, permit, budget and critical path	can borrower meet cash and customer deadlines?	draw control, equity cure or revised structure
Grid capacity becomes constrained	confirm connection, allocation and expansion schedule	can production or growth continue?	cap expansion assumptions and reassess tenor
Permit or reporting scope changes	specialist confirmation and entity map	what cost, timing or disclosure follows?	policy update and borrower engagement
Asset valuation falls	independent technical and market evidence	is collateral protection impaired?	haircut, amortisation or additional security
Insurance narrows or reprices	broker and policy evidence	does residual operational or recovery risk rise?	coverage condition and loss review
Data submission fails	identify missing source and duration	can risk still be monitored reliably?	fallback evidence, escalation or draw stop

Actions depend on verified facts, risk appetite, facility documents and authority.

12. Avoid double counting and false precision

Transition analysis combines uncertain pathways, incomplete data and evolving methods. Governance should make limitations visible.

Double counting can arise when energy cost appears in both the base forecast and the climate overlay. The same customer loss can appear in sector revenue and borrower concentration. Capital expenditure can appear in maintenance and transition plans. A collateral haircut can duplicate cash-flow deterioration already embedded in valuation.

False precision can arise when a global carbon pathway becomes a borrower price without a legal or commercial mechanism. A single emissions factor can conceal site and product differences. A probability can be assigned without data. A long-horizon result can be reported to two decimal places despite wide uncertainty.

The model inventory should identify owner, purpose, input, assumption, validation, limitation, override and version. Independent challenge should reproduce the bridge, test sensitivity, locate double counting and confirm that the output is used within its intended scope.

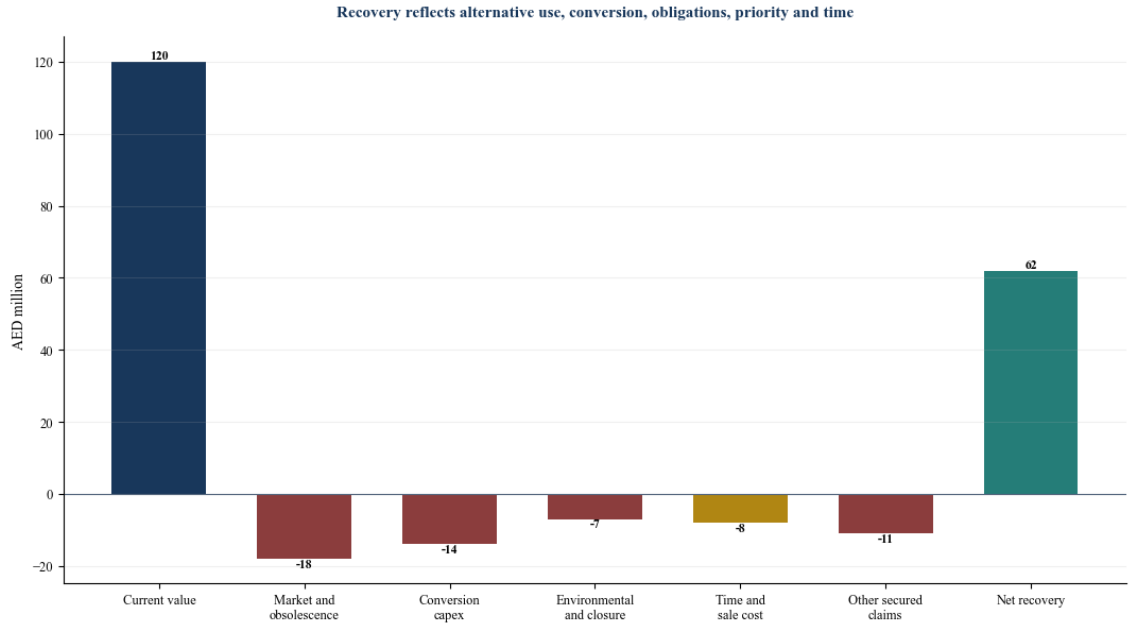
13. Analyse collateral and recovery under transition

Recovery can change before default. An asset can lose buyers, useful life, permits, insurance, spare parts or conversion economics. A more efficient or adaptable asset can retain value even when current borrower cash flow weakens.

The recovery analysis begins with the asset and its market. It identifies alternative users, relocation, conversion, dismantling, land value, environmental obligations, secured priority, enforcement time and sale cost. It separates going-concern and break-up outcomes.

Transition capital can increase or decrease value. A completed efficiency project with verified performance can reduce cost and support market access. An unfinished specialist plant can have limited alternative use and completion risk. The lender should avoid assuming that historical book value or replacement cost equals recovery.

Figure 5. Hypothetical transition-adjusted recovery waterfall



Every amount is an illustrative management assumption in AED millions.

14. Demonstrate the framework with a hypothetical borrower

Consider a hypothetical UAE industrial company seeking renewal of an AED 160 million term and revolving package. Every company, facility, amount, intensity, tariff, scenario, rating, recovery and outcome in this example is a management assumption created solely to demonstrate the framework. It does not describe a client, lender, transaction, market price or recommendation.

