



Advance Power Asset

Consultancy & Services

Powering Sustainable Futures

APACS CORPORATE BROCHURE

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Executive Overview

Advance Power Asset Consultancy & Services (APACS) was established with the



primary goal of providing hands-on, execution-focused engineering solutions specifically designed for operating utility assets. With a solid backing of over 30 years of front-line industry experience, we aim to bridge the critical gap between intricate engineering analytics and high-stakes commercial outcomes.

Mission

To transform complex field data into direct bottom-line savings and long-term asset resilience. We act as a trusted extension of the owner's leadership team to safeguard investments and maximize the lifecycle performance of critical energy infrastructure through five key mandates:

- **Plant Availability:** Ensuring that plants operate at their highest capacity without interruptions.
- **Thermal Performance:** Assessment and rectification of inefficiencies in thermal operations with the objective of reducing energy input, improving efficiency during flexible operating regimes necessitated by increasing renewable energy integration, and enhancing overall system performance. This would include reviewing historical Operations & Maintenance records to identify potential areas for improvement.
- **Effective Fuel, Air, Water & Auxiliary Power Management:** Implementing strategies to reduce fuel, air, water, and auxiliary power consumption, delivering pragmatic combustion and blending strategies to reduce operational expenditures.
- **Capital Protection:** Providing insights and strategies to minimize financial risks associated with energy investments through rigorous independent technical advisory.

Driven by Utility Roots

Our leadership is deeply rooted in practical utility management, enriched by decades of direct experience in managing multi-gigawatt independent power producers (IPPs) and extensive captive power complexes. This experience means our solutions are grounded in reality as we have directed significant improvements, navigated complex emergency breakdowns, spearheaded major overhauls and managed stringent plant operations and maintenance (O&M). We deliver bulletproof, site-tested, execution-ready frameworks that ensures that our clients receive not just recommendations, but “ready to implement” actionable strategies that have been proven to work in real-world scenarios.

The Competitive Edge - An Unparalleled Talent Pool

Scalable Institutional Wisdom on Demand

At Advance Power Asset Consultancy & Services, our greatest operational asset is our people. Our experts have demonstrated world-class advisory and hands-on excellence across India, Southeast Asia, and the Middle East. We take pride in maintaining a robust, meticulously vetted panel of industry experts, subject matter specialties, chief engineers, and utility operations veterans. This elite network provides us with the unique agility to build custom-tailored, multi-disciplinary technical advisory and engineering teams capable of managing any scale or complexity of asset engagement.



Why Our Expert Network Sets Us Apart:

- **Decades of Proven Authority:** Our specialists have spent their careers directing operations, maintenance, and asset extensions. Their wealth of experience provides a solid foundation for tackling complex utility challenges. Our experts possess the unwritten, practical knowledge of legacy and modern utility blocks across various OEMs. They intimately understand the specific operational quirks, design tolerances, and long-term degradation patterns of multi-gigawatt systems because they spent their careers managing them.
- **Unbiased, Grounded Advisory:** Our retired experts operate free from institutional bias, delivering realistic, uncompromised advisory frameworks that plant owners and financial lenders can implicitly trust. This ensures that during procurement, contractor selection, or technical audits, our findings solely protect the owner's long-term commercial interests.
- **Ready for Complex Energy Transitions:** Equipped with deep cross-functional knowledge of legacy asset limits and emerging technologies, our pool handles high-level fuel switching, asset repurposing, and efficiency mandates seamlessly, positioning our clients for success in the evolving energy landscape.
- **On-the-Floor Mentorship & Knowledge Transfer:** Our veterans do not just hand over passive, theoretical reports, instead they excel at bridging the generational skill gap on the plant floor, translating complex engineering analytics into real-world, actionable training that upskills your current shift engineers and O&M teams.

What We do?

(A) Asset Management & Advisor Services

High-Value Owner's Engineering & Advisory Frameworks



In our role as an integral part of the owner's leadership team, we ensure that operational frameworks, procurement metrics, and third-party contracts are meticulously designed to protect the owner's long-term commercial interests. Our goal is to act as a direct and trusted extension of the team, providing a foundation for sustainable success.

