

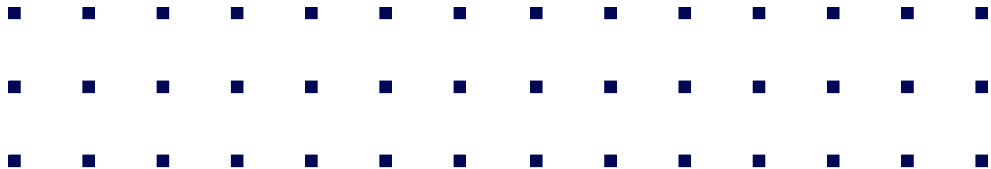


BECQUEREL INSTITUTE
Strategy Consulting in Solar PV

Digital Decision Matrix for PV Project Management

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Why the industry needs this

IEA PVPS Task 13 — PV Project Decisions: Quality, Performance, and Economic Value T13-36:2026, Chapter 1

"The absence of a clear, validated, and comprehensive mapping of the workflow, terminology, relationships, and interactions between stakeholders along the entire PV value chain."

the fundamental challenge the report addresses

What's broken today

- Fragmented value chain — manufacturing, development, EPC, O&M operate in silos
- Unclear boundaries between stakeholder responsibilities and specialised tasks
- **Newcomers and new geographies stretch quality standards thin**
- Multiple guidelines exist — but implementation is rarely mandated or enforced
- Best practices remain siloed; cross-phase optimisation opportunities are missed

What a shared map enables

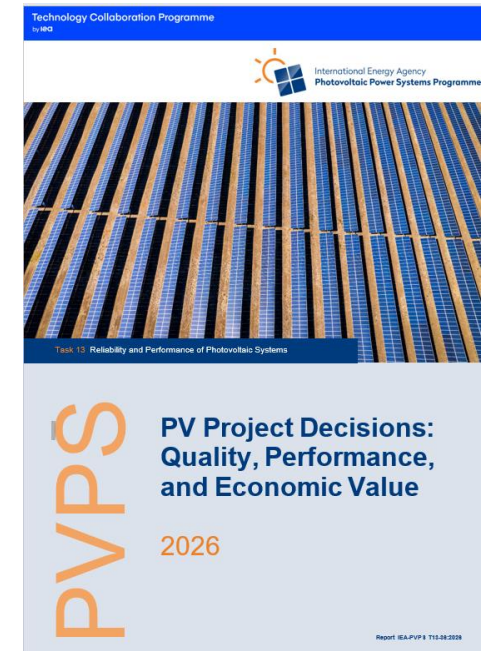
- Identification of state-of-the-art practices — and what lies beyond
- Recognition of critical decision points that impact long-term profitability
- Quality gates where cost-effective improvements can actually be implemented
- A structured framework organisations can adopt to align with industry best practice
- A common industry language — same vocabulary for developer, EPC, lender, insurer

Margins are compressing — but decisions are still made in silos.

"The decisions that determine bankability happen years before bankability is even discussed — and nobody has the full map."

The pressures this session is about — grid congestion, curtailment, permit delays, capture-price erosion — don't hit one team. They land on:

- **Developers** choosing sites and committing to grid-connection scope
- **EPCs** writing supply contracts under module-price volatility
- **Asset managers** approving designs they'll have to operate for 30 years
- **Banks & insurers** setting KPIs that may or may not flow into contracts
- **O&M teams** inheriting choices they were never consulted on

