Infrastructure Investing

Interview preparation summary · RE track

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INT.RI.1.a · Strategies, Revenue Models and Sectors

Place an infrastructure asset on the core, core-plus, value-add and opportunistic spectrum by its revenue model (contracted, regulated or merchant), and say what return and risk each implies.

Infrastructure strategies are separated by where the return comes from and how much risk is taken to earn it. Core assets are operating, with long-lived cash flows that are regulated or contracted with strong counterparties, so most of the return is yield and growth is tied to inflation or a defined asset base. Core-plus adds some volume, price or re-contracting exposure. Value-add takes construction, ramp-up, repositioning or a merchant tail, and opportunistic strategies take development, frontier markets or distressed situations to chase equity-like returns. The revenue model tells you more than the sector label. Contracted income, such as a power purchase agreement or an availability payment, is fixed by agreement for a term. Regulated income is set by a regulator through a formula and reset periodically. Merchant income depends on market prices or volumes. Most assets are a mix, so the useful habit is to split EBITDA by revenue type, test the merchant and re-contracting parts in a downside, and discount each at a rate that fits its risk. The usual mistake is to price a mixed asset at a pure core multiple because the sector sounds defensive.

WORKED EXAMPLE: CLASSIFYING HALSEY SOLAR

Halsey Solar is an invented solar farm that produces 250,000 MWh a year. 70% of the output is sold under a 15-year contract at 60 per MWh and 30% is sold at market, currently 50 per MWh. Fixed operating costs are 3.0m a year. An interviewer asks you to classify it and to say what happens to EBITDA if the market price falls 40%. Convention: annual figures, costs do not change with price.

Answer: Halsey Solar is about 74% contracted by revenue; a 40% fall in the market price cuts EBITDA by 13.3%, from 11.25m to 9.75m, so it is core-plus.

> **Interview tip:** Say: it is 74% contracted, so I would call it core-plus; a 40% price fall costs 13% of EBITDA because the costs are fixed, and the merchant piece and the contract expiry are what I would price at a higher return.

INT.RI.1.b · Strategies, Revenue Models and Sectors

Explain how availability-payment concessions (PPP and PFI) and regulated asset base utilities earn their returns, and what the main risks are: performance deductions, handback, regulatory resets and inflation linkage.

In a PPP or PFI concession a public authority pays a project company a periodic availability payment for making an asset, such as a hospital or road, available to an agreed standard for a fixed term. Revenue does not depend on how much the asset is used, so the risks are construction, performance and cost: deductions for failures, lifecycle maintenance that costs more than planned, and the condition in which the asset must be handed back at the end. The payment is usually indexed, and the concession ends, so there is no terminal value. A regulated asset base utility earns an allowed return on the value of the capital it has invested. Allowed revenue is built from the return on the base, depreciation of the base and an allowance for operating costs, and the base is often indexed to inflation, so revenue tracks prices. The regulator resets the allowed return every few years. Because debt costs are largely fixed, a small change in the allowed return moves equity returns by much more. The risks to name are the reset, outperformance or underperformance against cost allowances, and the political risk of tariffs. The usual mistake is to treat these assets as risk free because the counterparty is public.

WORKED EXAMPLE: ALLOWED REVENUE AND A RESET FOR TARNSIDE NETWORKS

Tarnside Networks is an invented regulated network with a regulated asset base (RAB) of 2,400m. The allowed real return is 3.8%, the depreciation allowance is 96m a year and the operating cost allowance is 150m. 55% of the RAB is funded with debt at a real cost of 1.8%. Find allowed revenue and the real equity return, then the effect of a reset that cuts the allowed return to 3.3%. Convention: real terms, ignore tax, one year.

Answer: Allowed revenue is 337.2m and the real equity return is about 6.2%; a cut in the allowed return to 3.3% lowers it to about 5.1%, a fall of nearly 18% in equity income.