Owner's Technical Advisor Support

We offer comprehensive technical oversight to manage schedule, cost, and quality during asset upgrades, construction resumption, and system modifications. This service ensures that all projects are executed efficiently, maintaining the highest standards of excellence.

Full O&M Contract Development

Our team designs robust, end-to-end operational agreements that set clear boundary conditions and optimize risk allocation matrices. These contracts are tailored to support seamless operations and long-term asset sustainability.

Commercial Frameworks & KPIs

We formulate bulletproof Minimum Functional Specifications (MFS), Long-Term Service Agreements (LTSAs), performance guarantees, and enforceable liquidated damages. These components form the backbone of a resilient commercial framework, ensuring accountability and performance.

Contractor Screening & Selection

Our services include authoring custom Request for Proposals (RFPs), conducting thorough pre-bid technical evaluations, responding to pre-bid queries, and leading final contract negotiations. This rigorous process ensures the selection of the most qualified contractors.

Operational Readiness Support

To eliminate start-up incidents, we develop customized, asset-specific Operating Instructions Manuals (OIMs), standard operating procedures, and comprehensive operator training modules. These resources prepare operators for seamless transitions into new or modified systems.

Material & Inventory Optimization

We optimize warehouse efficiency by combining material codification and duplication elimination with plant KKS coding alignment. Our approach integrates engineering precision with stock metrics, utilizing VED analysis for critical insurance spares and velocity tracking for fast, medium, and slow-moving items. Through hands-on perpetual checking, cross-unit interchangeability mapping, and decisive strategies for obsolete or non-moving stock, we minimize warehouse carrying costs, and free up locked capital.

(B) Performance Optimization & Technical Audits

In this section, we delve into the intricacies of performance optimization and technical audits, essential for enhancing the efficiency and reliability of utility assets. Our approach emphasizes meticulous analysis and strategic improvements, delivering not only immediate improvements but also sustainable performance enhancements that align with industry standards and best practices.

Thermodynamic Excellence & Industrial Auditing

Unlocking hidden margins in legacy or cycling utility assets requires meticulous thermodynamic analysis. We excel in transforming complex field data into direct bottom-line fuel and power savings.



Key Services

- **Energy Management Systems (EnMS):** Implementation, gap analysis, and performance optimization are structured under the ISO 50001:2018 international framework. This institutionalizes corporate energy efficiency by providing a robust structure for ongoing improvement.
- **Thermal Performance Audits:** We execute multi-stage thermodynamic boiler efficiency and turbine heat-rate analysis using specialized dynamic testing and operational data matrices. This approach identifies localized efficiency gaps and controllable losses, paving the way for optimized performance.

- **Comprehensive Energy Audits:** Our detailed assessment of plant-wide energy audit is conducted in strict accordance with prudent utility practices and national energy conservation codes. This ensures the optimization of net generation margins.
- **Integrity Assessments:** We design custom Non-Destructive Testing (NDT) and Destructive Testing (DT) inspection matrices. These help in mapping localized degradation pathways and managing remedial action plans to determine the exact present condition of critical infrastructure.
- **Upgrades & Retrofits:** Delivering specialized feasibility evaluations for thermal/efficiency enhancements in systems such as cooling towers, circulating water, auxiliary cooling, compressed air, HVAC, etc. is one of our core competencies.
- **Root-Cause Failure Analysis (RCFA):** We conduct independent engineering reviews of forced outage events, define failure causes, and design permanent corrective modifications. This ensures long-term reliability and efficiency.
- **Digital Twin Implementation & Advisory:** We support third-party vendors establishing high-fidelity virtual replicas that embed your asset's design blueprints, failure mode mapping, and real-time telemetry to predict component wear and calculate Remaining Useful Life (RUL).

