EXPERT PRO
EXPERTOS EN PROYECTOS

GUIDE PREVIEW · SAMPLE PAGES

# Data Center Development Practitioner Guide

How a data center campus is evaluated in five stages, from a site that can actually be powered to an underwriting a lender will accept.

126-slide guide | 161-page handbook | 20 MW worked example | Speaker notes

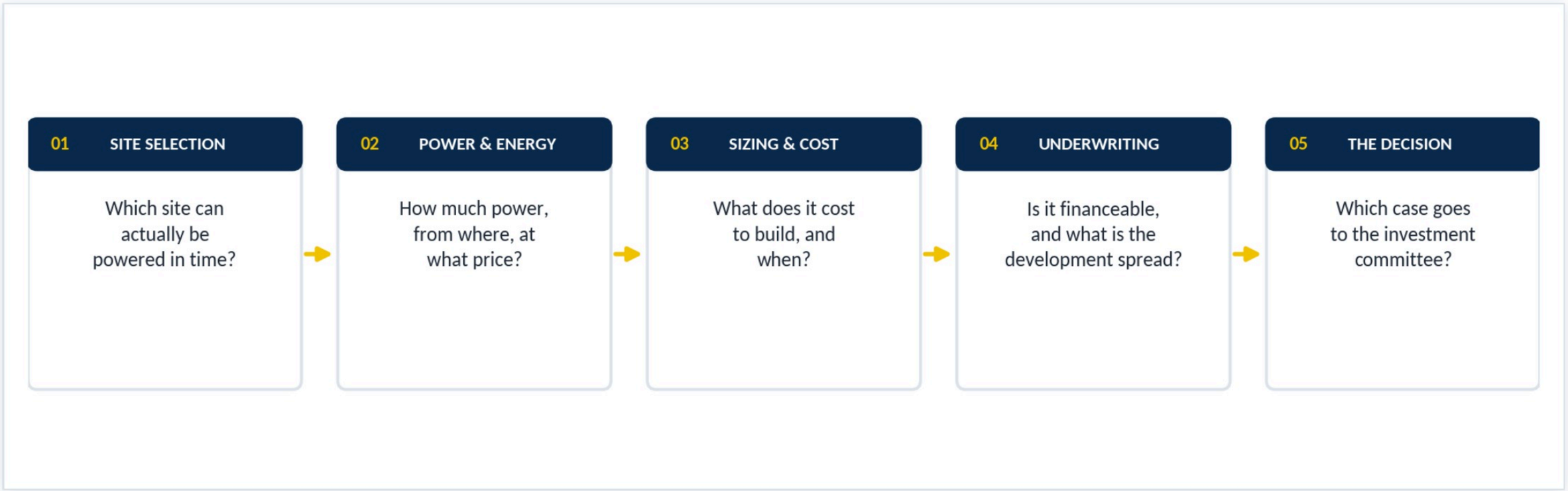



Sample pages from the guide. Illustrative worked example; not investment advice. 12 pages.

BEFORE WE START

# Five stages, five questions, five decisions

Each stage answers one question and closes on one decision. The order matters more here than in almost any other asset class.

