



NAPCON IMPROVE

By considering the overall production optimization and capacity, NAPCON Improve solutions bring out the maximum potential of your operations.

NAPCON IMPROVE

- NAPCON OPTIMIZER
- NAPCON CONTROLLER



NAPCON IMPROVE



NAPCON CONTROLLER

Get more with what you got and maximize both production rate, quality and sustainability



NAPCON OPTIMIZER

Increased productivity, enhanced sustainability and maximize profit directly through plant wide economic optimization.



NAPCON PERFORMANCE ANALYSIS

Make sure that your analysis is not only report of actions. Our performance analysis gives you immediate benefits.



NAPCON IMPROVE IMPLEMENTATION PROJECTS

With NAPCON project services you can install, implement and commission NAPCON control and optimization solutions. We can assist you on a broad scale from expert support to turn-key deliveries.



NAPCON SERVICES

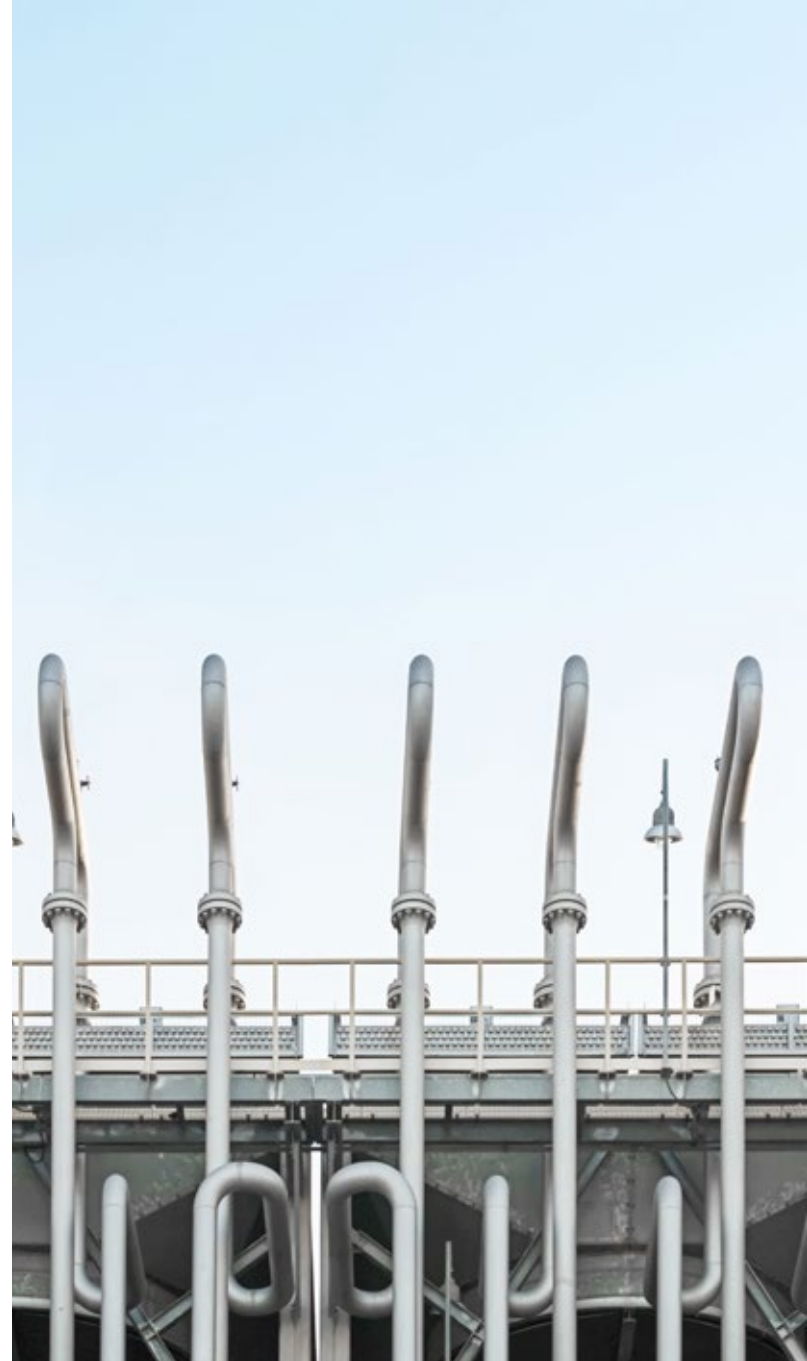
Lifecycle services take care of keeping your NAPCON solutions and software always up to date and their performance in high level.