(C) M&A Advisory & Technical Due Diligence

Investor-Grade Risk Mitigation for High-Value Mergers, Acquisitions, and Divestments

Advance Power Asset Consultancy & Services acts as the independent engineering



eyes and ears for corporate buyers, financial institutions, private equity firms, and developers navigating complex M&A deals. Our mission is to ensure that asset valuations accurately reflect physical realities, thereby mitigating investor risk across the entire deal lifecycle. By leveraging our extensive expertise and meticulous approach, we are committed to delivering

unparalleled transaction advisory services that empower our clients to make informed, strategic investment decisions.

Corporate M&A Due Diligence

We offer comprehensive technical evaluations (TDD) for single assets or multi-utility portfolios, covering plant design baselines, physical condition, structural performance, and historical compliance portfolios to ensure seamless corporate transitions.

Risk Profiling & Red-Flag Registers

We build transparent, investor-focused risk matrixes that isolate critical fatal flaws, define engineering mitigation strategies, and project accurate cost-to-complete metrics to safeguard mergers against hidden operational liabilities.

CAPEX & OPEX Lifecycle Modeling

Our lifecycle modeling services encompass preventive, corrective, and predictive maintenance, along with staffing, insurance, and consumables modeling tailored for renewable, complex solar, Battery Energy Storage Systems (BESS), and thermal assets, ensuring realistic post-acquisition financial baselines

Asset Valuation Support

We translate technical degradation drivers, performance gaps, and latent defects into explicit commercial adjustments, providing critical insights for transaction pricing, joint-venture structuring, post-merger operational alignment, and reinvestment decision-making.

(D) Fuel Management & Combustion Optimization

Navigating Fuel Complexity and Minimizing Operation Costs

In a volatile fuel market, technical expertise is vital to adapt combustion assets to varying fuel profiles. We ensure your operations remain safe, clean, and efficient while defending baseline thermal parameters against fluctuating coal qualities.

- **Strategic Fuel Blending:** Engineering optimal blending regimes is crucial for managing varying coal profiles. This approach helps maintain baseline thermal parameters and control procurement costs, ensuring both economic and operational efficiency.

- **Low-GCV Adaptation Studies:** Utilizing advanced simulation tools, asset behavior to predict slagging tendencies and fouling margins can be predicted. This ensures the safe accommodation of low-GCV (Gross Calorific Value) coals without compromising performance.
- **Fuel Mass Balance & Loss Reconciliation:** We establish rigorous mass balance frameworks to audit and reconcile fuel quantities from the point of receipt to ultimate combustion. This includes quantifying transit losses, windage, moisture

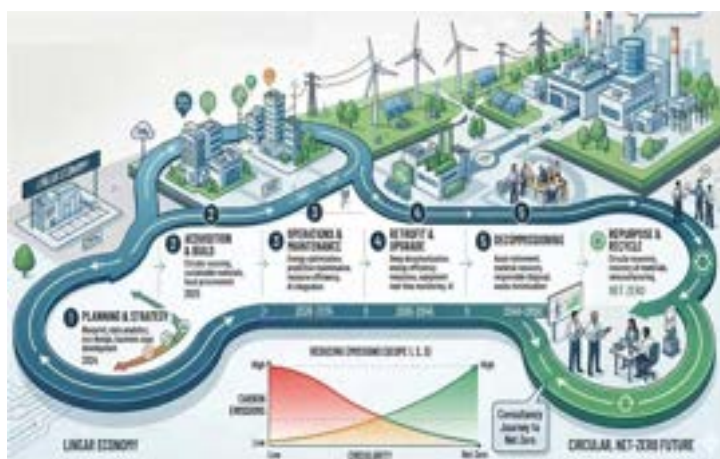


variations, and unburnt carbon in ash to ensure complete transparency in fuel accounting.

- **Stockyard & Operational Optimization:** Implementing data-driven strategies enhances stockyard management, refine blending logistics, and maximize combustion efficiency, leading to direct improvements in plant heat-rate and bottom-line outcomes.