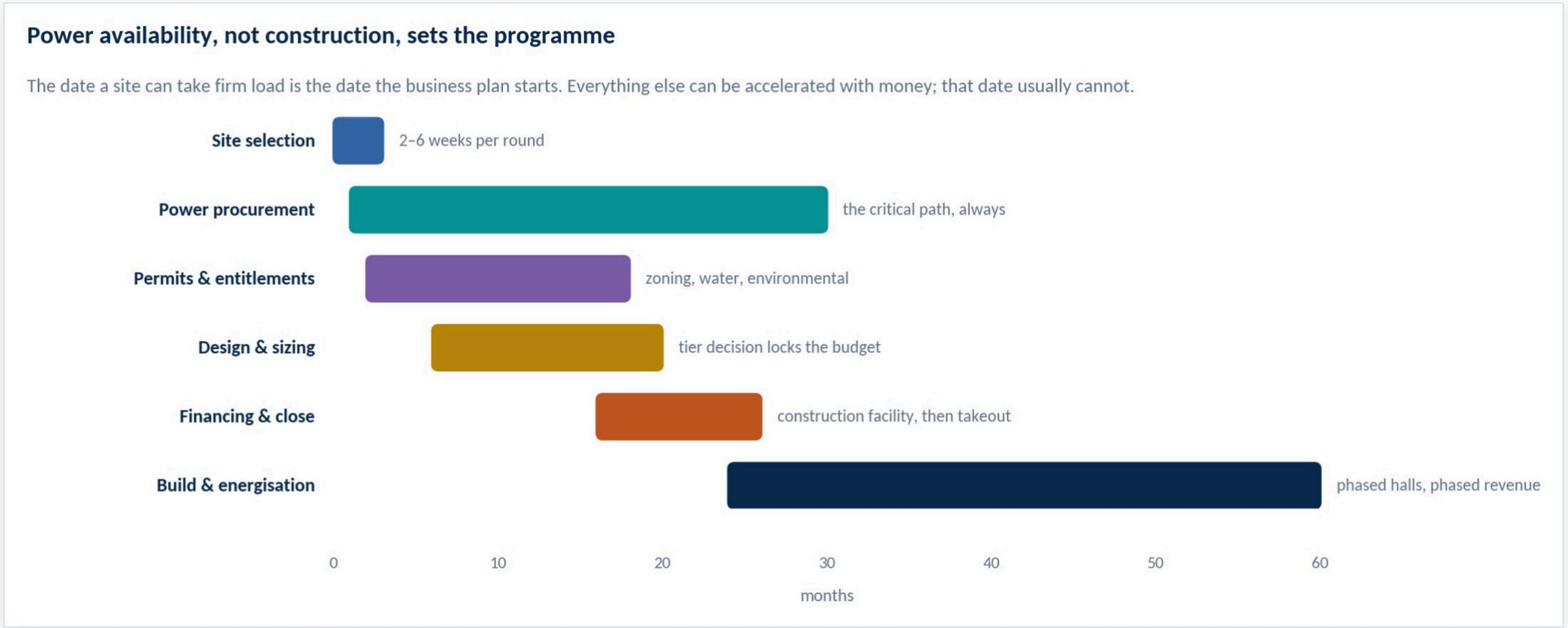



*The evaluation arc from a candidate site list to a signed investment decision.*

BEFORE WE START

# Power availability sets the programme

Construction can be accelerated with money. A utility interconnection date usually cannot.




*Indicative development programme for a campus in a constrained market.*

STAGE 1 · SITE SELECTION

# The arithmetic that turns 20 MW into a real number

Three lines convert a target IT load into a grid requirement, an energy ceiling and an annual cost — and they can veto a site the scoring likes.

**Grid requirement at the meter**

```
required grid MW ≈ IT MW × screening PUE = 20 × 1.50 = 30 MW
```

*Racks are not the load. The efficiency multiplier is what the utility must actually serve.*

**Capacity ratio — the anchor criterion**

```
capacity ratio = substation MW ÷ required grid MW = 36 ÷ 30 = 1.20
```

*Above 1.0 the site can feed the whole machine; below 0.40 with no generation room it is disqualified outright.*

**Screening energy budget — a deliberate ceiling**

```
annual energy ≈ IT MW × PUE × utilisation × 8,766 h = 20 × 1.50 × 1.00 × 8,766 = 262,980 MWh
```

*Utilisation at 1.00 means every rack at nameplate, every hour of an average year. Never read it as a forecast.*

