



Harnessing Energy for Life

UNLOCKING VALUE

Power Station Project Development
with Integrated Fuel Efficiency Enhancements



At USP&E, we believe that every power station project we have preformed has made us a better company and positioned us to help our clients unlock value and minimize risk.

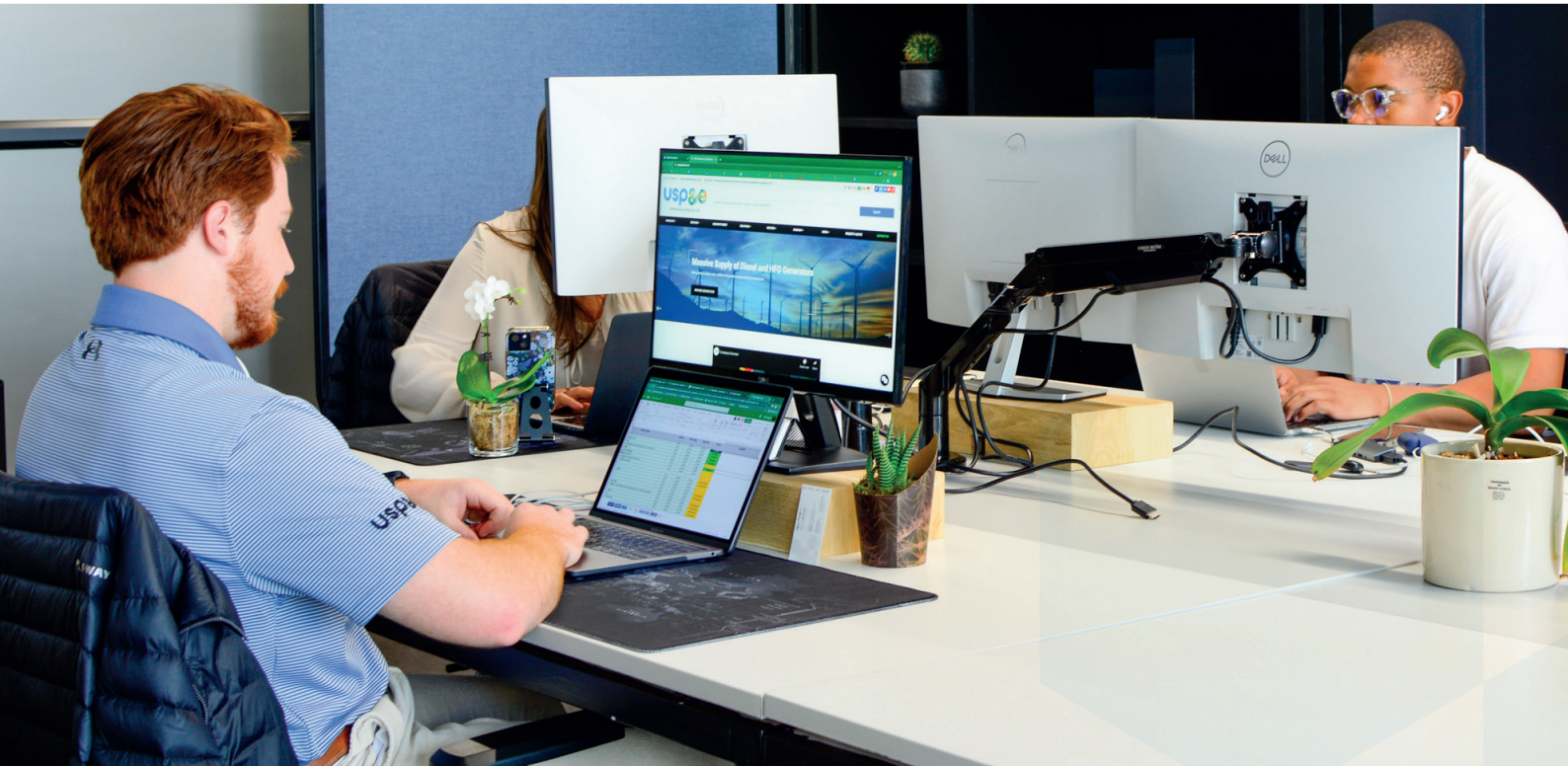
Our vision is to be the most trusted supplier of power station consulting services in emerging markets. So, it makes sense that, we think our specific area of focus across all of our divisions is to drive value through lowering our clients' operational costs. With our varied and extensive background in project planning and management, USP&E Consulting (North America, Africa and India) supports Owners and Executive Teams in major project development opportunities.

Long before a FID ("Final Investment Decision") triggers the project execution phase, called EPC ("Engineering, Procurement and Construction"), there are a number of steps that all infrastructure projects must take.

STEP ONE: CONCEPTUAL FEASIBILITY

A feasibility study involves a technical and commercial examination of a project's potential for success. The main purpose for this study is to determine if the project is viable given the infrastructure required and the resources available to the company.

The Conceptual Feasibility Study (CFS), or Class 5 estimate, is often prepared in the outset of the development phase of a project. During this scoping phase, all critical design alternatives are being examined and the preliminary project execution plan is established. The CFS is defined as an order of magnitude estimate, including contingency, that is accurate to $\pm 20\%$. USP&E offers a robust CFS practice and can often complete a CFS in Africa in 30-60 days, depending on the level of detail required.



STEP TWO: DEFINITIVE FEASIBILITY

USP&E's design engineering (EPC) practices create the economic models that shareholders, banks, and investment committees require prior to a Financial Investment Decision (FID). Accurate to $\pm 10\%$, our Definitive Feasibility Studies (DFS) provide professional financial projections relative to the power station or infrastructure project. Ultimately, a DFS is a comprehensive, forward-looking, assumption-driven economic and technical project report to be used by the owner to determine the Net Present Value (NPV) of the proposed project.

