Advanced Project Finance Modelling

☑ SIDC CPE Approved **(10 CPE Points)**

☑ HRD Corp Claimable **(SBL Khas: Scheme)**

13 – 15 May 2025

Sheraton Imperial Kuala Lumpur Hotel, Malaysia

COURSE DESCRIPTION

Project Finance Modelling provides participants with the ability to understand project finance theory through creating and understanding project finance models. The general idea is that through building models in a hands-on environment, you will be better able to quantify risks of different types of projects and you will be able to use models to design the best debt, equity and contractual structure to build models. The course is designed so that participants can build and interpret **flexible** models with effective summary statistics; so that models will be **accurate** with effective error checks that verify the model; so, the attendees understand and program **structured** models that incorporate complex cash flow waterfalls, alternative funding cascades and sculpted repayment techniques; and so that models will be **transparent** and clear to understand by users. The course includes different kinds of risk analysis and presentation of summary statistics. Additionally, attendees learn how to use advanced techniques to resolve circular references associated with funding of a project and debt sculpting that use VBA functions rather than macros.

WHO SHOULD ATTEND

The course will be of value to professionals in the following areas:
● Bankers/Investment Bankers ● Project Finance Modellers ● Financial Advisors ● Sponsors ● Business Developers ● Government/PPP Agencies ● Public Sector Managers ● Export-Credit Agencies ● Multilateral Agencies ● Financial Analysts ● Analysts/Brokers ● Finance Directors ● Credit Committee members ● Project Managers ● Project Consultants ● Investment/Portfolio Managers

KEY BENEFITS

- **Understand** project finance models in the context of finance theory related to subtle issues associated with contract structuring, debt sizing, debt funding, debt repayment, debt servicing costs and credit enhancements.
- **Interpret** models developed by other people and add master scenario pages to any model using case studies of actual models.
- **Create** flexible models with effective summary statistics to evaluate alternative timing, operating assumptions, financial structures, re-financing and contract pricing.
- **Work through** the difficult problems in project finance modelling including
  - Complex cash flow waterfalls with balloon payments and mini-perm structures
  - Sizing of debt with capitalized interest and alternative drawdown schedules
  - Flexible debt sculpting with income taxes
- **Sizing** of debt service reserves and use of DSRA in waterfall
  - Re-financing of debt and mini-perm debt
  - Debt service reverses that look ahead to future years
- **Understand** the benefits of creating user defined functions rather than copy and paste macros to resolve any circular reference problems in project finance models including funding problems and debt sculpting
- **Incorporate** structural enhancements into models such as maintenance reserve accounts and gain insight into the costs and benefits of the alternative features such as cash flow sweeps, covenants and debt service reserve accounts
- **Learn** Excel techniques with some VBA to make better presentations from models and to make models more transparent and efficient

Edward Bodmer — Expert Trainer

Consultant, Professional Trainer, Author

Edward Bodmer is a world leader in renewable energy analysis, financial modelling and evaluation of storage technologies. He has been an advisor for many solar, wind, storage and hydro projects around the globe and he has taught hundreds of courses on an assortment of energy analysis and financial modelling topics. Mr. Bodmer has developed a website on financial modelling and energy analysis that is one of the most frequented websites in the world involving renewable energy, project finance, solar modelling, storage analysis and other subjects.
Edward has created innovative financial analysis and valuation methods that address financial modelling of PPPs, capital structure theory, project finance structuring, terminal valuation and the relation between return on investment and internal rate of return. He has created a unique modelling framework to address complex project finance sculpting, difficulties with copy and paste solutions to circular references, and consistent model verification and as well as unique financial modelling methods that solve classic project finance issues. He has provided financial advisory and modelling services and developed the financial model for a 5,000 MW electricity project costing USD 28 billion.

Program Timings

The program will commence at 9.00am each day and continue until 5.00pm.

Organised By

Traxius Global Sdn Bhd
(1125473-D)

Traxius Global

Traxius Global

Workshop Agenda

DAY ONE | 13 May 2025 | Tuesday

The Project Modelling with Excel program begins with introductory comments about the skills and general objectives in project finance modelling with an emphasis on the difficulty in measuring and valuing risk. After the introductory discussion of key structuring aspects of project finance models, participants begin work on construction of a flexible, structured, accurate and transparent project finance model.

