Energy, power and infrastructure

Sector coverage · Energy, power and infrastructure · interview preparation summary

INT.BC.7.a · Energy, power and infrastructure

Classify an energy, power or infrastructure business by what sets its cash flow, and say what that means for its valuation, its debt capacity and the product a banker brings.

A coverage banker in energy, power and infrastructure starts with one question: who pays for the output, on what terms and for how long? The answer sets the valuation method, the debt the company can carry and the product the bank brings. There are four families of cash flow. Regulated cash flow comes from a regulator that sets an allowed return on a regulated asset base (RAB) for a price control period, often five years. Earnings grow as accepted investment lifts the RAB and are reset at each review. Contracted cash flow comes from a fixed agreement such as a power purchase agreement, a take-or-pay pipeline contract or an availability payment from a public authority. Merchant cash flow moves with power, commodity or product prices and carries no promise. Volume-driven cash flow, such as a toll road or an airport, earns a tariff on traffic the company does not control. One group often holds several families, so split EBITDA by family before applying any multiple or leverage level. Lenders and ratings agencies do exactly this, which is why a mostly regulated utility can carry far more debt than a merchant generator. For every contract check three things: its remaining life, the credit of the party paying and what replaces it when it ends. A contract that ends in year six turns contracted EBITDA into merchant EBITDA, so value and cover must be tested year by year. Regulated debt is usually judged as net debt to RAB, often around 60 to 70 percent. Contracted debt is sized on cover. Debt service cover ratio = cash flow available for debt service ÷ annual debt service. Commodity producers are sized on net debt to EBITDA at a conservative price. A generalist often misses that regulated does not mean risk free, because allowed returns are cut when interest rates fall or the regulator judges costs to be inefficient. Common mistake: calling an asset infrastructure and assuming stable cash flow without asking who sets the price.

WORKED EXAMPLE: SIZING THE LEVERAGE OF A MIXED UTILITY GROUP

Hollinmere Power is an invented utility group with EBITDA of 300m: 150m from a regulated network, 90m from contracted renewables and 60m from merchant generation. Its net debt is 1,650m. Illustrative leverage tolerances, not rules, are 6.0x for regulated, 5.0x for contracted and 3.0x for merchant EBITDA. How much debt can the group carry, and what happens when 40m of the contracted EBITDA rolls onto merchant terms? Convention: all figures are annual, ignore tax and hedging.

Answer: Hollinmere can carry about 1,530m, or 5.1x, not the 1,800m a single multiple suggests. It already holds 1,650m, so it is 120m over, and the expiry of 40m of contracts would widen the gap to 200m.

Interview tip: Say the split first, then the tolerance you used for each family, then the total. Volunteer the contract expiry unprompted, because it shows you test leverage through time and not on today's snapshot.

INT.BC.7.b · Energy, power and infrastructure

Read the first metrics for a regulated, contracted, merchant or commodity-linked energy business and say what normal and abnormal look like.

Once a banker has classified the business, the next job is to read the metrics that fit its family and to know what normal looks like. Ranges are typical, never rules. For a regulated network, read RAB growth, net debt to RAB, funds from operations (FFO) to net debt and the gap between actual and allowed return. Outperformance against the allowance is real value, but it is often shared with customers at the next review, so treat it as partly temporary. For contracted renewables, read the capacity factor, the P50 and P90 output cases, availability, the weighted average remaining contract life and the off-taker's credit. Lenders size debt on the P90 case, the output exceeded in nine years out of ten, because weather varies. For thermal and merchant generation, read the spark spread, the load factor and the share of output hedged. Spark spread = power price − gas price ÷ plant efficiency. For upstream oil and gas, read cash breakeven price, netback, reserve life and the decline rate. Netback = price − royalties − operating cost − transport. Reserve life = reserves ÷ annual production. A short reserve life, or a reserve replacement ratio below 100 percent, means today's cash flow is partly a return of capital. Cash breakeven is the price at which operating cash flow covers sustaining capex, interest and overhead. A producer is resilient only if breakeven sits well below the price lenders use. Hedging buys time but does not lower breakeven. For midstream, read the fee-based share of earnings, throughput against contracted volumes and distribution cover. Compare a company with its own sub-sector and

never with the whole sector, because leverage of six times is ordinary for a regulated network and alarming for a producer. A generalist often misses that a wide margin at a peak price says little about cash flow through the cycle. Common mistake: quoting one leverage number for every energy company.