FEASIBILITY PROGRAM MANAGEMENT

In order to reach FID, each Definitive Feasibility Study is guided by a feasibility program management team that meets at the outset of the Study to set layout site conditions, Study deliverables, load lists, eTap reporting and transient simulation strategies, and a Target Outcome. It is important to the integrity of each study to maintain that the real outcome is always uncertain at this stage, and targets and objectives may not be achievable. The Target Outcome is the potential project design that achieves a positive FID. This Target Outcome is one which is low-risk and high-efficiency, ultimately maximising value.

In the final recommendations section of each Study, USP&E highlights all aspects of the power station configuration with the most suitable technical and financial characteristics, starting with a review of all capital costs (CapEx) and detailing all operating costs (OpEx) over the life of the project. These DFS costs are built upon pricing quotes and specifications from manufacturing, shipping, construction, testing, maintenance, and fuel supply contractors and vendors. The objective is to clearly identify the most reliable, affordable, fuel efficient, renewable, ideally-suited power station configuration for the project in order to optimize the organizations ideal outcome: enduring profitability.

A +/- 10% DFS, or Class 2 Estimate, supplies the executive team with all basic design documents such as P&ID's, layouts, electrical single lines, construction schedules, and project execution plans. USP&E can typically complete a full DFS in 3-6 months, depending on complexity and the range of variables unknown at the time of the DFS program management kick-off meeting.



STEP THREE: FEED

Once the power station DFS is completed, the Front End Engineering Design (FEED) can start. The FEED is a critical step where an EPC contractor is selected to perform the design engineering required in order to truly integrate the various aspects of the DFS-recommended power station solution including:

- Basic fuel farm design and integration
- Power station layout and site integration
- Civil works drawings, layouts and integration
- Control systems design and integration
- Full eTap load, transient simulations and associated reporting
- Fire protection, safety, risk management design and integration



STEP FOUR: FID

In order to reach a Final Investment Decision on a major infrastructure project in the, the CFS, DFS, and FEED need to be in strategic alignment. But for the FID to be positive and the project to move forward, the project will often need to compare favorably to the other projects the organization is considering. In emerging markets, the FID will be influenced by both the project's projected profitability and social impact. Social impact is driven by the project's potential to transform communities, economic systems, and lives through job creation, infrastructure improvements, and relief work.

Even when target outcomes are met and the DFS and FEED point towards a robust, profitable, and transformational project, sometimes the risks and uncertainty in certain frontier nations are simply too high. In that case, the Board of Directors may delay the FID until local or international political and market conditions change.

When the executive team and Board's target outcomes, Socio-economic, Transformational Opportunities for Restoration and Yield (STORY) are detailed and aligned, the positive FID triggers the project execution, engineering, procurement, and construction phase (EPC). Regardless of the delays to the FID, the winning EPC contractor will always be expected to commission the new assets in the shortest time possible.



STEP FIVE: EPC

When USP&E Consulting is given the opportunity to assist clients with their CFS, DFS, FEED and FID needs, tremendous trust and partnership is forged. Once the consulting engagement is concluded, USP&E's power station EPC and O&M division is often engaged to build what we have so carefully designed.

USP&E's EPC division is perfectly positioned to execute on the creative and customized power station Designs, that our independent and wholly separate power station consulting division produces. With offices around the globe we have experience in The America's, Africa, and the Middle East. Our EPC practice is built upon the key USP&E pillars of world class construction:

- Safety first
- Quality control
- On time delivery of energy
- Risk management
- Clarity, Transparency, and Honesty
- Local National Advancement



STEP SIX: RISK MANAGEMENT & QUALITY CONTROL

Major infrastructure projects in emerging markets have a poor record in the area of estimating initial capital cost and operational performances. Third party reviews rarely have time and funds for the due diligence required. This is where USP&E Consulting comes back in as an Owner's Rep when other EPC firms are hired. Through our risk management, controls design, eTap simulations, and operations expertise, we can help prevent execution problems and keep risks in line.

STEP SEVEN: OPERATIONS & MAINTENANCE

USP&E is an award winning, world class Operations and Maintenance company. USP&E is focused on driving value by reducing fuel consumption in the harshest environments on Earth.



OUR EXPERTISE

Our expertise cover all aspects of the power generation spectrum. USP&E successfully integrates equipment and subsystems manufactured by others into fully operational power generating stations. We deliver excellence, strive for continuous improvement, and respond vigorously to change. USP&E is 100 percent committed to serving our clients.

Who are we?

USP&E IN SUMMARY



Our vision is to be the most trusted supplier of energy services in global and emerging markets for major projects in mining, oil/gas, hospitality, manufacturing, telecommunications, and others.

Since 2002 USP&E has assisted clients with over 150 feasibility studies, supplied over 1200 generators, designed, built, installed, and commissioned over 30 major power stations, supplied over 1.8 million spare parts to clients, and consulted on over 40 GW of client energy projects.

Get in touch

Email our CEO, Will Gruver, at will@uspeglobal.com to arrange a time to discuss your upcoming project and how USP&E can help you.



*Please note, a feasibility study is guided by a set of assumptions, a strategy, development conditions and a planned outcome. The outcome is uncertain and targets and objectives may not be achievable. Furthermore, there can be no assurance that such study recommendations or forward-looking information will prove to be accurate, and actual results and future events could differ materially from those anticipated. Important factors that could cause actual results to differ materially include: fluctuations in commodity prices and currency exchange rates; the need for co-operation of government agencies in the issuance of required permits and approvals; the possibility of delay in development work or in construction and uncertainty of meeting anticipated milestones; and other risks and uncertainties.