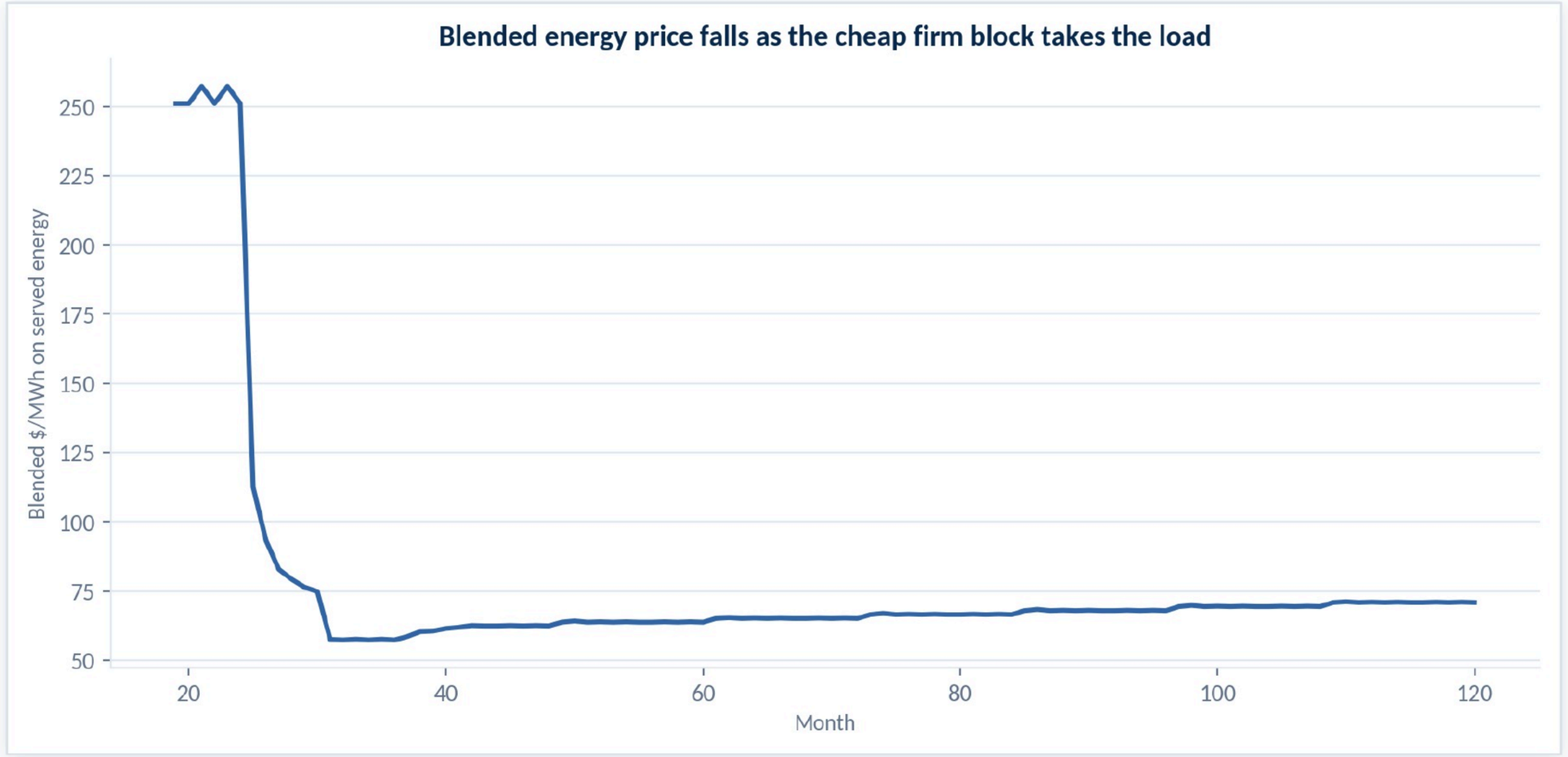
**Energy cost order of magnitude**

```
annual energy cost ≈ 262,980 MWh × 62.5 $/MWh ≈ $16.4 million per year
```

*A $10/MWh tariff gap is worth about $2.6 million a year, before any load modelling exists.*