> **Interview tip:** Say: revenue is return plus depreciation plus opex, and with 55% gearing a 50 basis point reset costs equity about 110 basis points, so I would underwrite the next reset, not the current allowance.

INT.RI.1.c · Strategies, Revenue Models and Sectors

Describe the main infrastructure sub-sectors (renewables, storage and grids, towers, data centres and fibre, utilities and midstream) and name the revenue driver and the main risk of each.

Each sub-sector has its own revenue driver and its own way of going wrong. Renewable generation sells output under power purchase agreements, contracts for difference or at market prices, so the questions are the term and price of the contract, the resource, the cost curve and what happens after expiry. Battery storage earns from capacity contracts, trading and grid services, so revenue is more exposed to market design and to more batteries entering. Grid and network assets are usually regulated and grow by adding to the asset base as electrification needs more capacity, which makes permitting and the regulator the central risks. Towers lease space to mobile operators on long contracts with indexed rents, and adding a second or third tenant on an existing tower earns a high margin because the cost is already paid. Data centres lease power and space, often take-or-pay, and the risks are power and grid availability, construction and tenant concentration. Fibre earns from wholesale or retail subscribers, so take-up and build cost drive returns. Utilities earn from regulated tariffs, and midstream pipelines and storage earn fees, which may be regulated or contracted. The usual mistake is to treat all of this as one defensive asset class and to skip what happens when the contract ends.

WORKED EXAMPLE: ADDING TENANTS AT FERROW TOWERS

Ferrow Towers is an invented company with 2,000 towers and an average of 1.3 tenants per tower. Each tenant pays 18,000 a year and each tower costs 9,000 a year to run. Operators are taking new equipment, and the tenancy ratio could rise to 1.5. Each extra tenancy adds 1,000 of cost. Find EBITDA today and after the change, and say why it moves so much. Convention: annual figures, ignore capex and tax.

Answer: EBITDA rises from 28.8m to 35.6m, up 23.6%, because each extra tenancy brings 18,000 of rent for 1,000 of cost.

> **Interview tip:** Say: the operating leverage is in tenancy ratio, each extra tenant is about 94% margin, so I would test the customer concentration and what an operator merger does to the ratio.

INT.RI.2.a · Underwriting, Financing and Exit

Underwrite an infrastructure asset with a long-term discounted cash flow, using WACC, terminal value or concession life, the split between yield and growth, and inflation linkage, and test how sensitive value is to each.

Infrastructure cash flows are long, so the discount rate and the end of the forecast matter more than the next few years. The model discounts unlevered cash flow at the weighted average cost of capital, which blends the cost of debt and equity at the target gearing, and the answer is the enterprise value. For an asset with no end date the terminal value is often most of the total, so it should rest on a growth rate no higher than long-run inflation and, for a growing perpetuity, on the spread between the discount rate and growth. For a concession there is no terminal value, only the cash flows until expiry, so the same cash flow is worth much less than in a perpetuity. A useful shortcut is that the expected return is roughly the cash yield plus growth, which is also how investors compare assets that are paid mainly by yield with those paid mainly by growth. Inflation linkage matters because indexed revenues protect real value, but only if costs and debt are not linked in the wrong direction. A small change in the discount rate or the growth rate moves value a lot when the spread is narrow. The usual mistake is to take growth above inflation forever or to cut the discount rate until the price fits.

WORKED EXAMPLE: VALUING WYNMOOR CONCESSION

Wynmoor Concession is an invented toll road. Free cash flow next year is 30m and grows 2.5% a year with inflation. The WACC is 6.0%. The concession has 25 years left and there is no payment at the end. Value it as if it were a perpetuity, then as it really is, and explain the gap. Convention: annual cash flows at year end, ignore tax.

Answer: As a perpetuity the road is worth 857.1m; with 25 years and no terminal value it is worth 486.9m, about 57% as much.