NAPCON IMPROVE

With NAPCON Improve solutions you can ensure that your investments meet your strategic goals and that your assets are used optimally. We understand the needs of process industry needs and the set of goals you are aiming for. Lifecycle with NAPCON Improve starts from your needs. As the first step, we analyze where and how we can help by controlling or optimizing your plant processes towards your targets.

NAPCON Improve portfolio consist of software products and associated services. Software products NAPCON Controller and NAPCON Optimizer control your production quality and maximize production rates and profitability. NAPCON Improve Services include NAPCON Performance Analysis, NAPCON Improve implementation Projects and NAPCON Lifecycle Services

- **NAPCON PERFORMANCE ANALYSIS** points out possible needs for improvements. It typically leads to substantial benefits that can be harvested either by operational changes, automation improvements or with advanced process control.
- **NAPCON PROJECT SERVICES** help you to implement optimization solutions. We can assist you on a broad scale from expert support to turn-key deliveries.
- **NAPCON LIFECYCLE SERVICES** take care of keeping your optimization solutions and software always up to date and their performance in high level even when targets and processes are changing.
- **NAPCON EXPERTS** have deep understanding of the needs of process industry needs, in various fields of industry from oil refining and petrochemicals to food and beverage.



OUR MAIN CUSTOMER SEGMENTS

OIL REFINING
PETROCHEMICALS
DAIRY

We develop and design sustainable NAPCON solutions with deep cooperation with our customers.

NAPCON IMPROVE THE LIFECYCLE WITH OUR CUSTOMERS

At NAPCON we value long-term partnerships with our customers. Whether you are interested in production maximization, improving energy efficiency, reducing emissions, decreasing process down-time or avoiding production bottlenecks, we can help you by analyzing your challenges and designing NAPCON Improve solutions to meet your needs.

- **NAPCON PERFORMANCE ANALYSIS** is a thorough study that reviews the current status of operative practices, energy efficiency, process control and optimization. The outcome is a set of recommended actions, ranging from simple changes in operative habits to advanced process control, aimed to improve your profitability

NAPCON IMPROVE IMPLEMENTATIONPROJECT PHASES

CONTROL DESIGN

Definition of objectives and strategy for advanced process control and optimization; selecting the process variables needed for the solution.



PROCESS TEST

Collecting process data; description of process behavior with mathematical models.