# The blended price falls as the firm block takes the load

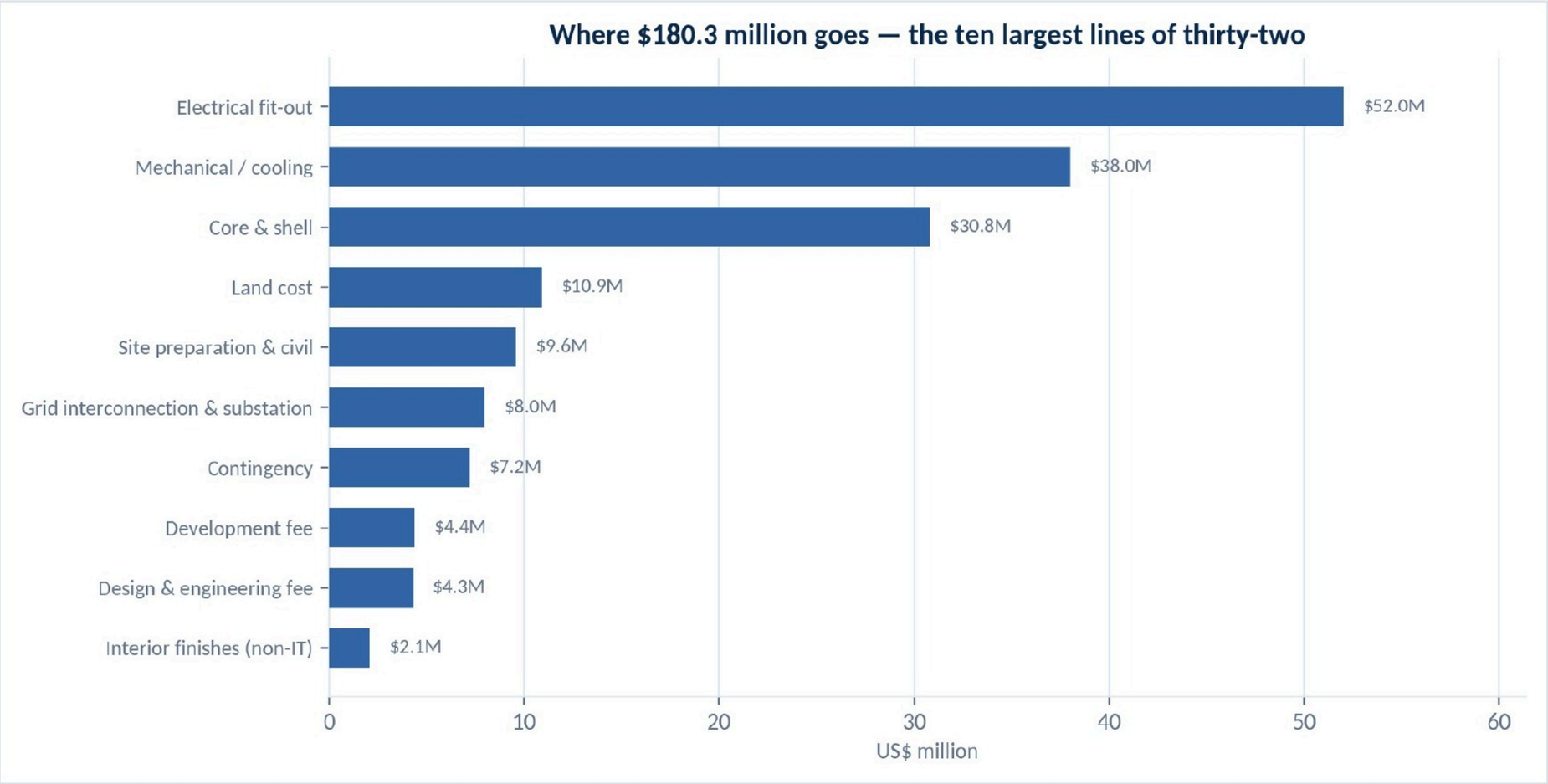
Energy price is not one number. It is the weighted average of what actually got dispatched, month after month.