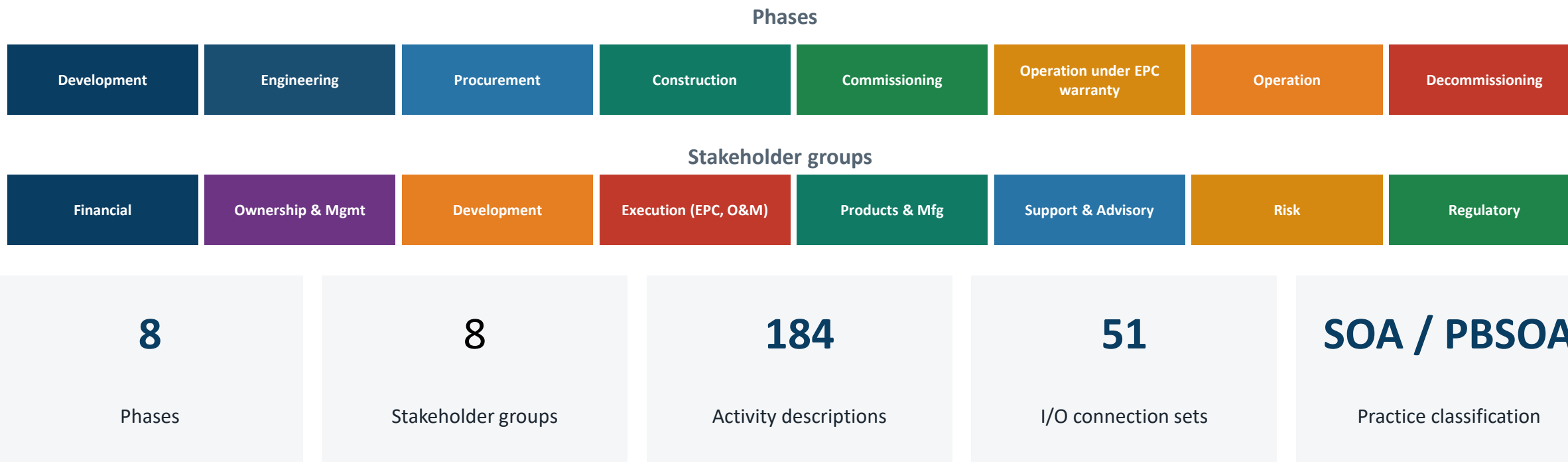


The decision matrix...in a nutshell

Methodology: Decision matrix explained in a nutshell

A 8 stakeholders × 8 phases interactive matrix, built on the IEA PVPS Task 13 quality & reliability framework.

Each cell answers: *who does what, with what inputs, producing what outputs — and is it state-of-the-art (SOA) or progress-beyond (PBSOA)?*



The decision matrix...overview



✦ Extrapolated Activities
Based on PV project best practices
These activities are inferred from typical solar PV project workflows and fill gaps in the timeline.

across project lifecycle

SOA (State of the Art) PB SOA (Progress Beyond SOA)

Search activities, phases, stakeholder View Relationships Filter 100% Extrapolated Community + Suggest

Stakeholder	Development	Engineering	Procurement	Construction	Commissioning	Operation under EPC warranty	Operation	Decommissioning
Private equity Financial	Technical evaluation Financial structuring ✦ Risk assessment ✦		Supplier approval ✦ Contract review ✦	Milestone review ✦ Quality oversight ✦	Acceptance review ✦ Performance validation ✦	Performance monitoring ✦ Financial review ✦	Return monitoring ✦ Strategic decisions ✦	Exit strategy ✦ Asset sale ✦
Bank Financial	Technical evaluation Financial structuring ✦ Risk assessment ✦ Due diligence coordination ✦	Engineering review ✦ Cost verification ✦	Procurement approval ✦ Budget release ✦	Progress monitoring ✦ Disbursement control ✦	Performance verification ✦ Final disbursement ✦	Debt service monitoring ✦ Covenant compliance ✦	Debt service collection ✦ Financial reporting review ✦	Loan closure ✦ Asset valuation ✦
Asset Owner Ownership & Management	Investment decision ✦ Site approval ✦	Design approval ✦ Contract review ✦	Location and type of PV system (e.g. utility scale, residential, integrated etc.) Identification of stressors and microclimate Selection Cell & Interconnection technology (temperature coefficient, sensitivity to thermal cycling) Module design: Glass-glass / glass - backsheet / glass free Packaging selection: Encapsulants (& Backsheets) Compatibility & extended reliability testing (combined or sequential stress testing)	Construction monitoring	As-built vs design	Reporting Invoicing Financial Monitoring	EPC Handover Warranty claim Insurance claim	Decommissioning decision ✦ Asset disposal ✦

- 1 **Translate** the Task 13 report into something a project team actually opens during a meeting
- 2 **Trace** quality KPIs from procurement contracts through to O&M handover
- 3 **Expose** dependencies — what an EPC decides in Engineering changes what an Asset Manager can do in Operation
- 4 **Standardise** SOA vs PBSOA, so "best practice" stops being whoever shouts loudest
- 5 **Bridge** the bankability conversation — same vocabulary for developer, EPC, lender, insurer

Who it's useful for

Every group in this room sits somewhere on the matrix.

Stakeholder	What they get
Developers	Which Development-phase choices lock in yield and bankability outcomes 10 years out
EPCs	Reference list of quality KPIs to negotiate into supply contracts — incl. extended stress tests
Asset owners / managers	A checklist of what should have happened before handover, not what did
Lenders & insurers	Independent view of where due diligence routinely misses cross-phase risk
Manufacturers	Visibility into how downstream stakeholders actually evaluate bankability

Grid & cost pressure

Surfaces where capacity studies, curtailment terms, and PPA assumptions enter the decision chain — today, often after they should.