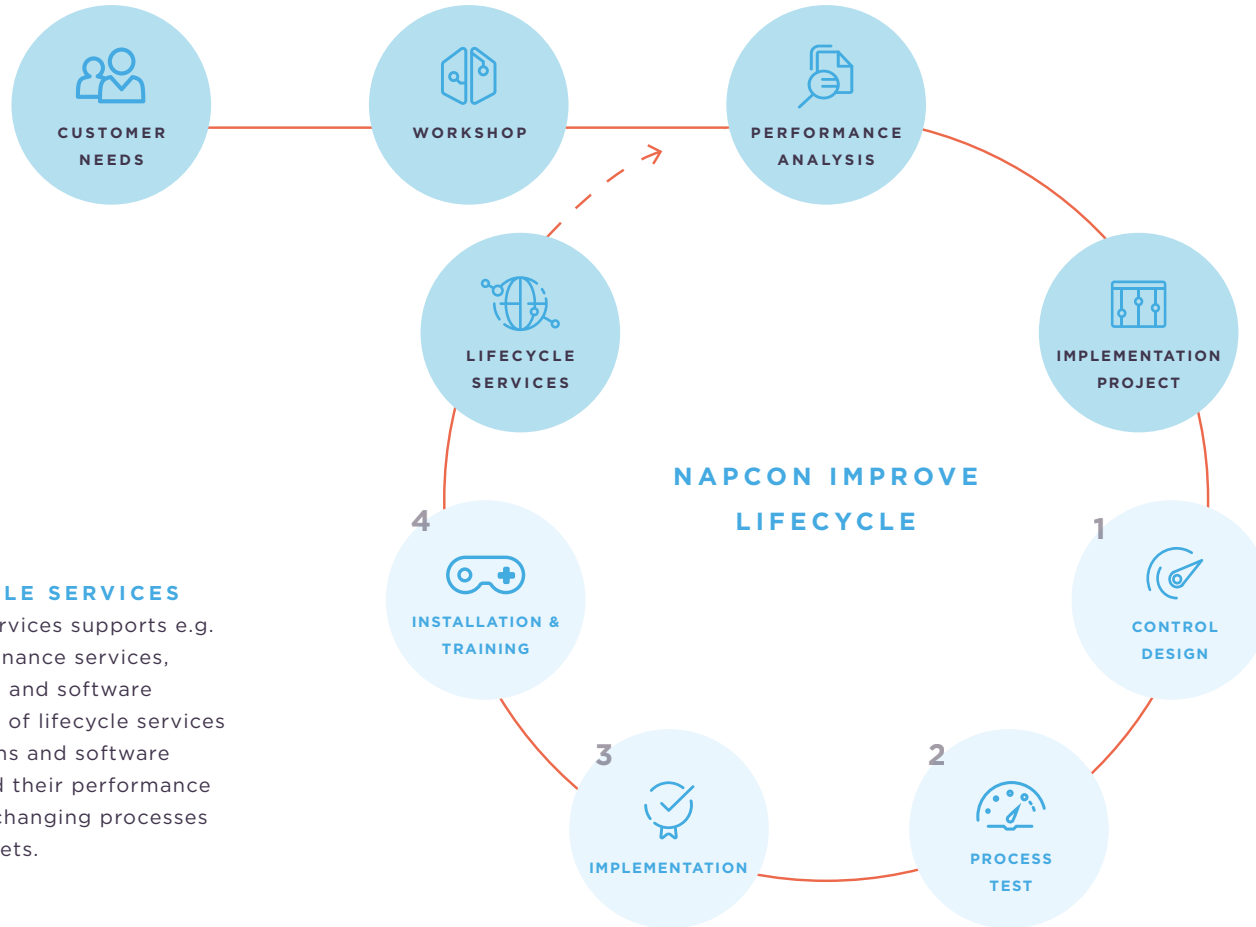
IMPLEMENTATION

Configuration of the application and its user interfaces.



INSTALLING & TRAINING

Commissioning of the application at the site and training for users.



NAPCON LIFECYCLE SERVICES

NAPCON Lifecycle services supports e.g. with call desk, maintenance services, development services and software updates. The purpose of lifecycle services is to keep the solutions and software always up to date and their performance in high level despite changing processes and/or operative targets.

NAPCON IMPROVE PORTFOLIO

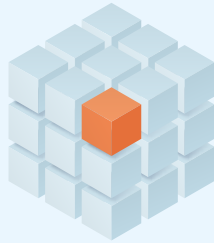
Are you sure your production facilities are run optimally 24/7? The operating environment for a wide variety of process industries is far more challenging today than it was just a few years back. Optimality is now defined with several, partly conflicting criteria, such as yield and throughput maximization, sustainability, decarbonization, energy efficiency, minimized unplanned down-time, adherence to production plan and minimizing both off-spec production and quality give-away.

While pursuing for optimal operation of plants, panel operators face in their daily work an increasing amount of unexpected and surprising situations. This is because processes are more and more in a transient state, as new legislation, market and demand changes, new feedstocks such as bio-based raw materials and new kind of process technologies cause more frequent changes in operating parameters. Normal degradation of process. Equipment, such as catalyst deactivation or fouling of heat exchangers, as well as sensor and equipment malfunctions also create unforeseen events that operators need to tackle whilst keeping the production rates on planned level and processes in the optimal operating range.

NAPCON Improve portfolio masters this all. It includes top-notch real-time optimization solutions for control room use that are installed on top of the existing process control systems.

NAPCON Improve portfolio has holistic solutions for your business needs, covering process, products, material, value chains and human behavior. NAPCON will keep you in balance: it helps you to reach maximum profits and minimum costs without compromising your quality and sustainability targets.

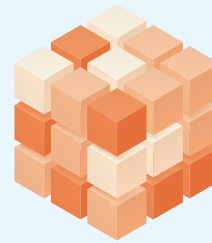




NAPCON CONTROLLER

Although based on Advanced Process Control (APC), NAPCON Controller is more than a mere software - it is a holistic solution for tackling a specific challenge in the production process.