*Blended cost per megawatt-hour on served energy across the horizon.*

# Ten lines carry most of the capital

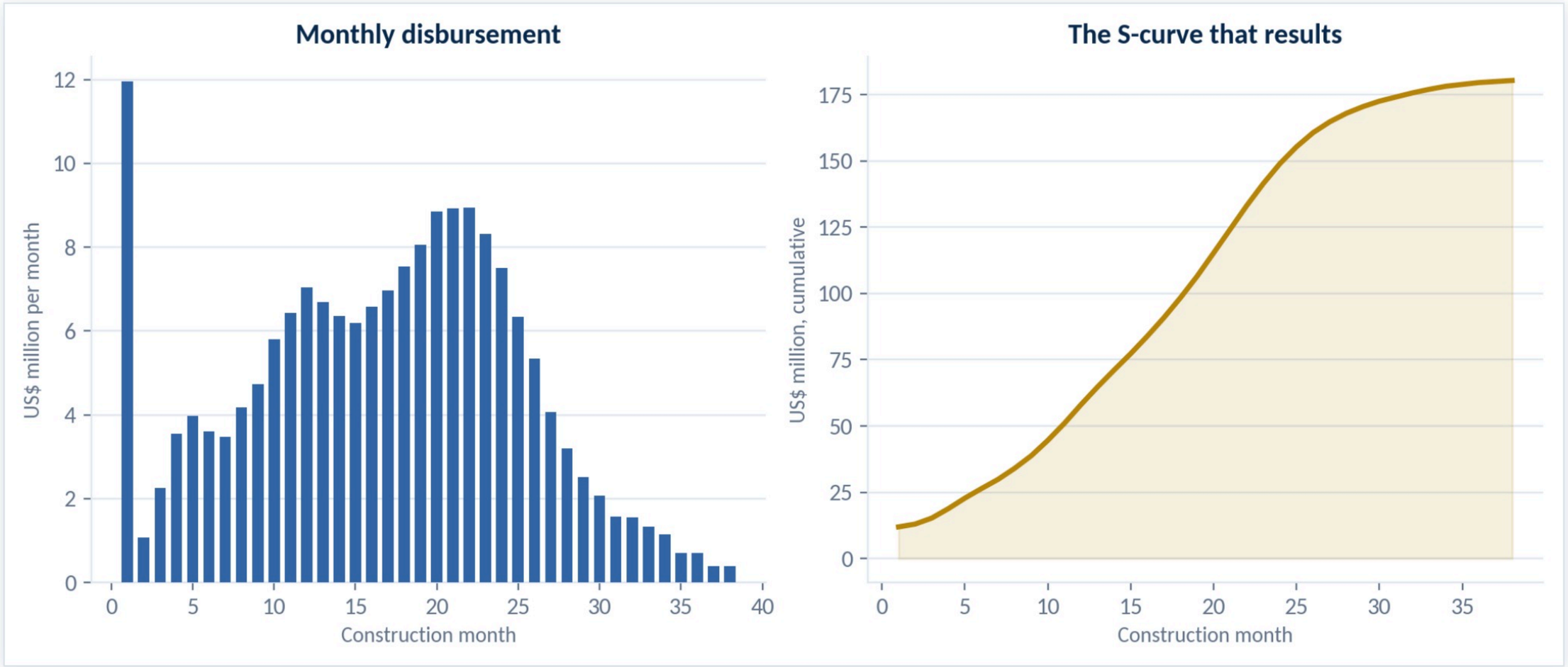
Electrical and mechanical plant dominate — which is why the power decision drives the budget and not the other way round.




*The ten largest lines of the worked example's budget.*

# The disbursement curve is an output

Every line carries a window and a shape; the campus curve is what those decisions add up to.




*Monthly disbursement and the cumulative curve of the worked example.*

STAGE 4 · UNDERWRITING

# A worked case: 20 MW, six contracts, a seven-year hold

One campus fully underwritten: what it earned, what it borrowed, which covenant bound, and what equity took home.