Flexible Timing in Project Finance Models

Timing in the context of Project Finance Theory

- Review of actual models and date inputs and timing
- Modelling project phases with switches and timing switches
- Modelling delay risk and flexible construction periods and S- curves
- Conversion of periodic data into annual and semi-annual presentations

Incorporating Operating Assumptions in Project Finance Models

- Setting-up operating assumptions for revenues, operating expenses and capital expenditures
- Alternative methods for presenting time series assumptions
- Modelling inflation rates and growth rates with different time periods
- Calculation of pre-tax IRR and construction of summary page
- Computation of liquidated damages from construction delay
- Calculation of contract price from required pre-tax IRR

Depreciation, capital allowance and fixed asset module

- Notion of structured models with separate page for depreciation analysis
- Use of timing switches for depreciation and /or capital allowance
- Introduction to verification and auditing for testing balances
- Benefits of separating deprecation on interest during construction and fees from other depreciation and amortization
- Calculation of after-tax project IRR
- Calculation of project IRR assuming alternative sale dates earlier than the retirement date

Risk Analysis Introduction and Basic Debt Structure

This module addresses the theory and practice of risk analysis in project finance models. Different risks that are affected by historic record, mean reversion, volatility, resource risk and political risk are discussed. This is followed by addressing appropriate downside cases for credit analysis. Most of the time for this session is spend demonstrating how to construct scenario analysis, sensitivity analysis and Monte Carlo simulation.

Major Risks of Projects in Financial Models (analysis and mitigation)

- Commodity price risk versus traffic volume risk
- Technology risk (breakdown and obsolescence)
- Evaluation of political risk with models
- Setting-up models for measuring foreign currency risk
- Construction cost and delay risk

Assumptions and Mechanics for Basic Debt Schedule - Five parts of debt: size, funding, repayment, interest, enhancements

- Set-up of basic assumptions with input debt level
- Debt schedule mechanics
- Cash flow waterfall with debt

Set-up of master scenario page

- Development of reasonable downside case assumptions
- Use of scenario code number
- Presentation of scenario and custom sensitivity with user- forms
- Use of macros and data tables

Break-even and sensitivity analysis

- Importance of break-even analysis in project finance
- Use of DSCR, LLCR and PLCR for measuring alternative break-even points
- Alternative sensitivity mechanics
- Use of macros and data tables

Sensitivity Presentation with Tornado Diagram and Waterfall Charts

- Adding sensitivity analysis to scenario table
- Creating cumulative and incremental tables
- Using scenario reporter

Optional Monte Carlo Session

- Time series variables in Project Finance
- Measuring volatility of value drivers
- Creating distribution analysis with data table or macro
- Measuring probability of default with Monte Carlo Simulation

TEACHING STYLE COVERING THEORY AND PRACTICE

- We have developed a unique teaching style whereby theory is covered well as practice. Teaching Approaches Include:
  - Having participants perform all the practical exercises rather than the instructor
  - Minimizing the use of power point slides and maximizing theoretical discussion behind each concept
  - Reserving time for group case studies to reinforce theory and practice
  - Providing resources for future learning and knowledge retention
  - Highly interactive and hands-on teaching style
  - Selection of case studies demonstrating potential errors in analysis and theory

DAY TWO | 14 May 2025 | Wednesday

As project finance is a type of debt, this module addresses various theoretical and practical issues related to debt financing in general and project debt in particular. Subjects included in module three include setting up a debt schedule, debt sculpting, flexible debt terms, debt capacity, debt structure and credit measures.

Theory of Debt Capacity

- Philosophy of debt to capital and “skin in the game”
- Philosophy of debt service coverage and “negotiated forecast”
- Implications of different debt sizing metrics
- Interaction of debt sizing, debt repayment, DSRA and other factors

Debt Schedule and Debt Capacity Mechanics

- Set-up of sources and uses to evaluate debt size from target debt to capital ratio
- Debt capacity from debt service coverage with formulas
- Debt repayment with equal installments or mortgage repayments
- Presentation of cash flow and debt service on summary page

Debt Repayment Analysis

- Alternative debt tenor
- Mini-perm and re-financing
- Verification tests for debt balance and debt repayment
- Inclusion of bond financing and mini-perm

Debt Sculpting

- Computing repayments assuming debt sculpting without taxes and DSRA
- Circularity problems arising from sculpting and taxes
- Resolution of circularity problems using function

Financial Structuring During Construction and Development Phase

This module of the program begins the addressing details of project finance models including funding structure during construction, interest during construction, bond financing and various other exercises relevant to financing during construction in project finance models.

Review of Financing Calculations in Sample Completed Models

- Alternative possible financing assumptions
- Notion of funding versus debt commitment from summary sources and uses
- Presentation of sources and uses of funds

Funding Cascade

- Pro-rata construction versus equity up-front versus equity bridge loan
- Funding Needs versus Debt Commitment and Funding Ratio
- Use of MAX and MIN in developing funding cascade
- Modelling of bond financing with flexible timing and cash fund

