

Advanced Process Control Consulting Services

Service Description

Many processes have significant opportunities for using Advanced Process Control (APC) technologies to improve operation stability, push closer to quality or equipment limits, and improve the capability of process units to handle disturbances. APC consulting services help customers specify, justify, and apply APC technologies such as multivariable predictive control, neural net inferential modeling, and fuzzy logic controllers that will significantly improve plant performance.

Consulting engagements are conducted by senior consultants with in-depth process expertise and extensive knowledge and experience with APC technologies and their application.

Service Objectives

- Determine the potential plant performance improvements that can be expected from APC
- Define the benefits and costs, functional design requirements, and project plans for applying APC technologies
- Provide a clear strategy and financial business case for APC investments

Typical Situations

- Need to establish the opportunity, feasibility, and economic value for applying APC technologies
- Wish to reduce variability of key control variables to enable pushing closer to quality specifications, equipment limits, and optimal energy efficiency
- Seeking to optimize control of complex processes, particularly those with long lag-times, interacting loops, highly constrained operations, or inverse responses
- Looking to capitalize on the APC technologies embedded in the DeltaV™ system

Scope of Service

The scope of APC consulting is dependent on specific needs and situations, yet generally falls into two phases:

Advanced Process Control Consulting Study

- Evaluation of current plant operations and existing automation performance
- Benefits analysis to define and quantify the expected economic improvements
- Development of a Functional Design Specification for project implementation, which details APC applications, control strategies, functionality to be provided, and how benefits are to be achieved
- Recommendation for additions, modifications, and upgrades of instrumentation, analyzers, or systems necessary to support effective application of APC technologies
- Estimation of budgetary project costs ($\pm 30\%$)
- Analysis of financial return on investment for project justification and prioritization
- Preparation of project implementation plans and schedules

Advanced Process Control Consulting Project

- Project consulting, engineering, and support services for process step testing, model identification, configuration and programming, site integration, commissioning, and site acceptance testing

Deliverables

- Onsite consulting and formal assessment by a senior Emerson Process Management consultant
- Detailed report documenting results, analyses, functional design specifications, project implementation plans, and recommendations
- Management presentation or meeting to review and discuss results and recommendations
- Implementation of recommended APC applications (APC Project)

Service Activities

- **Information gathering** - Prior to onsite work, an Emerson consultant request and review a list of base plant and process data for preliminary analysis.
- **Business driver and process unit review** – Onsite meetings will be held to establish process and operational goals and review opportunities for improvement.
- **Current automation status review**– An audit of existing automation systems and instrumentation to baseline status and performance will be conducted.
- **Opportunity analysis** – An investigation to determine the potential improvements from APC and estimate expected economic gains will be performed.
- **Offsite analysis and report generation** - A detailed report to document results, analyses, functional design specifications, project plans, and recommendations will be generated.
- **Report transmittal and follow up** – A final report will be delivered and follow-up meeting scheduled to review and discuss the report.
- **APC implementation** – Project execution or support services to implement recommended or specified advanced process control applications (depending on scope)

Service Duration

A typical APC Consulting Study can take one to two weeks onsite, one month for final report. However, as each study will be customized to specific needs and situations, the duration will vary depending on scope and complexity. An APC Consulting Project involving onsite time for step tests and commissioning can vary from one to four weeks depending on process complexity, process response time, and the ability to simultaneously move variables independently.

Service Ordering

Please contact your local Emerson sales office to retain this service. Prior to order acceptance, Emerson will issue a written proposal for your review and approval to ensure that scope, deliverables, timing, and budget meet your needs and expectations.

For additional information, you can reach us at AAT@emersonprocess.com

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