**1.38x**
**Stabilised coverage**
against a 1.30x covenant

**11.2%**
**Debt yield**
the binding test of the three

**$291.4M**
**Permanent loan**
sized by debt yield, funded month 50

**765 bps**
**Development spread**
14.90% yield on cost over a 7.25% cap

**47.99%**
**Levered return**
against 25.32% unlevered

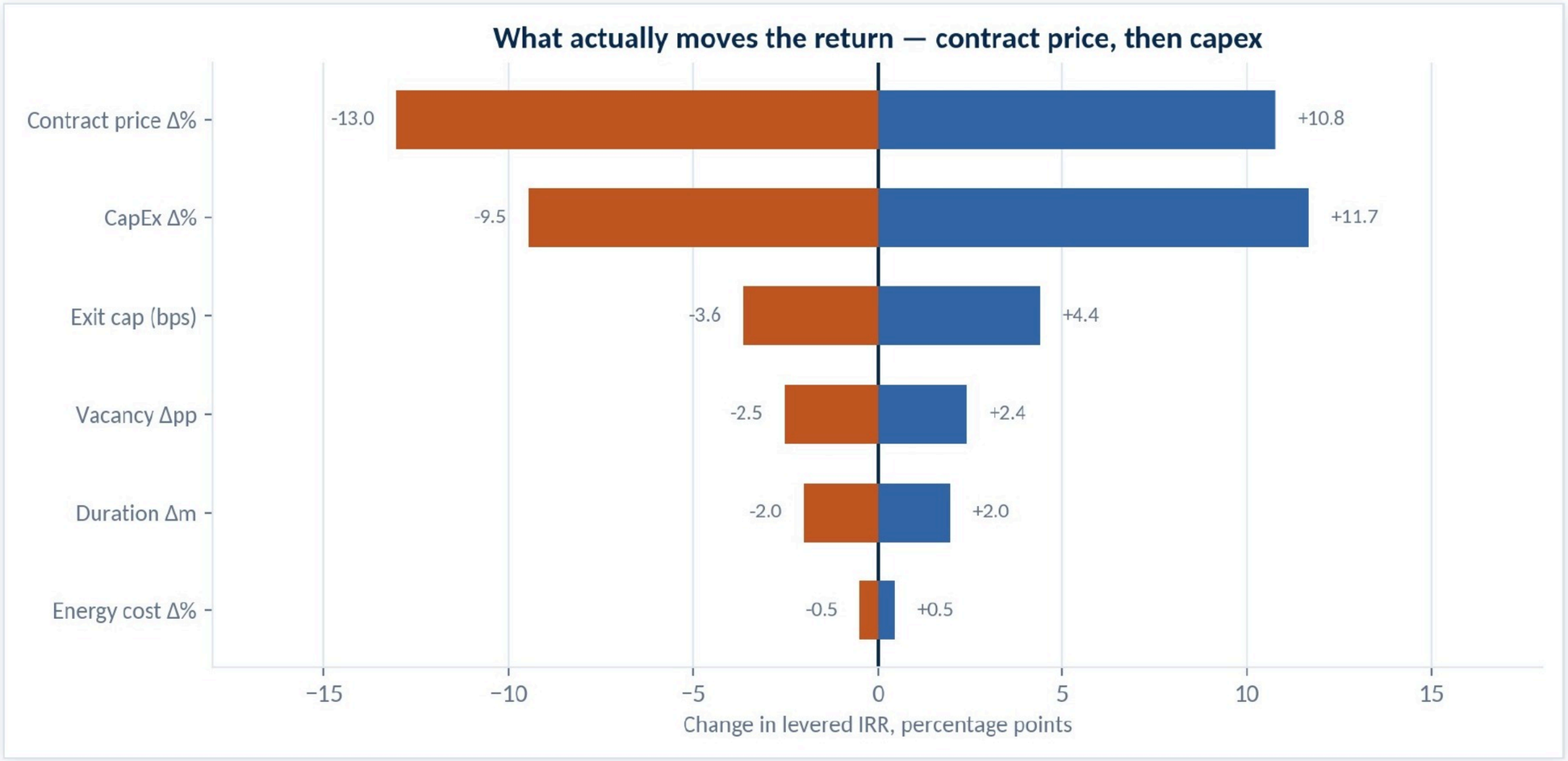
**6.11x**
**Equity multiple**
on $59.5M invested, over seven years