The NAPCON Controller is installed to control a certain process unit, where it is able to regulate wanted characteristics of the end product (e.g. humidity), decrease product variability and increase production.



NAPCON OPTIMIZER

NAPCON Optimizer is ideal for plant-wide economic optimization. It monitors all APC solutions and utilizes Dynamic Real Time Optimization to conduct them, making it at least 30 times faster than traditional Real Time Optimizers.

NAPCON OPTIMIZER enables you to choose holistic optimization targets that best suit your market situation: maximize production throughput, minimize utility costs and optimize your raw material usage. NAPCON Optimizer will then consider the price of raw material, utility costs, and the selling price of the end product - and generate maximum profit.



NAPCON IMPROVE REDUCING VARIATION

With NAPCON Improve portfolio you can enhance process performance step by step from quality control to production optimization and finally to plant-wide economic optimization.

NAPCON'S SERVICES support this approach; NAPCON Performance Analysis estimates the available benefit potential of applying NAPCON Improve technologies; Solutions are designed and commissioned through NAPCON Improve Implementation Projects; Lifecycle services ensure that solutions' performance is always on high level.

THE FIRST STEP IN GAINING BENEFITS WITH NAPCON IMPROVE is the reduction of variance. This brings new possibilities for operation which are utilized by optimization.

NAPCON CONTROLLER is particularly suitable for controlling the product quality, where off-spec production would mean significant losses and producing over-quality would not be optimal use of resources. Production optimization and other plant objectives are conveniently integrated to NAPCON Controller's optimization objective, most weight can be put e.g. on production maximization, maximization of certain yields, minimization of energy and other costs or maximization of process run length.

Finally, **PLANT-WIDE OPTIMIZATION WITH NAPCON OPTIMIZER** is a powerful concept for plants where the production maximization of a single unit leads to suboptimal

NAPCON IMPROVE REDUCING VARIATION

STARTING POINT

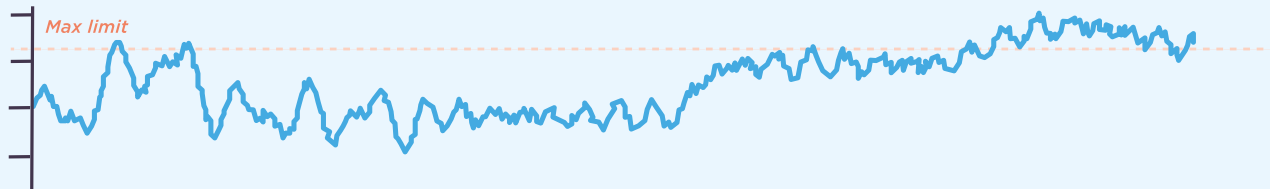
- Typically the **starting point** is operator-adjusted traditional process control with PLC or DCS. NAPCON Controller is installed on top of that.

NAPCON CONTROLLER

- NAPCON Controller** minimizes the variations in key process variables, and thus helps you to reach closer to the specs. With NAPCON Controller you can you can improve your profit even

NAPCON OPTIMIZER

- Moving forward to plant wide optimization with **NAPCON Optimizer** you can even achieve 5 - 10 % more profit. This means that NAPCON Optimizer coordinates your APC solutions and manipulates the process conditions to get maximum profit.



PLC OR DCS
OPERATOR CONTROL

NAPCON CONTROLLER
VARIATIONS MINIMIZED

NAPCON CONTROLLER
PROCESS ON UPPER LIMIT,
10-15 % MORE PROFIT

NAPCON OPTIMIZER
MAXIMUM ACHIEVABLE PROFIT,
5 - 10 % MORE PROFIT

"First we tried to keep the specs by manually adjusting temperature and flow rate set points on our product"

*"Then we installed **NAPCON Controller**. Product variations reduced dramatically and we could move closer to the specs! This paid off by improved energy efficiency, better yields and higher throughputs."*

*"The ultimate benefits were gained when we mounted **NAPCON Optimizer** to coordinate the APCs and to take care of plant wide optimization. It manipulates the process conditions to get maximum profits."*



NAPCON CONTROLLER

**PUTS ALL
YOUR POTENTIAL
TO USE**

NAPCON CONTROLLER

NAPCON Controller maximizes both production rate and quality by providing tight control over the process despite difficult process dynamics or disturbances. Fast implementation process and the reliable operation of NAPCON Controller guarantee early return on investment.