> **Interview tip:** Say: the asset ends in 25 years, so I take the annuity at 487m and not the perpetuity at 857m, and I would check whether handback or a renewal option adds any value after that.

INT.RI.2.b · Underwriting, Financing and Exit

Assess project finance and long-dated debt using debt service cover, gearing, sculpting, lock-ups and refinancing, and assess construction and ramp-up risk and who bears it.

Infrastructure is often financed with long-dated, non-recourse debt that is sized on the cash flow of the asset. Lenders size the loan so that cash flow available for debt service covers scheduled interest and principal by a margin, and the ratio of the two is the debt service cover ratio. Repayments may be sculpted to the forecast cash flow so cover is stable, or fixed as an annuity, in which case cover is thinner when cash flow dips. Covenants set a lock-up level, below which cash cannot be distributed to equity, and a default level below that, and a debt service reserve account gives a buffer. Some loans are mini-perms that mature before the debt is repaid, which leaves a refinancing risk at the balloon. Construction and ramp-up carry the largest risks of delay, overrun and slow commissioning. A fixed-price, date-certain construction contract with delay damages moves most of the cost to the contractor, but damages are capped and do not cover permits, grid connection or demand. Delay costs lost income plus interest on debt that is already drawn. The usual mistake is to accept the base-case cover without asking how fast it falls in the downside.

WORKED EXAMPLE: DEBT SERVICE COVER FOR ORMSBY WIND

Ormsby Wind is an invented operating wind portfolio with a 240m loan at 5.5%, repaid as a level annuity over 18 years. Cash flow available for debt service (CFADS) is 30m. The lock-up is at 1.15 times and default at 1.05 times. Find the cover today, and then the cover if CFADS falls 20%. Convention: annual figures, payment at year end.

Answer: DSCR is 1.41 times today and 1.12 times after a 20% fall in CFADS, below the 1.15 times lock-up, so distributions stop and 2.66m is trapped.

> **Interview tip:** Say: cover is 1.4 times, but a 20% fall puts it at 1.12 times, in lock-up with little room before default, so I would size the debt on the downside, not the base case.

INT.RI.2.c · Underwriting, Financing and Exit

Weigh ESG, permitting and downside cases in an infrastructure investment, and explain holding periods and exit routes, including the effect of the exit yield on returns.

Permits and consents are gating items, because planning, environmental and grid approvals decide whether a project can be built and when, and delay costs money before revenue starts. Environmental, social and governance factors are financial for infrastructure: community opposition, biodiversity, emissions, safety and the quality of the owner's governance affect consents, costs and the pool of buyers at exit. A sound downside case combines several stresses that could occur together, such as lower volumes or prices, slower indexation, a higher refinancing rate and a delayed or wider exit, and it asks whether the investor still gets capital back. Infrastructure is held for a long time, because the cash flows are long and the return is mostly yield, so a fund with a fixed life has to sell when the market decides, not when the asset is ready. Exit routes include a sale to a long-term infrastructure or pension investor, a trade buyer, a listing, a sale of part of the stake, or a continuation vehicle. Because cash yield is part of the return each year, returns are less sensitive to the exit than a growth asset, but a wider exit yield still lowers value in proportion to the change in yield. The usual mistake is to assume exit at the entry yield.

WORKED EXAMPLE: EXIT SENSITIVITY AT PELLWICK WATER

Pellwick Water is an invented regulated water business bought for 200m of equity. It pays a cash yield of 6% a year (12m) for seven years, and is then sold. Compare the equity IRR if the sale price is 240m, 200m and 170m. Convention: annual cash flows at year end, no leverage change, ignore tax and fees.

Answer: The equity IRR is about 8.2% if sold at 240m, 6.0% at 200m and about 4.1% at 170m; the 6% yield protects the return when the exit is weak.

> **Interview tip:** Say: the return is mostly yield, so a weak exit costs about 2 points of IRR and not the whole return, but I would still underwrite an exit at a wider yield than I paid, not the same one.

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