Energy demands continue to strain the world's fuel supply. Emerging economies are meeting energy needs with conventional plants, while developed nations face greater pressure to construct cleaner power facilities. Global interest is therefore focusing on new nuclear generation, extended use of existing nuclear plants, clean coal plant construction, and renewable and distributed energy.

Today's power generation companies are facing fundamental changes in how they build and operate assets. Our power generation optimization solutions and consulting services—spanning nuclear, fossil and renewable sectors—can enable you to improve the design, construction, supply, safety and operation of power plants. We can help your company:

- Enhance asset utilization and unit availability.
- Manage knowledge loss and human capital.
- Manage a new plant's information lifecycle.
- Incorporate high-performance computing and visualization into operations.
- Optimize market interaction—fuel, electricity, emissions.
- Assure regulatory compliance, and plant and data security.
- Manage the new build process.

Power generation optimization solutions from IBM emphasize two key strategic imperatives. One is transforming the utility network by changing the electric grid and gas and water infrastructures from a rigid one-way system to a dynamic, automated and reliable information network. The second is investing in green initiatives, such as incorporating renewable energy and meeting stringent greenhouse gas emissions targets, while maintaining a reliable, cost-effective power supply. These strategies can help power generation companies achieve the following goals.
Improving operational excellence by:

- Increasing plant availability and reliability by reducing outages and improving asset management.
- Converting data and applying trusted business intelligence to visualize and optimize plant operations.
- Protecting plant operations from cyber security threats.
- Increasing automation for minimally manned plants.

Enhancing financial performance through:

- Asset management and utilization of leading practices.
- Automation of business processes.
- Use of advanced analytical financial tools to optimize fleet operations across the fuel, electricity and carbon markets.
- Better control and monitoring of wind assets.

Expanding supply through:

- Intelligent long-term plans.
- Trade-offs in fleet diversification with intelligent plant lifecycle management to monitor new plant design and construction.
- Use of high-performance computing to fully understand the complexities of nuclear, clean coal and other advanced generation technologies.

Improving regulatory and policy effectiveness through:

- More timely and accurate operational reporting.
- A stronger partnership with regulators through education, communication, effective negotiation and benefits realization.

Conclusion

IBM’s strategic vision is to help power generation companies develop, manage and optimize a diverse energy portfolio—including nuclear and renewable energy as well as more efficient fossil fuel generation—using asset data and lifecycle management solutions. We can help you deliver power more responsibly and more efficiently as you plan for a successful future.

For more information

To learn more about power generation optimization solutions from IBM, please contact your IBM representative or IBM Business Partner, or visit: ibm.com/energy