WORKED EXAMPLE: READING AN UPSTREAM PRODUCER: RESERVE LIFE, NETBACK AND BREAKEVEN

Tarnwick Petroleum is an invented producer with output of 30,000 barrels of oil equivalent (boe) a day, proved and probable (2P) reserves of 150m boe and net debt of 600m. At a price of 70 per boe it pays royalties of 10 percent of price, operating cost of 14 and transport of 4 per boe. Sustaining capex to hold output flat is 140m a year, interest is 60m and overhead is 25m. Find its reserve life, netback, cash breakeven price and leverage at 70 and at 50. Convention: 365 days, ignore tax and working capital.

Answer: Tarnwick has 13.7 years of reserves, a netback of 45 per boe and a cash breakeven of about 43 per boe, so it is resilient. Leverage is 1.3x at 70 and 2.2x at 50, which a lender would size against the lower price.

> **Interview tip:** Give the breakeven before the leverage and say which price you would lend against. Then add that the reserve life is long but that you would check the decline rate, because that decides how much capex the 140m really buys.

INT.BC.7.c · Energy, power and infrastructure

Choose the valuation measure that fits each family of energy and infrastructure cash flow, and build a trading and precedent set that a client can defend.

Valuation in this sector starts from the family of cash flow, because the multiple that fits one family misleads for another. For a regulated network, the first reference is the premium or discount of enterprise value (EV) to the RAB, because earnings are an allowed return on that base. Premium to RAB = EV ÷ RAB − 1. A premium means the buyer expects to beat the allowed return or accepts a lower return than the allowance. EV to EBITDA is the cross-check. For contracted renewables, EV to EBITDA works when the contract is long and the off-taker strong. A discounted cash flow with the contract years and a merchant tail at a conservative price is the better test. EV per megawatt is a rough screen only, because it ignores contract quality and capacity factor. For listed utilities, investors use dividend yield against the government bond yield and price to earnings. Yield is rate sensitive, so when bond yields rise the price falls unless dividends grow. For upstream producers, use EV to EBITDAX, EV to debt-adjusted cash flow and price to net asset value (NAV) built from reserves at a stated price deck. EV to EBITDA misleads for any commodity business at a peak or a trough, because earnings are unrepresentative. A low multiple on peak earnings is often a warning and not a bargain, so use mid-cycle earnings. For mining, price to NAV at consensus prices and EV to mid-cycle EBITDA are standard. A trading set holds listed peers, priced for liquidity and without control. A precedent set holds control transactions, and many were bought by infrastructure funds with long holds and low required returns, which is why precedents often exceed trading. A sum of the parts values each family on its own set. A generalist often misses that a premium to RAB is a statement about the buyer's cost of capital as much as about the asset. Common mistake: choosing peers because they share the label energy or infrastructure and not because they share a cash flow family.

WORKED EXAMPLE: VALUING A REGULATED WATER NETWORK ON A PREMIUM TO RAB

Aldermoor Water is an invented regulated network with a RAB of 3,200m, EBITDA of 240m, net debt of 2,000m, a pension deficit of 120m treated as debt-like and 700m shares. Recent control transactions for regulated networks were done at premiums to RAB of 5 to 12 percent. The allowed return on the RAB is 4.5 percent in real terms. Build an equity value range, cross-check it and explain why a buyer can pay a premium. Convention: the pension deficit is deducted in the bridge, ignore tax.

Answer: Aldermoor's equity is worth about 1,240m to 1,464m, or 1.77 to 2.09 a share, with a mid-case of 1,400m at 2.00. The EV to EBITDA of 14.0x to 14.9x is the cross-check.

> **Interview tip:** Lead with the premium to RAB and say it is a statement about the buyer's cost of capital. Then give the equity range and the EBITDA cross-check, and point out that the bridge includes the pension deficit.

INT.BC.7.d · Energy, power and infrastructure

Explain what drives M&A, equity and debt activity in energy, power and infrastructure, who the buyers and issuers are, and which pitch ideas a coverage banker brings.