(E) Asset Lifecycles & Decarbonization

Asset Sunsetting, Fuel Switching, and Site Repurposing



As environmental mandates become increasingly stringent, legacy assets must systematically evolve. We deliver structured, independent technical advice to guide utilities and asset owners through the dual challenges of lifecycle extension and sustainable energy transitions

- **Technical Lifetime Assessments:** We guide our clients in conducting thorough technical lifetime evaluations using industry proven techniques and methodologies to allow for the safe extension of operating assets beyond their initial design life limits.
- **Fuel Switch & Energy Transitions:** Providing strategic advice on switching fuels is key to reducing emissions. Implementing co-firing strategies and future-proofing legacy generation blocks ensures a smooth transition towards cleaner energy sources.
- **Repurposing & Alternative Configuration Studies:** By evaluating asset health, structural profiles, and site constraints, we can develop viable options for alternative configurations. This may include hybrid energy integration or commercial site reuse, providing sustainable futures for existing assets.
- **Decommissioning & Demolition (D&D) Master Planning:** Designing structured, multi-scenario demolition blueprints is essential. These plans cover full versus partial demolition, regulatory permitting, hazardous waste management, asset salvage liquidation, and complete site repurposing, ensuring a comprehensive approach to site transition.

(F) Corporate & Site-Level Training

To sustain efficiency gains, mitigate forced outages, and maintain zero-accident cultures, an asset must continuously upskill its human capital. We design and execute customized training packages tailored to prudent international utility practices.



Technical Training

- **Operational Readiness & Philosophy:** Deep-dive training on complete plant systems, control and interlock logics, and safe cold/warm/hot startup-shutdown sequences to prevent start-up incidents.
- **Grid Flexibility & Cycling Operations:** Specialized modules training operators to safely manage lower-load operation, rapid ramp rates, and frequency response requirements imposed by modern renewable energy integration.
- **Heat-Rate & Efficiency Awareness:** Practical analytics training for control room and field engineers, with a focus on real-time controllable losses and thermal performance tracking.
- **Predictive Maintenance & Asset Health:** Advanced technical modules on utilizing condition monitoring data, analyzing defect reviews, and optimizing predictive maintenance loops.
- **EHS, Risk & Statutory Compliance:** Rigorous site-level field training on formal safety procedures, Root Cause Failure Analysis (RCFA) protocols, and chemical/pressure vessel, and electrical safety statutory regulations.
- **Facilitated Full-Scope Simulator Training:** Partnering with accredited specialized facilities, we design and supervise full-scope control room simulator training that delivers hands-on operational mastery.
- **Bespoke & Specialized Topic Delivery:** To address niche engineering challenges, unique OEM architectures, or emergent energy technologies, we provide highly flexible training delivery. These customized modules can be conducted directly by our elite in-house advisory faculties or co-facilitated with outsourced domain specialists to meet your specific plant requirements.

Soft Skills Training

- **Shift Leadership & Crisis Communication:** Upskilling shift in-charges, desk operators, and maintenance managers to direct teams confidently, communicate clearly during plant emergencies, and interface seamlessly with regional load dispatch centers.
- **Commercial Awareness for O&M Teams:** Educating technical operators on the financial impacts of their field actions—translating parameters like technical

degradation, availability shortfalls, and auxiliary power overruns into explicit revenue losses and tariff penalties.

- **Cross-Functional Collaboration:** Fostering alignment between Operation, Maintenance, Fuel Management, and Commercial teams to drive integrated plant parameter ownership.
- **Vendor & Contractor Management:** Specialized training for purchase and contract executives on managing Annual Maintenance Contracts (AMCs), tracking contractor KPIs, and enforcing safe work compliance.
- **Behavioral Safety & Workforce Motivation:** Interactive site-level frameworks for motivating contract workmen and permanent staff, and championing zero-accident workplace safety parameters.

Compliance & Contact Engagement

Advance Power Asset Consultancy & Services (APACS) ensures that all consulting, auditing, training, and on-site engineering services are executed under strict alignment with international quality, safety, and energy benchmarks.



Partner With Us Today

Let our team of senior industry experts protect, optimize, and future-proof your assets. We offer comprehensive solutions tailored to your needs, ensuring efficiency and sustainability.

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