Circularity Macros and Functions for Capitalised Interest and Fees

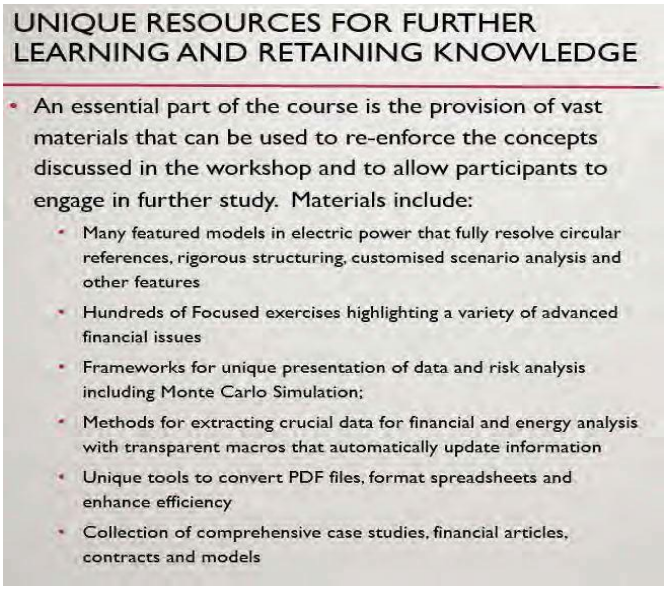
- Alternative methods to resolve circularity
- Illustration of four methods for resolving circularity with fee example
- Advantage of functions relative to macros for transparency and flexibility
- Use of algebra and functions instead of macros

Debt Schedule during Construction

- Interest during construction and interest capitalised using periodic interest rates and credit spreads
- Set-up of summary sources and uses of funds to resolve circularity
- Up-front fees and commitment fees
- Repayment of construction debt at project completion date to avoid DSRA circularity

Model Verification and Accuracy Audits

- Developing multiple tests for funding needs and funding uses using logical variables
- Aggregation of multiple tests
- Effective presentation of model verification on each page of model



DAY THREE | 15 May 2025 | Thursday

This module moves from debt structuring to risk analysis. The principal issue addressed is how to model a cash flow waterfall where different instruments such as cash flow sweeps reserve accounts and covenants are used to protect senior debt service.

Cash Flow Sweep and Cash Trap Covenants

- Incorporation of cash sweep in debt schedule
- Limits on cash sweep using MIN function
- Programming cash trap covenants
- Set-up of cash lock-up account

Efficient Cash Flow Waterfall Modelling

- Setting up debt and reserve schedule combined with cash flow analysis
- Setting up cash flow with positive and negative conditions
- Use of sub-totals in modelling cash flow
- Application of MAX and MIN functions to limit cash flows
- Modelling sinking fund, sweep and bullet repayment

Debt Service Reserve Accounts

- Modelling required debt service balances
- Withdrawals from debt service reserve
- Topping-up of debt service reserves
- Debt reserve during end of construction period
- Resolving circularity associated with debt service reserve

Taxes and Financial Ratios

This module completes the project finance model through inclusion of a profit and loss statement and computation of income taxes. Given the income, a balance sheet is computed to verify calculations in the model. Finally, the LLCR, PLCR and the average debt life are computed.

Profit and loss statement and income taxes

- Structuring profit and loss
- Inclusion of depreciation on interest during construction and amortization of fees
- Programming basic net operating loss account
- Accounting for expiration of net loss carry forward

Workshop Agenda

Calculation of Alternative Financial Ratios

- DSCR with and without tax effect of interest during construction and fees
- Calculation and interpretation of PLCR with varying interest rates
- Adjustments to compute LLCR
- Alternative calculations of loan life

Balance Sheet Calculation

- Limited need for balance sheet in analysis
- Concept of computing equity balance and using closing balances from other sections of the model
- Use of balance sheet as auditing tool

Re-financing and Valuation Analysis

This module completes the project finance analysis through inclusion of valuation section that reflects the changing risk of a project over time and the potential upside from re-financing of a project.

Theory of Project Valuation and Re-financing

- Changes in risk for project finance versus corporate finance
- Problems with equity IRR as a measure of value
- Value of project in development phase
- Project life, debt tenor and terminal value

Re-financing

- Switches for the re-financing period
- Sources and uses for re-financing
- Sizing of re-financed debt
- Sizing of re-financed debt

Project Valuation

- Changes in cost of capital from risk changes
- Measurement of IRR with alternative holding periods
- Sizing of re-financed debt

Optional Excel Session

The objective of this session is to assure that all participants, including people who do not routinely work with Excel, become familiar with the tools in Excel and work comfortably on the class exercises. The optional Excel session will cover short-cut keys, effective presentations, use of forms, one-way and two-way data tables, and look-up functions for scenario analysis.

