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ENgage Program Fact Sheet

Energy is in the early stages of a global and local transition from mostly centralized, hydrocarbon sourced generation to more decentralized, lower CO₂ emission energy generation, transportation, storage, and use.

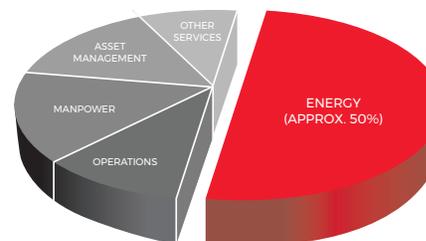
In the resulting uncertainty, energy optimization offers a future-proof method to reduce operating expenditure and emissions regardless of carbon price and should be the first step considered towards decarbonization. Energy savings also reduce the capital expenditure for future strategies such as electrification or carbon capture.

KBC's ENgage delivers, sustains, and continuously improves energy efficiency and profitability.

90% of the world's leading oil and gas companies have used KBC as a trusted advisor and solution partner.

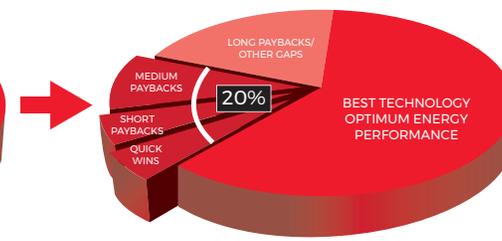
The Energy Challenge

Energy is your largest controllable operating cost. Even leading performers demonstrate that 10-15% savings on energy costs can improve margins by up to 20%. Saving energy is the most reliable way to reduce operating costs and improve margins in a volatile market - it always saves money and always will.



Typical Operating Cost Distribution

Energy normally accounts for 50% of operating costs.



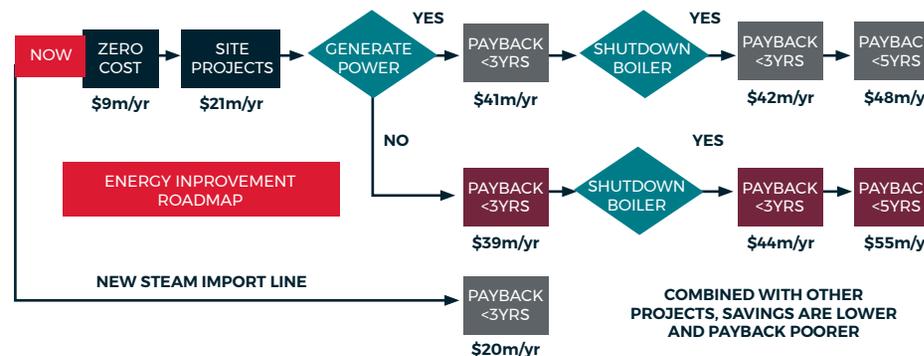
Energy Savings Achieved

Typical energy cost savings and emissions reductions through economic projects.

The Solution: Energy Optimization

How do you close the gap and improve your energy performance? With a combination of experience and skills and supported by superior tools.

The KBC ENgage[®] program is proven to close gaps. Using our skills and technology, we identify and validate improvement opportunities. By implementing our organizational and behavioral change methodologies, we deliver and sustain the benefits. KBC ensures that all necessary elements of the energy management system are correctly digitalised to maximize energy efficiency, emissions reduction and profitability. ENgage provides the tools and support to ensure that ISO50001 delivers results.



The roadmap shows the route from the current position to an energy-optimized situation with all key decision points defined.



About KBC

KBC, a wholly owned subsidiary of Yokogawa Electric Corporation, is all about excellence in the energy and chemical industries. In the 40+ years since its founding, KBC's consultants have carried out 1000+ optimization studies, generating \$20+ billion in benefits for our clients. For more, visit www.kbc.global.



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Six Main Solutions ▼		◀ Three Main Strategies ▶		
		Planning, Monitoring, Optimization, and Sustainability Reduce energy/CO ₂ without capex	What-ifs and Engineering Optimize use of capital to improve energy systems	Design Save energy and reduce capital cost in new designs
Best Technology and Roadmap	Energy Benchmarking, Gap Analysis and Opportunity, Identification	A new Best Technology (BT) index tool integrated into Petro-SIM for readily analyzing energy performance in process units and across complete facilities. The latest BT correlations allow comparison of energy consumption with best technology designs and lead into the identification and definition of energy gap closure opportunities ranging from no-cost quick-wins through to capital investment projects. KBC's SuperTarget™ optimizes heat integration using the latest Pinch Techniques in process units or across a site. Compatible projects are combined in a roadmap showing all key decisions to move sites from their current situation to an energy-optimized position.		
Petro-SIM®	Integrated Energy and Process Modelling	The process simulation platform for driving performance excellence. Unique features for integrated energy and process modeling for optimizing design and operation are now fully embedded. Petro-SIM ensures process energy demands are met and supports operational decisions when analyzing the all-important energy versus yield trade-off.		
Digitalization	Digital Technologies and Information to Achieve Excellence	Digitalization allows facilities to safely and reliably operate at a true optimum and outperform the competition. KBC turns an overwhelmed and distracted organization into an agile, well-tuned machine that anticipates issues and organizes to prioritize and solve them before they escalate. KBC's Co-Pilot Program® provides remote support through expertise and insight supported by proactive diagnosis through Data-as-a-Service and Software-as-a-Service.		
Visual MESA™	Real-Time Energy Optimization	The combination of real-time optimization with process energy metrics developed in Petro-SIM supports and sustains the performance of both energy supply and demand. Closed-loop is used for automated control and multi-period optimization for future scenario planning.		
HX-Monitor™	Maximize Heat Recovery	Maximize heat recovery and minimize exchanger maintenance cost by optimizing cleaning in preheat trains.		
Change Management	Agile Work Processes	To make the most of digital technology, business workflows and competencies need to perform in real-time, not retrospectively. KBC's Human Performance Improvement team provides dedicated expertise to support this change management process.		
Value Proposition		<ul style="list-style-type: none"> • 3-5% no cost overall energy savings • 1-2% production increase without investment • Reduce maintenance and improve availability by 1-2% 	<ul style="list-style-type: none"> • 10-15% overall energy savings • 2-4% production increase • Minimize investment in energy efficiency improvements 	<ul style="list-style-type: none"> • Eliminate risk and delays • 20-25% less energy system capex • 10-15% overall energy reduction • 1-2% increase in project Return on Investment