The assumed company generates AED 420 million of revenue and AED 34 million of EBITDA. It operates one main plant, serves regional and export customers, consumes 52 gigawatt-hours of electricity and 380,000 cubic metres of water each year, and reports 76,000 tCO2e across the boundary selected for the example.

The base case has AED 128 million of funded debt, AED 17 million of annual debt service and AED 15 million of cash. Management has proposed AED 24 million of efficiency, metering, process and water-reuse expenditure over three years. The example assumes that only AED 9 million has received final board approval and contracted support.

Under the illustrative downside, customer and carbon effects reduce EBITDA by AED 4.2 million, power by AED 3.1 million and water by AED 1.4 million. Efficiency adds AED 2.6 million and transition-project operating cost reduces EBITDA by AED 1.9 million. EBITDA becomes AED 26 million before the example's working-capital and capital-expenditure effects.

The scenario assumes debt-service coverage falls from 1.55 times to 1.10 times during peak investment. The lender does not assign a statistical default probability from this single scenario. It records the weaker headroom, unfinished capital plan, customer concentration and evidence gaps within its approved rating methodology.

The hypothetical committee renews the revolving tranche for twelve months and restructures the term component to align amortisation with verified project milestones. It requires equity funding before the final project draw, minimum liquidity, monthly utility and operating evidence, quarterly customer-transition reporting and independent technical confirmation of the water-reuse project. No executed facility or outcome is claimed.

Table 5. Hypothetical borrower transition-risk decision

Measure	Assumed base	Illustrative downside	Credit interpretation
Revenue	AED 420m	AED 397m	customer and product exposure drives decline
EBITDA	AED 34m	AED 26m	carbon, power and water effects partly offset by efficiency
Funded debt	AED 128m	AED 132m peak	transition capex creates temporary funding need
Annual debt service	AED 17m	AED 18.5m	interest and amortisation reflect assumed structure
Debt-service coverage	1.55x	1.10x at trough	reduced covenant and liquidity headroom
Cash	AED 15m	AED 8m trough	execution timing creates liquidity pressure
Transition capital plan	AED 24m	AED 9m approved and supported	funding and execution gap remains
Electricity use	52 GWh	55 GWh before efficiency	production mix and delay affect exposure
Water intake	380,000 m3	405,000 m3 before reuse	continuity and treatment need increase
Carbon boundary	76,000 tCO2e	72,000 tCO2e after actions	calculation remains scenario-specific
Collateral current value	AED 120m	AED 62m net recovery illustration	alternative use and conversion drive haircut
Outcome	renewal considered	controlled twelve-month structure	conditions and monitoring remain essential

Every amount, ratio, assumption and outcome is illustrative management input.

15. Aggregate common drivers across the portfolio

Borrower analysis should roll into portfolio views without losing its evidence trail. The lender can aggregate by sector, location, activity, customer market, technology, utility, water source, asset type, maturity, collateral and transition pathway.

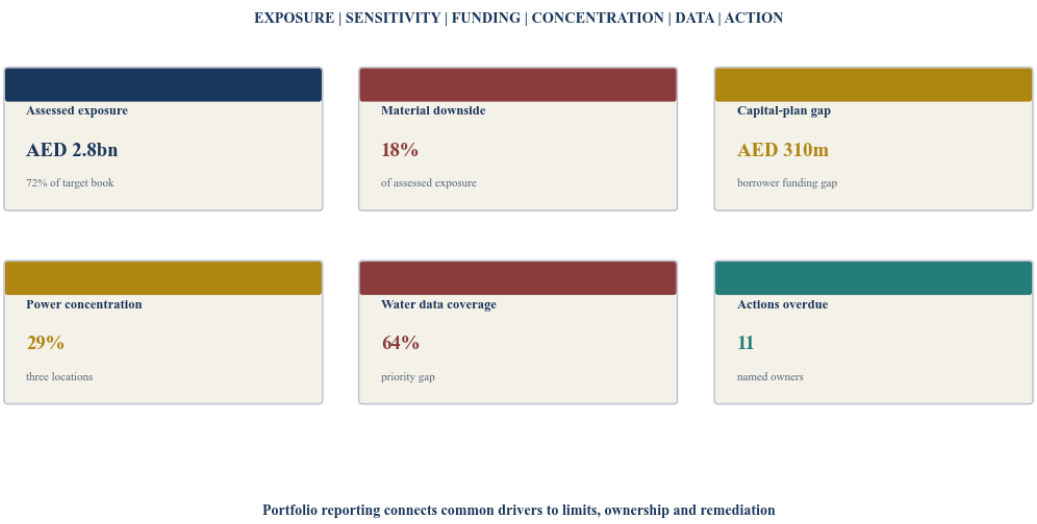
Concentrations can cross sectors. Several borrowers can depend on one grid connection, water system, logistics corridor, export market, equipment supplier or customer standard. A transition

risk can correlate cash flow, collateral and refinancing across multiple facilities.

