LCOE REDUCTION EFFICIENT LIFECYCLE MANAGEMENT

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SONNEDIX: A GLOBAL IPP

Sonnedix develops, builds, owns and operates solar power plants globally in key markets (focus on OECD countries). More than USD 4.5 billion invested in solar PV projects globally. 6th largest solar PV portfolio in Europe, top 1 IPP in Spain, 2nd in Italy and 5th in France**

As of 20 October 2020

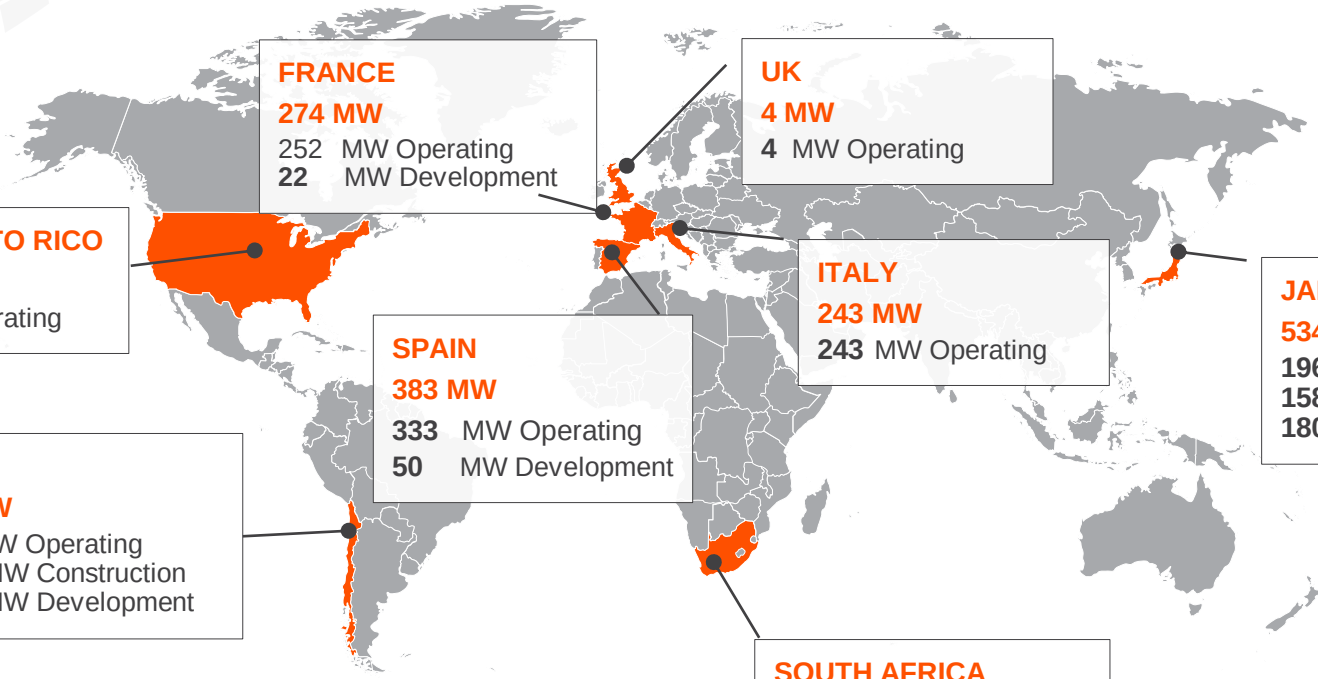
297 Plants

1.97 GW Controlled Capacity

1.23 GW Operational

334 MW Construction

411 MW Under Documentation



FRANCE
274 MW
252 MW Operating
22 MW Development

UK
4 MW
4 MW Operating

USA & PUERTO RICO
73 MW
73 MW Operating

ITALY
243 MW
243 MW Operating

JAPAN
534 MW
196 MW Operating
158 MW Construction
180 MW Development

SPAIN
383 MW
333 MW Operating
50 MW Development

CHILE
376 MW
40 MW Operating
176 MW Construction
160 MW Development

SOUTH AFRICA
86 MW
86 MW Operating

**Global Solar PV asset ownership report and database 2019*

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LCOE DEFINITION: SETTING THE GROUND RULES(*)

$$LCOE = \frac{CAPEX + \sum_{n=1}^{N} \frac{OPEX - RV}{(1+r)^n}}{\sum_{n=1}^{N} \frac{Y_o \,.\, (1-D)^n}{(1+r)^n}}$$

where

N = PV system life [years]

$CAPEX$ = total initial investment (CAPEX) [€/kWp]

$OPEX$ = annual operation and maintenance expenditures (OPEX) [€/kWp]

RV = residual value [€/kWp]

r = discount rate [%]

Y_0 = initial yield [kWh]

D = system degradation rate [%]

(*) *Best Practice Guidelines for PV Cost Calculations, Accounting for Technical Risks and Assumptions in PV LCOE, Solar Bankability 2016*

ASSET MANAGEMENT

Definition

Systematic and **coordinated** **activities and practices** through which an organization **optimally manages its physical assets**, and their associated **performance**, **risks** and **expenditures** over their **lifecycle** for the purpose of achieving its organizational strategic plan, or simply stated the optimum way of managing assets **to achieve a desired and sustainable outcome**.