Activity in this sector comes from three forces: the large capital that networks, renewables and transport assets need, the change of ownership as governments and corporates reshape portfolios, and the shift in the energy mix. In M&A, the most common ideas are farm-downs, where a developer sells a minority stake in an operating asset to fund the next build. Others

are carve-outs of networks or retail, sales of mature upstream fields to focused independents, and take-privates of listed renewables platforms. The natural buyers of contracted and regulated assets are infrastructure funds, pension and sovereign investors, because their horizons are long and their required returns low. Strategic utilities and producers buy for scale, and private equity buys where operations can be improved. Execution turns on regulatory approval, change-of-control clauses, planning consents and foreign investment screening. In ECM, rights issues fund capex, listings of renewables platforms and spin-offs give investors growth, and block trades let state holders sell down. IPO investors ask first for the contracted share of earnings, remaining contract life, the cost of capital against project returns, the pipeline and the dividend policy. In DCM, investment grade utilities issue often and for long tenors, green and sustainability-linked bonds widen the investor base, and project bonds and private placements finance single assets. Hybrids earn part equity credit with the agencies, and high yield serves producers and midstream. Ratings set capacity, and many utilities have a threshold for funds from operations (FFO) to net debt. FFO to net debt = FFO ÷ net debt. Capex programmes push this ratio down, so a hybrid, an equity raise or an asset sale becomes the pitch. A generalist often misses that a regulator can block or condition a sale, and that ring-fencing rules can stop cash moving up from a network. Common mistake: pitching a sale to an infrastructure fund without testing the regulator's view and the price the fund's return target implies.

WORKED EXAMPLE: SIZING A HYBRID AGAINST A RATING THRESHOLD

Calder Grid is an invented utility with FFO of 900m, net debt of 5,400m and a market capitalisation of 3,600m. It will spend 800m on grid investment, all debt funded. The rating agency's threshold for the rating is FFO to net debt of 15 percent, and a hybrid earns 50 percent equity credit. What is the ratio before and after the spend, and how large must a hybrid or an equity raise be to restore it? Convention: ignore the extra FFO from the new assets and the hybrid coupon.

Answer: Calder's ratio falls from 16.7 to 14.5 percent. A hybrid of at least 400m, or equity of at least 200m, restores the 15 percent threshold, and a 600m hybrid adds a cushion at 15.25 percent.

> **Interview tip:** State the ratio, the threshold and the gap before naming the product. Then say why you recommend a hybrid with cushion over equity, which is dilution, and mention that the hybrid's coupon is a cost that the company must accept.

INT.BC.7.e · Energy, power and infrastructure

Name the cycles, risks and accounting traps of energy, power and infrastructure companies and run a compact end-to-end analysis that a banker could defend to a client.

The risks in this sector come in a few forms, and each has its own cycle. Commodity price cycles hit producers, merchant generators and miners. Interest rate cycles hit yield-based and long-duration assets, because a higher discount rate cuts the value of distant cash flows. Regulatory cycles reset allowed returns at each price review. Policy changes alter subsidies, carbon prices and windfall taxes. Physical risks include weather, outages and construction overruns, and counterparty risk matters wherever one payer provides the cash. Refinancing risk matters because debt often falls due before the asset's life ends. The accounting traps are specific. Unrealised gains or losses on derivatives sit in reported EBITDA, so strip them out. Capitalised development costs and capitalised interest raise EBITDA and flatter cover, so compare with peers on the same basis. Decommissioning provisions are real obligations and belong in the enterprise value bridge, usually after tax. Units-of-production depreciation moves with reserve estimates, and a cut to reserves can bring an impairment. Concession accounting can turn a physical asset into a financial receivable, so EBITDA and cash can differ. Debt in joint ventures may sit off the balance sheet, so add the proportionate share. Adjusted EBITDA = reported EBITDA − unrealised derivative gains − capitalised development costs − one-off gains. A compact analysis follows a fixed order: classify the business, split cash flow by family, read the first metrics, normalise earnings, build the bridge, value on the right measure and test debt through the cycle. The product is chosen last, because it depends on the answers. A generalist often misses that a company can look cheap and lightly geared only because of the way these items are reported. Common mistake: using reported EBITDA and net debt without adjustment.

WORKED EXAMPLE: NORMALISING AN INTEGRATED PRODUCER BEFORE VALUING IT

Marrowdale Energy is an invented producer-and-power company with reported EBITDA of 420m. That includes an unrealised hedge gain of 35m, capitalised development costs of 18m that peers expense, and a one-off insurance recovery of 12m. Market capitalisation is 2,100m, net debt is 900m excluding leases, lease liabilities are 100m and the decommissioning provision is 240m before tax, with tax relief at 30 percent. Find EV to EBITDA and leverage on the reported and adjusted bases. Convention: EBITDA is stated after IFRS 16, so lease liabilities count as debt.