Portfolio reporting should show gross exposure, residual exposure after verified mitigants, data coverage, scenario sensitivity, rating migration, covenant headroom, maturity profile and management action. It should separate exposure amount from risk intensity.

Risk appetite can use limits, escalation thresholds and action plans. A limit should define numerator, denominator, perimeter, frequency, owner and breach response. Data gaps should be visible rather than treated as zero risk.

Figure 6. Hypothetical transition-risk loan-book dashboard



Every displayed value is an illustrative management assumption.

16. Govern model, judgement and client engagement

The board sets risk appetite and oversees the framework. Senior management assigns responsibilities, resources and escalation. Business, credit, risk, finance, sustainability, data, legal, compliance, valuation and internal audit have distinct roles.

The first line gathers borrower evidence, explains the operating model and proposes terms. Credit and risk challenge materiality, scenarios, assumptions, rating, structure and portfolio effects. Specialist teams validate emissions, engineering, legal or data questions within their remit. Internal audit assesses governance and control independently.

Client engagement should be specific. A generic climate questionnaire can create volume without decision evidence. The lender should ask for the fields, documents and management actions that connect to the identified credit channel.

Override governance is essential. A committee can accept a data gap or transition-plan delay within authority. The record should state the reason, compensating control, expiry, owner and follow-up. Silent model changes or informal exceptions undermine comparability.

17. Implement the framework in 100 days

Days one to fifteen establish sponsor, perimeter, policy mapping, portfolio scope, risk appetite and accountable owners. The team identifies the facilities and sectors for the pilot and confirms current regulatory requirements.

Days sixteen to thirty define the evidence dictionary, borrower operating-model template, carbon, electricity and water units, data-quality rules and source lineage. The team selects a small set of borrowers with material and diverse exposures.

Days thirty-one to fifty build the base-case reconciliation, cash-flow bridge, scenario library, collateral method and signal-to-action rules. Business and credit teams test whether every metric changes a decision.

Days fifty-one to seventy run borrower files in shadow mode. Analysts reproduce results, document gaps and compare outcomes with the existing rating process. Independent challenge tests double counting, sensitivity and limitations.

Days seventy-one to eighty-five aggregate portfolio drivers, define limits and prepare board reporting. Days eighty-six to one hundred approve policy, model use, controls, training, client engagement, exceptions and the review calendar before controlled release.

Table 6. One-hundred-day transition-risk credit programme

Days	Workstream	Controlled deliverable	Gate
1 to 10	mandate	sponsor, perimeter, objectives, risk appetite and owners	governing body confirms scope and authority
11 to 20	regulation and policy	current obligation map and credit-policy change list	legal, compliance and risk accept perimeter
21 to 30	data	carbon, power and water dictionary with source lineage	every field has unit, owner and quality status
31 to 40	borrower diagnostic	operating model, dependency and evidence template	credit committee confirms decision relevance
41 to 50	scenarios	governed pathways, variables and translation rules	assumptions and limitations documented
51 to 60	credit model	cash-flow, rating, collateral and covenant bridge	double counting and reconciliation tested
61 to 70	shadow files	selected borrower reviews without term changes	independent reviewer reproduces results
71 to 80	portfolio	common-driver aggregation, data gaps and limits	risk appetite metrics receive owners
81 to 90	operating model	client engagement, monitoring, overrides and escalation	first and second lines accept responsibilities
91 to 100	controlled release	policy, training, reporting and review calendar	senior approval with material conditions closed

Timing depends on institution, portfolio, data, models, governance and regulatory perimeter.

18. Limitations and conclusion

Transition-risk analysis is an evolving field with data, methodology and horizon limitations. The CBUAE regulation establishes current requirements for banks and insurers within scope and should be read with the wider UAE regulatory framework.[1] Its application to a specific institution, product or exposure requires current professional analysis.

The NGFS scenarios are reference pathways with stated assumptions and limitations.[6] They do not forecast a borrower's tariff, emissions cost, water availability, default or recovery. IFRS S2 is a disclosure standard and does not prescribe a lender's credit decision.[7] The UAE NDC and carbon-credit register resolution provide policy and regulatory context within their respective scopes.[8][9]

Current utility tariffs are location, category and date specific. The DEWA July 2026 values cited in this paper illustrate official tariff mechanics and should not be applied to another borrower, supplier, date or contract without verification.[11] Water-security objectives describe national policy and do not determine a borrower's resource entitlement or price.[10]

Every borrower, amount, intensity, price, project, scenario, ratio, rating, recovery and outcome in the worked example is an illustrative management assumption. No observed market default rate, client information, executed transaction or recommendation is claimed.

A disciplined transition-risk credit process starts with the borrower operating model and source-controlled evidence. It separates carbon, power and water. It reconciles physical exposure to current economics. It applies coherent conditional scenarios. It traces the result through cash flow, collateral and refinancing. It connects the result to rating, pricing, tenor, amortisation, covenants, monitoring and limits.

That approach turns a broad climate-risk concept into a conventional credit decision with explicit evidence, ownership, uncertainty and action.

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