Automation & digital tools

Open data model — embeddable in DD checklists, asset registers, internal dashboards.

Contracting, risk & bankability

KPI traceability from contract clause through to O&M report — same vocabulary across the table.

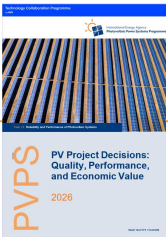
EPC best practices

SOA / PBSOA classification per activity makes "best practice" auditable

Storage & co-location

Next on the roadmap: hybrid-asset activities and the upstream decisions they introduce.

Use case — Post-shipment module testing



Procurement → Construction · PV Project Decisions: Quality, Performance, and Economic Value , Case Study 4.1



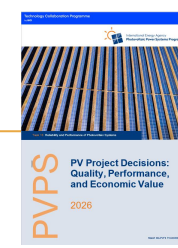
The decision

Do we accept factory in-line power measurements as proxy for field performance — or do we test the actual delivered modules?

Current practice	Best practice	Stakeholders touched
● Reliance on factory flash-test data sheets ● Acceptance based on visual + paperwork inspection ● Mismatch with field conditions only surfaces after Operation	● Post-shipment testing with a mobile lab on site ● Power, EL, IV-curve checks before installation ● Issues caught while supplier liability still applies	● EPC — supply contract clauses, sampling plan ● Developer / Owner — bankability of nameplate ● Independent Engineer/Expert — DD sign-off ● Manufacturer — warranty exposure

Matrix insight: One Procurement decision touches four stakeholder groups and changes what Operation can claim under warranty. The matrix exposes this dependency before the PO is signed.

Use case — Financial Modelling & the Investment Decision



Development · PV Project Decisions: Quality, Performance, and Economic Value , Case Study 4.6



The decision

What goes into — and what does not go into — the Financial Model that the FID committee will accept or reject?

Utility-scale project model — four steps

- 1 Site prospecting & feasibility
- 2 Permitting, grid & off-take secured
- 3 **Financial Model + Business Case → FID**
- 4 Execution: EPC, financing close, build

What the matrix surfaces around step 3

- **Energy yield assumptions** sourced from Engineering, validated by IE — same KPI vocabulary
- **CAPEX / Dev. Exp. split** inputs trace back to Procurement strategy choices
- **Soiling, degradation, losses** KPIs flow from O&M evidence — not borrowed from a brochure
- **Grid & curtailment risk** enters via Development checkpoints, visible to Bank / IE
- **Climate & resource risk** Risk-group activities feed insurance terms before FID

Matrix insight: The FID lives or dies on assumptions made in other phases. The matrix maps each Financial Modelling input back to the activity, stakeholder, and KPI that owns it — so Due Diligence can audit it.

Where we want the matrix to go — and where we need help.



Storage & co-location

Hybrid-asset activities and the new upstream decision points they introduce (e.g. dispatch strategy choices feeding EPC contracts).



Climate adaptation

Stressor-driven module and packaging selection — already partially modelled in Procurement, to be extended into design.



Community contributions

Two practitioner-submitted activities already in the matrix (Capacity / Interconnection Study, certificate gateway). Open to many more.



AI-inferred gap-filling

Dozens of activities flagged as inferred, visible to users, awaiting expert validation. We want you to challenge them.



Open data

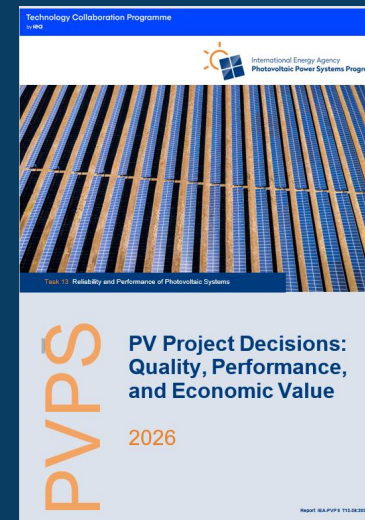
Structured JSON exports for integration with bankability scoring, asset registers, and DD checklists.

Try it. Break it. Contribute.

Live tool: solardecisions.eu

Looking for:

- Practitioners willing to validate AI-inferred entries/ fill the gaps
- EPCs willing to share anonymised quality-KPI templates
- Lenders & insurers to pressure-test the bankability view



Scan to open the matrix

Thank you.



Your Contact

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