Course Director Profile

Edward Bodmer
Senior Consultant, Professional Trainer, Author

Edward Bodmer is a world leader in renewable energy analysis, financial modelling, and evaluation of storage technologies. He has been an advisor for many solar, wind, storage and hydro projects around the globe and he has taught hundreds of courses on an assortment of energy analysis and financial modelling topics. Mr. Bodmer has developed a website on financial modelling and energy analysis that is one of the most frequented websites in the world involving renewable energy, project finance, solar modelling, storage analysis and other subjects. He has written two textbooks, one of which describes innovative theoretical concepts for project finance versus corporate financial analysis and distortion in measuring valuation. Mr. Bodmer's courses address financial modelling of different kinds of projects, analysis of energy markets, capital structure theory, project finance structuring, terminal valuation, and the relation between return on investment and internal rate of return. He has created a unique modelling framework to address complex project finance sculpting, difficulties with copy and paste solutions to circular references, and consistent model verification and as well as unique financial modelling methods that solve classic project finance issues. He has provided financial advisory and modelling services and developed the financial model for a 5,000 MW electricity project costing USD 28 billion.

Edward Bodmer's teaching involves directing professional development courses for finance and energy professionals in Africa, South America, Asia, and Europe. His principal courses include the economics, financing and resource analysis of renewable energy, project finance modelling, corporate modelling and M&A valuation, energy storage analysis, analysis of markets and contracts associated with independent power, electricity power economics and corporate valuation theory. He has taught customized courses (through Euromoney or independently) for Goldman Sachs, EDF, ACWA Power, MIT's Sloan Business School Club, UBA Nigeria, Santander Bank, General Electric, CapitaLand, Tenaga Nasional, the Korea Banking Institute, Shell Oil, Engie, Society General, HSBC, Citibank, CIMB, Linklaters, Saudi Aramco, Saudi Fransi Bank, the London Business School Infrastructure Club, and many other energy and industrial clients.

Edward Bodmer has completed a textbook titled Corporate and Project Finance Modelling, Theory and Practice published by Wiley Finance (627 pages). The book introduces unique financial and economic modelling techniques that address many complex issues that are not typically used by even the most experienced modelers. For example, it describes how to build user-defined functions to solve circular logic without cumbersome copy and paste macros; how to write a function that derives the ratio of EV/EBITDA accounting for asset life, historical growth, taxes, return on investment, and cost of capital; and how to efficiently solve many project finance issues related to debt structuring. Mr. Bodmer's second textbook that is in the process of being published describes the many errors and distortions in finance theory involving cost of capital measurement, financial statement analysis, valuation from multiples, terminal value and other subjects that are demonstrated with careful financial modelling and real-world financial practices. A key theme of the book is how the problematic issues with finance theory negatively affect investments that are made to mitigate or adapt to climate change.

Bodmer's consulting activities include developing complex project finance, corporate and simulation models, providing expert testimony on financial and economic issues before regulatory agencies, and advisory services to support merger and acquisition as well as project finance transactions. In addition, he has been involved in formulating significant government policy related to electricity de-regulation; he has prepared models and analyses for the development agencies; he has evaluated energy purchasing decisions for large institutions; and he has provided advice on corporate strategy.

Mr. Bodmer was formerly Vice President at the First National Bank of Chicago where he directed analysis of energy loans and he also created financial modelling techniques used in advisory projects. He was also president of an energy trading company named Energy Exchange of Chicago where he directed power market transactions and development of independent power projects. Bodmer received an MBA specializing in econometrics (with honours) from the University of Chicago and a BSc in Finance from the University of Illinois (with highest university honours). More information can be found on his website www.edbodmer.com.

Registration Form:

Advanced Project Finance Modelling

13 – 15 May 2025
Sheraton Imperial Kuala Lumpur Hotel, Malaysia.

PLEASE COMPLETE and send:

Marketing
Email: marketing@traxiusglobal.com

INVESTMENT

☐	**Regular Price**	RM 8,995 per delegate

PAYMENT METHOD

☐ By Cheque crossed & payable to:
Traxius Global Sdn Bhd

☐ By Direct Bank Transfer:
CIMB Bank Berhad
Bandar Sunway, Selangor
Acc. No. (8007375369)
SWIFT Code: CIBBMYKL

VENUE INFORMATION

Sheraton Imperial Kuala Lumpur Hotel
Jalan Sultan Ismail, Chow Kit,
50250 Kuala Lumpur, Wilayah Persekutuan
Kuala Lumpur, Malaysia.
Tel: +603-2717 9900
**The workshop fee does not include hotel accommodation.*

INDEMNITY

TRAXIUS GLOBAL SDN BHD reserves the right to make any changes or amendments to the programme for reasons beyond its control.

CANCELLATIONS & SUBSTITUTIONS

Substitutions are welcomed. Please notify us at least two weeks before the event (29th April 2025). Cancellations must be in writing either by fax or email. A 10% service fee will apply.

Regrettably, there will be no refund and a 100% liability for the cancellations received after the aforementioned date. This will also apply to delegates who are unable to attend on the day.

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STAMP REQUIRED