ADD TO CART

Project Finance & Infrastructure Modeling: Course Outline

Description: This Project Finance & Infrastructure Modeling course teaches students and professionals how to model energy and transportation assets, such as toll roads, airports, natural gas plants, solar plants, offshore wind farms, nuclear power plants, and lithium mines. The topics covered include cash flow modeling for renewable and conventional energy assets, debt sizing and sculpting via Excel formulas and VBA, and analyzing acquisitions and developments with varied treatment for debt and equity draws.

Objectives: By the end of the course, students will be able to build annual and quarterly models for these energy, transportation, and natural resource assets and make investment recommendations from the perspective of both equity and debt investors. They will also understand debt sculpting and sizing, including merchant tails, multiple tranches, and constraints based on the DSCR, LLCR, PLCR, and other metrics.

Target Audience: Experienced investment bankers and corporate finance professionals who are interested in infrastructure private equity, project finance, and related fields.

Duration: 15 – 20 hours (various study plans are available).

Outline:

- **Module 1A: Course Intro and Toll Road Acquisition Case Study (45 Minutes)** – Students complete a case study based on the acquisition of a toll road in Spain with a 20-year concession; they learn the fundamentals of revenue, expenses, cash flows, and debt sizing and sculpting for infrastructure assets here.

- **Module 1B: Solar Development Case Study (75 Minutes)** – Students build a model for a new solar plant development in North Carolina, focusing on the construction period projections, interest during construction (IDC), and revenue via power purchase agreements (PPAs). They also model a loan refinancing, with the permanent loan based on a minimum targeted Loan Life Coverage Ratio (LLCR), and they make an investment recommendation based on the IRR, multiple, and risk factors.

- **Module 1C: Natural Gas Power Plant Acquisition (75 Minutes)** – This module teaches students how to model electricity generation, gas consumption, and revenue and expenses associated with a natural gas power plant. They'll gain more practice with debt sculpting and sizing and learn how to apply the principles to one sculpted tranche and one tranche with fixed amortization and a "merchant tail." The final lessons cover the investment recommendation and simple VBA code that can automate debt sizing and sculpting.

- **Module 1D: Offshore Wind Development Case Study (2.5 Hours)** – Students learn how to build a quarterly model for an offshore wind development in the U.K. in this case study; this includes the P50 vs. P70 vs. P90 concepts for net energy yield, seasonality, and escalation and degradation factors applied to the turbines. They also calculate the pre-tax and after-tax Cash Flow Available for Debt

Service (CFADS) and learn how to sculpt and size multiple tranches of Debt based on an overall LLCR. They make an investment recommendation and answer case questions in the final lessons.

- **Module 1E: Debt Sizing, Sculpting, and VBA Mini-Course (OPTIONAL) (2.5 Hours)** – This optional training teaches the key Debt sizing, sculpting, and VBA concepts via simplified models and is geared toward learners who want to learn the mechanics *quickly* outside of formal case studies. It covers everything from DSCR and LLCR-based sizing up through quarterly models, variable dates, and VBA copy/paste macros.

- **Module 2: Quarterly Plant Solar Development (3.0 Hours)** – This case study covers a solar plant development in Queensland, Australia and teaches a more complex Debt and Equity draw scheme, Maintenance and Decommissioning Reserves, the Debt Service Reserve Account (DSRA), a full Working Capital schedule, the "Cash Trap" feature for Dividends, and the Levelized Cost of Energy calculation (in addition to the normal revenue, expense, cash flow, and debt sizing/sculpting calculations). There's also a full investment recommendation presentation at the end.

- **Module 3: Airport Acquisition and New Terminal Construction (3.5 Hours)** – This case study is based on the **Singapore Changi International Airport** and its construction of a new Terminal 5 to handle an additional 50 million passengers annually. It combines a "traditional" leveraged buyout model based on the 3 financial statements with infrastructure-specific features, such as a Construction Loan, DSCR-limited Dividends, a multi-decade holding period, and GDP-linked revenue and expenses. The final lesson includes a full investment recommendation presentation for equity investors and lenders.

- **Module 4: Nuclear Plant Development (3.0 Hours)** – This case study is based on the **Shin Hanul nuclear plant in South Korea** (Units 3 and 4) and covers issues such as 10-15-year construction periods, multiple development phases, Preferred Stock and hybrid financing instruments, electricity revenue at PPA vs. market rates, and the risk from KRW vs. USD-denominated expenses. There's also support for a Cash Trap, Decommissioning Reserve, equity/project/lender returns, the LCOE, and short VBA code to automatically back-solve for the proper PPA prices.

- **Module 5: Lithium Mining Development (4.5 Hours)** – This case study is based on the **Thacker Pass** lithium mine in Nevada and delves into mining-specific nuances, such as commodity price decks, price hedging, offtake vs. spot prices, strip ratios, and mineral grades; it also uses VBA *extensively* to sculpt and size various tranches of Debt properly and to build the sensitivity tables. This is the most advanced model in the entire course and combines many of the concepts from the previous modules and builds in even more advanced features.

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