- In the core of the NAPCON Controller is an optimization problem that is formed and solved at each control cycle, typically once a minute, in order to keep key process variables close to their targets.
- Production optimization and other plant objectives are conveniently integrated to NAPCON Controller's optimization problem utilizing versatile variable types and tuning parameters. Configuration is easy through NAPCON's user friendly tools.
- NAPCON Controller calculates new optimal set point values for basic controllers on each control cycle. The objective is to push the process to the best operating point as defined by advanced process control targets and constraints
- The usability of NAPCON Controller has been designed with panel operator's workflow in mind. The user interface facilitates focusing on the most important topics that need operator attention.

WIDE APPLICATION AREA

- NAPCON Controller has been successfully used in several fields of the process industry, including e.g. oil refining, petrochemicals industry, food & beverage, and forest products industry.

KEY SUCCESS FACTORS FOR WIDE APPLICABILITY

- Flexibility of NAPCON Controller algorithm
- Extensive number of optional tuning parameters to adapt the application to the selected control strategy
- Ability to handle asynchronous on-line analyzer measurements as well as to combine them with on-line process calculations
- Flexible handling of varying raw material and product grades.

NAPCON CONTROLLER BENEFITS

SIMULTANEOUS GAINS

Maximizing production rate no longer means compromising quality or energy efficiency - NAPCON Controller allows you to maximize production rate, whilst simultaneously optimizing produces' quality, reducing emissions and maximizing energy efficiency. Reach new heights in product rate, yields and quality with this state-of-the-art technology!

MAXIMUM PROFIT

We guarantee the best possible return on your investment, fast implementation and short payback time.

HIGH AVAILABILITY

Our experts are at your service around the clock, keeping your process stable and in a safe operating window 24/7.

STAY UP-TO-DATE

NAPCON Controller includes an advanced monitoring and reporting system, making it an excellent tool for indicating process bottlenecks, which require separate actions to increase production capacity.

SUBSTANTIAL BOOST TO PRODUCTIVITY WITH NAPCON CONTROLLER.



With the help of NAPCON Controller, Valio managed to boost the production by more than 10% without any increase in energy consumption. Valio can now predict the moisture content and optimize the humidity in real time, keeping the composition of the final powder product very close to its target value.

A large wind turbine is visible on the left side of the page, with its blades extending towards the top left. The background is a light blue sky. The text is overlaid on this background.

NAPCON OPTIMIZER

NAPCON Optimizer maximizes profit directly through plant-wide economic optimization. NAPCON Optimizer is based on dynamic real-time optimization concept, a state-of-the-art optimization technology.

REACH NEW HEIGHTS WITH NAPCON OPTIMIZER.

- In order to meet the true optimum of the plant, changes in the process conditions need to be taken into account immediately when a change takes place. Therefore NAPCON Optimizer uses dynamic process models that allow optimization to be run once a minute.
- It is important to optimize the entire plant. E.g. production maximization of a single unit often leads to suboptimal performance of other units. Therefore NAPCON Optimizer models encompass plant profit from feedstock storages to product tanks.
- NAPCON Optimizer facilitates hierarchical approach to plant-wide economic optimization. Individual units are run in the optimal way with advanced process control (APC) solutions. NAPCON Optimizer is on a higher level in automation hierarchy. In addition to overall plant-wide optimization it coordinates the APCs so that the entire facility is run optimally.
- The usability of NAPCON Optimizer has been designed with panel operator's workflow in mind.
- The user interface facilitates focusing on the most important topics that need operator attention.
- The most convenient way to operate NAPCON Optimizer is through web displays. Web technology allows integration of NAPCON Optimizer user interface with the operating environment of existing advanced process control solutions (NAPCON Controller or other APCs) and the underlying process control system (DCS).
- There is a separate user interface for configuration, tuning and troubleshooting the NAPCON Optimizer applications

NAPCON OPTIMIZER BENEFITS

MAXIMIZED PROFIT

Plant-wide production optimization maximizes profits by taking into account product prices, as well as raw material and utility costs.