Institute of Asset Management (IAM)

Sonnedix Asset Management Mission

Sustain and Optimise performance of Assets over their entire life-cycle, focusing on Risk and H&S Management by implementing operational excellence across the portfolio.

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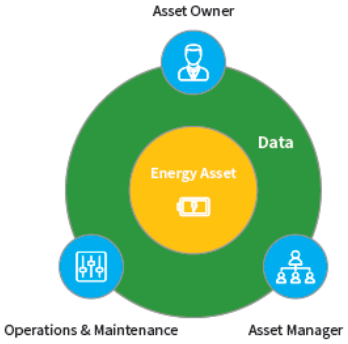
ASSET MANAGEMENT STRUCTURE: TECHNICAL ASSET MANAGEMENT

Technical AM

Technical Reporting & Analytics	Plant performance tracking daily, monthly, yearly and performance analytics studies on asset performance paretos
Systems & Tools	Operational and Asset Management Platforms management and updating; technical Asset Register maintenance, SCADA and communications management
Asset Optimization	Site visits, performance optimization, asset adaptation to compliance, new available technologies, OPEX reduction, HSE compliance
Ancillary Services Management	Contract management of ancillary services out of scope of O&M contracts; vegetation management, module cleaning, energy consumption, communications,…
Technical Regulatory Compliance	Assurance of compliance against applicable technical regulations (GSE, CNMC, CEN,…) management of inspections by regulating bodies and permitting compliance
Insurance & Claims	Management of portfolio insurance documentation compliance including (Policies, COI, BLOUs,…) renewals and claims
Operational Contracts	EPC / O&M warranty management. Tracking of contractor performance against agreed KPIs. LDs management
HOTO	Coordination of the AM & E&C activities embedded in the HOTO process to onboard new assets into portfolio
Risk Framework Management	Generation of risk assessment matrix for individual assets, updating and regular reporting of categorization of risks at portfolio level
HSE Compliance	Maintain compliance under applicable regulation, implementation of Sonnedix standards and regular HSE KPI reporting
ROC	Plant monitoring, alarm / warning management, incident management, comms resolution, security tracking, access control, HSE coordination, cybersecurity
E&C Repowering & Revamping	Delivery of engineering repowering, revamping and optimization solutions from simulation, equipment selection with procurement, project management delivery, quality assurance of project delivery
Procurement	Management of critical equipment strategy and purchasing for both new projects and revamping and repowering initiatives
Warranty Claims	Main component warranty claims: structures, modules, inverters, etc…