- **The build.** 20 MW of IT capacity: $180.3M of budget, $16.7M of capitalised interest, $1.4M of fees — $198.5M all-in.
- **The income.** 19,999 contracted kilowatts across six tenants commencing between months 25 and 52; stabilisation landed at month 50.
- **Why debt yield bound.** Coverage at 1.30x would have supported roughly $309M; an 11.2% debt yield floor capped the advance at $291.4M.

STAGE 5 · THE DECISION

# What actually moves the return

Six drivers, ranked by how far each moves the levered return. Two of them dominate the other four.




*Driver impacts on levered return in the worked example, in percentage points.*

PULLING IT TOGETHER

# Ten failures that show up at credit committee

Each one is discovered late and cheaply avoidable early — which is the whole argument for running the stages in order.

| The failure | Where it starts | Where it surfaces |
|---|---|---|
| A single point estimate presented as the answer | Stage 2 | Diligence, when the lender asks for a range |
| Resource or load data with no traceable source | Stage 1 | Stage 4, when the sizing cannot be defended |
| Benchmarks used as quotes without saying so | Stage 3 | Tender, at twenty per cent over budget |
| Contingency treated as margin to be spent | Stage 3 | Month fourteen of construction |
| A schedule drawn rather than built from windows | Stage 3 | The first funding request that does not match |
| Debt assumed as a percentage of cost | Stage 4 | Credit committee, when coverage binds first |
| The expected case used to size debt | Stage 4 | The first bad year, in a lock-up |
| Tax and reserves modelled as an afterthought | Stage 4 | The distribution that does not arrive |
| Cases compared that were never comparable | Stage 5 | The committee, choosing the wrong one |
| Hurdles set after the cases were seen | Stage 5 | Eighteen months later, in the post-mortem |

WHAT YOU RECEIVE

# What is in the download

Format: 126-slide PowerPoint + PDF.

| | |
|---|---|
| PPTX | 126-slide Practitioner Guide (PowerPoint, with speaker notes) |
| PDF | 161-page Practitioner Handbook (PDF) |
| REF | Glossary, symbols index, reference benchmarks and bibliography |
| CASE | One 20 MW IT campus example carried through both documents |

## Before you buy

- Supplied as PowerPoint (PPTX) and PDF.
- Software-agnostic: it describes a discipline, not a spreadsheet.
- Choose a model separately if you need an Excel workbook.
- Benchmarks are references to confirm against current market evidence.

One worked example is carried through both the slide guide and the handbook.

WHO BUILT IT

# Built by the ExpertPro team

ExpertPro builds the financial and decision infrastructure behind capital projects, at the intersection of project finance, engineering economics and data.

| 7 | 100+ | 15+ | 50+ |
|---|---|---|---|
| senior specialists | years of combined experience | professional certifications | delivered projects |

## The team

- Project finance and public-private partnerships, PMP® and APMG CP3P® certified
- Data architecture and data science, led by a mathematician
- Process automation and governance, with more than twenty years in banking
- Information security and compliance: ISO/IEC 27001 Lead Auditor and CEH
- Enterprise systems integration and machine-learning engineering

## Every guide

- Five stages, each closing on a documented decision
- One worked example carried from the first page to the last
- Formulas and figures you can check with a calculator
- Speaker notes, glossary, benchmarks and a source bibliography

Master's degrees in industrial engineering, information technology and business, a degree in mathematics, and programmes from MIT (applied AI) and HarvardX (data science). Delivery in five Latin American countries, across energy and utilities, transport, logistics, agroindustry and healthcare.