EARLY START, EARLY CASH FLOW

The most beneficial part of the delivery scope will be implemented on a fast track.

VENDOR INDEPENDENT

NAPCON Optimizer can be built on existing Advanced Process Control (APC) application from any vendor.

AVOID SUB OPTIMIZATION

Plant-wide optimization makes sure that all process units operate towards common goal and there is no sub-optimization creating unwanted bottlenecks or costs.

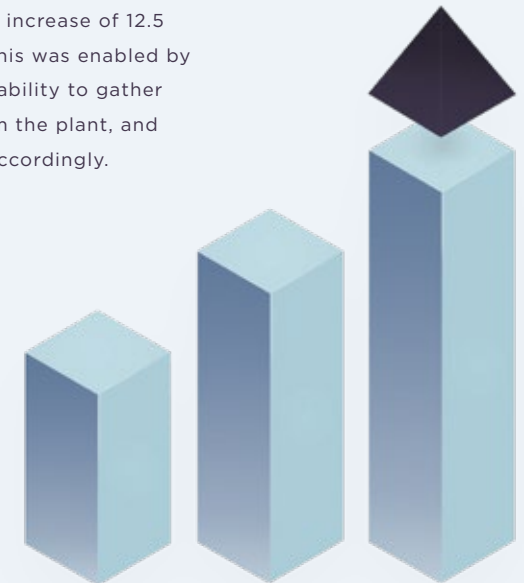
STAY UP TO DATE

NAPCON Optimizer includes an advanced monitoring and reporting system, making it an excellent tool for indicating process bottlenecks, which require separate actions to increase production capacity.

NAPCON OPTIMIZER PRODUCES EXCELLENT LONG-TERM RETURN.

Borealis has maintained with NAPCON

Optimizer since 2004. For the first operational year with NAPCON Optimizer, Borealis recorded a profit increase of 12.5 million USD per annum. This was enabled by NAPCON Optimizer's capability to gather real-time information from the plant, and then run the equipment accordingly.



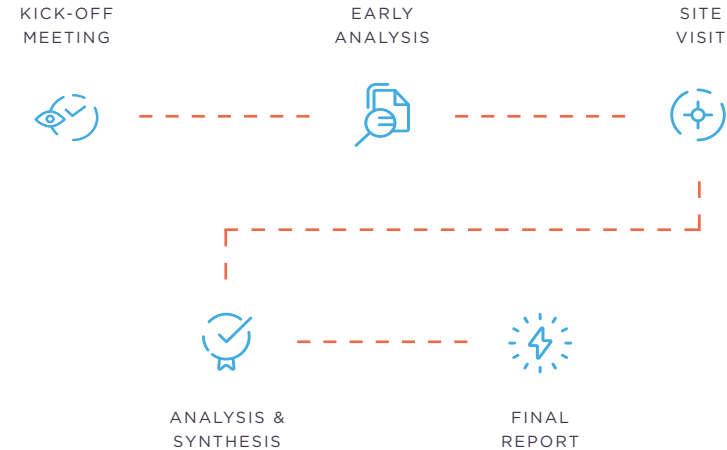
After 8 years, the profit increase has reached an impressive amount of over 100 million USD. And what's more; Napconization has also fueled up the production of ethylene by an annual 9%.

NAPCON PERFORMANCE ANALYSIS

NAPCON Controller maximizes both production rate and quality by providing tight control over the process despite difficult process dynamics or disturbances. Fast implementation process and the reliable operation of NAPCON Controller guarantee early return on investment.

- Besides **NAPCON Optimizer** or **NAPCON Controller** benefits, Performance Analysis also will point out possible needs for improvements in instrumentation, basic process control solutions, IT and communications infrastructure and operating practices.
- Performance Analysis will reveal possible “low hanging fruits”, which means small improvements (such as a simple modification of a single control loop) which can lead to substantial benefits, outside the scope of advanced process control.
- A site visit is a central part of NAPCON Performance Analysis. The purpose of the site visit is to verify and to refine the early analysis. This is achieved by having a close cooperation and fluent interaction between the site personnel and the project team.
- **NAPCON Performance Analysis** is based on solid data. The importance of the process data is based on the fact that it is the most significant source to reveal the real plant bottlenecks and to evaluate the performance of the basic process control loops.
- The resulting study report contains well-motivated information on the benefits and costs of implementing an advanced process control or advanced optimization application at the site.

