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How the Studio is checked

Six checks before every release — the workbook against the Studio, another program, a textbook model, a lenders' model, the model's own checks and an auditor's review — and what they do not prove.

Mayank Jain
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How the Studio is checked

A financial model is only useful if its numbers are right. Project Finance Studio is checked in six ways before a release — each catches a different kind of mistake, and none of them alone would be enough. This note says what each check does, what it found, and what it does **not** prove.

1 The workbook equals the Studio, line by line

Every workbook the Studio writes is a real model with live formulas, not a copy of numbers. Before each release, dozens of test models — wind, solar, storage, hybrids and infrastructure, annual to monthly, in every layout (Detailed, Simple, Ultra simple and Strict FAST) — are written as workbooks and compared with the Studio's own calculation: every line, every period, the returns and every check. A formula that drifts from the Studio fails the release.

2 Recalculated by another program

The test workbooks are opened in LibreOffice with every stored value removed, so each number has to come from its formula, and the macros (the circularity solver) are run there too. The results must equal the Studio's. A workbook that only looked right because Excel kept an old value would fail here.

3 A textbook model, written apart

An independent model was written from the definitions alone — the IRR, debt sculpted to a target cover ratio, interest during construction, tax with losses floored at nil — without reading the Studio's code. On plain wind and solar cases, including a loss-making one, in both interest conventions, it gives the same project and equity IRR, the same debt and interest during construction, the same minimum DSCR and the same cash flow, debt service and tax in every year.

Case	What it tests
Plain wind	The gearing cap binds; the sculpted repayments keep the cash flow's shape
Plain solar	The cover ratio binds; degradation of 0.5% a year
Solar, thin tariff	Tax losses in the early years; depreciation that ends before operations do

4 A lenders' model, gap by gap

A real lenders' model was run through the Studio with the same assumptions. Every difference in the base case was traced to a stated difference in method — monthly against quarterly construction periods, withholding tax on interest, the order in which equity and debt are drawn — and each was proven by re-running the Studio with that one assumption changed.

5 The model's own checks

Every model carries its checks: the balance sheet balances, the cash on the balance sheet is the cash flow's closing cash, the debt is repaid by its maturity, the sources equal the uses, nothing goes below nil that should not. They run in every period of every case, on the page and in the workbook's Check sheet. Every check must read OK before a number is quoted.

Free to read and share with credit to the author. For learning only — figures are illustrative; nothing here is financial, investment, tax or legal advice.

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6 Reviewed the way an auditor reads a model

An automatic reviewer reads each workbook as a model auditor would: numbers typed into formulas, a cell that differs from its row, ranges that stop short, signs the wrong way round, corkscrews that do not carry, totals that leave out a line, day counts on two bases. To test the reviewer itself, twenty errors of the kinds auditors raise were planted on purpose — one per copy of a workbook — and it found all twenty, without counting on the model's own checks. It also found a real fault in the Studio's own guide sheet, which was fixed.

What none of this proves. That your inputs are right: the assumptions — the cost, the yield, the tariff, the terms of the debt — are yours to check against your documents. The textbook and the Studio share an author, and the planted errors were chosen by the same hand; an outside review by a FAST modeller is the next step. A model is a tool for decisions, not advice: have yours reviewed before a financial close.

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