Traditional linear asset management approach

Asset-centric information-based approach



Solar Power Europe Asset Management

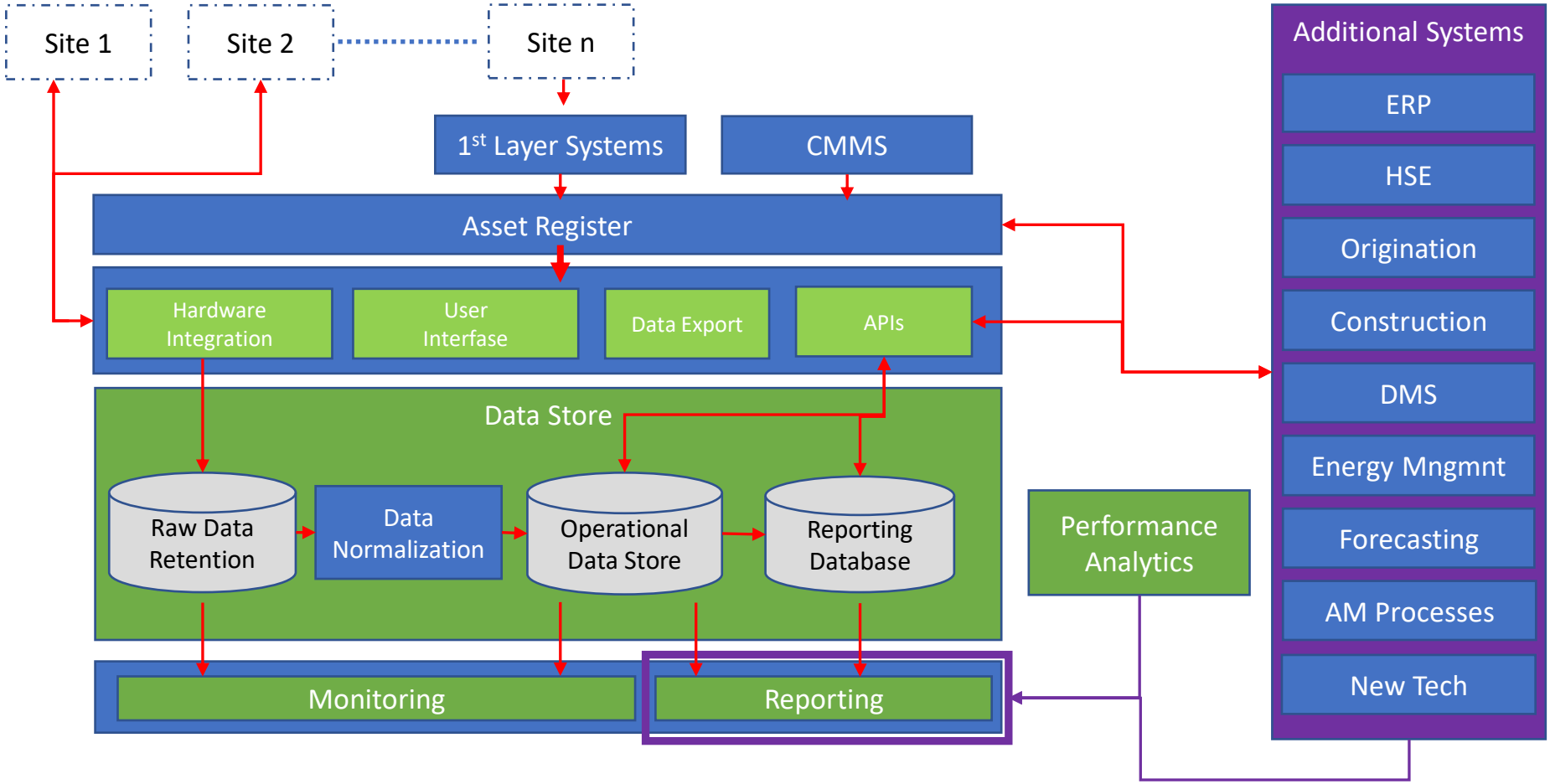
Best Practices Guidelines v1 Scope Definition

ASSET MANAGEMENT STRUCTURE: COMMERCIAL ASSET MANAGEMENT

Comercial AM

Technical Loan Compliance	Technical reporting to comply with financing perimeter reporting expectations and response to Q&As from lenders thereof
Invoicing / Billing / Payments	Management of SPV energy invoicing and Operating Entities purchase order and invoice Purchase to Pay (P2P) process
Commercial Optimization	Technical and revenue budgeting process and asset commercial optimization from performance analytics through prioritization of required activities impacting NAV model
Stakeholder Management	Management of contractual stakeholders: energy authorities, landlords, regulating bodies, local authorities… and support grievances and claims thereof.
Contract Management	Tracking and Optimization of supply contracts through consolidation, renegotiation, scope adjustment, and RfQ / RfP thereof, meter optimization,….
PPA Management	Ownership of the management of obligations of PPA contracts through the operational phase in a timely manner with special emphasis on nurturing the relationship with offtakers and regulators
Environmental and ESG Compliance	Management of all environmental related obligations and reporting emanating from the environmental impact assessment of projects. Responsible for ESG reporting within financing perimeters.
Compliance Management	Responsible for assuring the compliance of the Asset Management activities with internal processes: document management (both physical and digital) and integration / onboarding management
Origination Technical Consultancy	Responsible for the selection of Technical Advisor and consolidation of Technical Due Diligences in M&A acquisitions compiling the technical from E&C; support in BD transactions.
Financing Optimization	Responsible for the selection and consolidation of Technical Due Diligences in financings and / or refinancing including support to the Q&A process
Financial Reporting / Loan Compliance	P&L consolidation of SPVs and Operation and Maintenance entities and regular reviews thereof; issuance of Loan Compliance certificates.
Accounting	Responsible of the Purchase to Pay process and maintenance of the general ledgers
Insurance/ Risk Management	Responsible for establishing the insurance and risk management strategy including definition of insurance renewal criteria. Coordination with Loan Compliance in the issuance of required documentation
Legal	Support to AM on legal matters; SPA, closings, financing undertakings, legal claims, real estate contracts and legalization through registry, SPV mergers, acquisition obligations through regulatory compliance, contract negotiations, regulatory legal interpretation
Document Management	Support to document controlling both physical and digital

Solar Power Europe Asset Management

Best Practices Guidelines v1 Scope Overlaps

DEVELOPMENTS: EFFICIENCY IN SYSTEM INTEGRATION