Answer: Marrowdale is not cheap at 7.1x and lightly geared at 2.1x. On a normalised basis it is 9.2x EBITDA and 3.3x levered, which changes the valuation range and the debt capacity a banker would discuss.

Interview tip: Say that you adjusted the earnings and the bridge together, because both move the multiple. End by naming the single item that matters most, here the hedge gain, and which product follows from the adjusted leverage.

INT.BC.7.f · Energy, power and infrastructure

Name the material sub-sectors of energy, power and infrastructure and, for each, say what sets its cash flow, which metrics a banker reads first, what is usually misread and how the product groups meet it.

Energy, power and infrastructure splits into eleven sub-sectors, and every answer should start by naming one. Upstream oil and gas sells a depleting resource at market prices, so read cash breakeven, netback and reserve life first, beware a low multiple on peak earnings, and expect asset sales in M&A and reserve-based or high yield debt. Midstream moves and stores oil, gas and products for fees, mostly under take-or-pay contracts, so read the fee-based share, contract life and distribution cover, beware volume-linked tariffs sold as contracted, and expect infrastructure fund buyers and bond issuance. Downstream refining and marketing turns crude into products for a margin, so read the refining margin, utilisation and complexity, beware one strong quarter, and expect carve-outs, joint ventures and secured loans. Oilfield services rents rigs, crews and equipment to producers, so demand follows customer capex with a lag, read utilisation, day rates and backlog, beware peak day rates, and expect consolidation and cyclical equity issues. Regulated networks earn an allowed return on a regulated asset base, so read RAB growth, net debt to RAB and the next price review, beware outperformance that the regulator will claw back, and expect fund bids and long investment grade bonds. Conventional power generation and retail sell electricity at market or fixed prices, so read the spark spread, load factor and hedged share, beware margins from a price spike, and expect carve-outs, hybrids and rating-driven funding. Contracted renewables sell wind and solar output under long agreements, so read capacity factor, P90 output, contract life and off-taker credit, beware the merchant tail and the capture price, and expect farm-downs, platform listings and project debt. Transport infrastructure such as airports, ports and toll roads earns tariffs on traffic under a concession, so read traffic, tariff growth and cover, beware volume shocks and concession expiry, and expect fund sales and project bonds. Social infrastructure such as hospitals and schools earns availability payments from a public authority, so read deductions, lifecycle cost and years left, beware maintenance overruns, and expect secondary sales of equity stakes and refinancings. Digital infrastructure such as towers, data centres and fibre earns rent under long leases, so read tenancy, contracted megawatts and escalators, beware tenant concentration and power cost, and expect fund buyers, sale and leaseback and asset-backed debt. Mining and materials sells metals at market prices from a depleting orebody, so read all-in sustaining cost, grade and reserve life, beware earnings at peak prices, and expect combinations, royalty deals and bond issues. In an answer, name the sub-sector first, then the driver of its cash flow, then the two or three numbers. Most groups hold several sub-sectors, so never apply one multiple across the whole map.

WORKED EXAMPLE: READING THREE BUSINESSES WITH THE SUB-SECTOR MAP

A banker is shown three invented companies. Skerrow Gas Pipelines has revenue of 450m: 340m of take-or-pay capacity payments, 40m of other fixed fees and 70m linked to volume, with distributable cash flow of 288m against distributions of 240m. Halden Fields has 2P reserves of 64m boe, output of 8m boe a year, a cash breakeven of 38 and a price of 65. Marlow Cross Toll Road carries 42m vehicles a year at an average toll of 3.10, with an EBITDA margin of 78 percent, fixed costs and annual debt service of 60m. Classify each, read the first metrics and test the toll road on a 15 percent fall in traffic. Convention: costs do not change with traffic, ignore tax.

Answer: Skerrow is 84 percent fee-based with cover of 1.20x, Halden has 8.0 years of reserves and a 41.5 percent margin over breakeven, and Marlow has cover of 1.69x that falls to 1.37x if traffic drops 15 percent.

Interview tip: Name the sub-sector, then the driver, then the numbers, as the map suggests. Finish each company with the one thing most often misread, because that is what shows an interviewer you have worked with the sector.

Summary of the Charta interview-preparation topic. Companies and figures in the examples are invented. Draft content, not yet expert reviewed.