NAPCON PERFORMANCE ANALYSIS PHASES



NAPCON IMPROVE IMPLEMENTATION PROJECTS

- Our project services help you to implement advanced process control and real-time optimization solutions. We can assist you on a broad scale from expert support to turn-key deliveries.

ALL IN

- NAPCON team includes experts from all fields that are needed to design and implement top-performing automation solutions, from process technology experts to user-interface designers and from software engineers to project managers.

NAPCON IMPROVE SERVICES

NAPCON Improve services make our optimization, control, process and IT experts at your disposal. We are ready to ensure that you get the best benefits of NAPCON software over the entire life-cycle of your solutions.

NAPCON IMPROVE SERVICES PROVIDE

IMPROVE MAINTENANCE & DEVELOPMENT SERVICES

We keep your advanced process control and optimization solutions in top condition even when there are changes in operating targets, feedstocks, process equipment and basic process controls.

SOFTWARE UPDATES SERVICES

This service guarantees that your NAPCON Controller and NAPCON Optimizer have latest versions of NAPCON software suite.

CALL DESK SERVICES

This service helps you contact our experts directly in case you need technical support or if you face issues with NAPCON Improve solutions. Our service desk experts will provide you information and solve your problem remotely or on site.

Make the control and optimization of your plant performance as effortless and efficient as possible. We offer state-of-the-art maintenance and development services of both the software and the hardware to ensure that the advanced process control and optimization solutions evolve together with the plant, process equipment and operative targets.



BUSINESS ADVANTAGES OF NAPCON IMPROVE

BENEFITS

The payback period for a NAPCON Improve solution can be as short as few weeks. Some of many business benefits of NAPCON Improve solutions are:

- Increased plant profitability by maximizing the production rates of the most valuable products and minimizing the production costs
- Tighter control of product quality and reduction of variation
- High availability of the systems
- Adjustable as the processes and operating targets change
- Early start of the application facilitates profits already during the implementation project.

PRODUCTION OPTIMIZATION

NAPCON Controller calculates and executes optimal set points for process variables every minute. Depending on the process, most weight can be put e.g. on production maximization, maximization of certain yields, minimization of energy costs or maximization of process run length.

Plant constraints and bottlenecks are handled efficiently, and NAPCON Controller continuously strives to find a solution that maximizes the objectives whilst fulfilling the process constraints.

PLANT-WIDE ECONOMIC OPTIMIZATION

Plant-wide economic optimization is a solution for plants where the production maximization of a single unit leads to suboptimal performance of other units. Plant-wide optimization is especially powerful for plants where bottlenecks cannot be relieved locally by changing process parameters in a single unit, but changes need to be made in upstream units.

NAPCON Optimizer finds and implements the best set points for process variables every minute – even when process conditions are constantly changing.

WE MAKE IT WORK

NAPCON Improve is a portfolio of platform independent software for advanced process control and real-time process optimization. NAPCON can be installed on any existing process control system (DCS) or APC platform.

NAPCON Improve services make sure that you always get best benefits from your optimization software. NAPCON's goal is to ensure that you get solutions that fit to your needs and meet your operative targets.

GET THE RESULTS YOU REALLY DESERVE.

NAPCON Continues where human capabilities end. NAPCON is a top-class automation technology solution that keeps your plant's production in the optimum throughout the year, 24/7. By operating plant near its true limits NAPCON utilizes powers you didn't know existed. With NAPCON Improve solutions you can ensure that your process investments are fully utilized.





UNDERSTAND

NAPCON Understand solutions will turn the data provided by your plant into relevant information that helps to optimize your company's production.

NAPCON Informer
NAPCON Analytics



IMPROVE

NAPCON Improve solutions will bring out the maximum potential of your operations and helps you to ensure that your investments meet your strategic goals.

NAPCON Controller
NAPCON Optimizer



TRAIN

NAPCON Train solutions will bring the real life plant into the virtual world, making training operators and testing the limits of your plant safe and exciting.

NAPCON Simulator
NAPCON Games

WWW.NAPCONSUIITE.COM

NAPCON@NESTE.COM

+358(0)10 458 1200