UPGRADING POWER PLANT CONTROL SYSTEMS TO MEET TODAY'S DEMAND

Overcoming challenges from technology refurbishment with minimal risk and optimum benefits.

Honeywell

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INTRODUCTION

The power sector is undergoing significant changes as it seeks to reduce carbon emissions, ramp up energy efficiency, and adjust to new risks.
The infusion of low-cost renewable power is putting pressure on conventional power generation sources to be more cost effective, greener and flexible in terms of operations.

Today's competitive power industry environment requires automation solutions that increase plant efficiency and profitability.

Leveraging automation capabilities through simplified, cost-effective upgrades to modern yet proven technology, while optimizing current investments, is key to success.

A well-designed project approach, coupled with the right technologies, can ease the challenges posed by the pandemic while allowing control system modernization to be undertaken without further delay.

DRIVERS FOR CONTROL SYSTEM UPGRADES

For power producers, upgrades to critical process control systems have become an urgent priority.

The drivers for refurbishment range from decreasing system performance and dependability, to rising maintenance costs and limited or expensive spare parts.

There is also the issue of a skills gap and increasing labor cost due to retiring workers, not to mention growing cybersecurity concerns.

Experience has shown that hardware and software obsolescence in an aging control system leads to decreased availability, reliability and efficiency, as well as increased downtime and loss of production.

CHALLENGES WITH EXECUTING MODERNIZATION PROJECTS

Over the years, power generation operations have typically relied on disparate point solutions from different original equipment manufacturers (OEMs).

Suppliers of equipment such as boilers and turbines commonly supply the control system for their own equipment, and multiple products within different systems are often required to co-exist within a single power generation unit.

An increased level of automation and enhanced system availability with more redundancy are reasonable expectations for a modern control system; however, Brownfield sites may have space constraints for installing new control equipment, and as such, there is a need to reduce the overall system footprint while keeping the plant outage time minimum.

CHOOSING THE RIGHT AUTOMATION TECHNOLOGIES

Conventional power industry organizations face difficult challenges related to new investments and funding in the current environment where more funds are flowing towards renewable energy sector.

Plant operators are under pressure to achieve optimal capital cost, reduced total cost of ownership, and minimal plant downtime.

Enterprise success requires an upgrade to advanced control solutions that can be supported for next

15 to 20 YEARS

Power producers and other firms can meet their operational demands by choosing the right automation technologies.

TAKING AN INTEGRATED SYSTEM APPROACH

In the past few decades, control systems for power plant operation have evolved from isolated, proprietary platforms to totally integrated plant automation solutions.

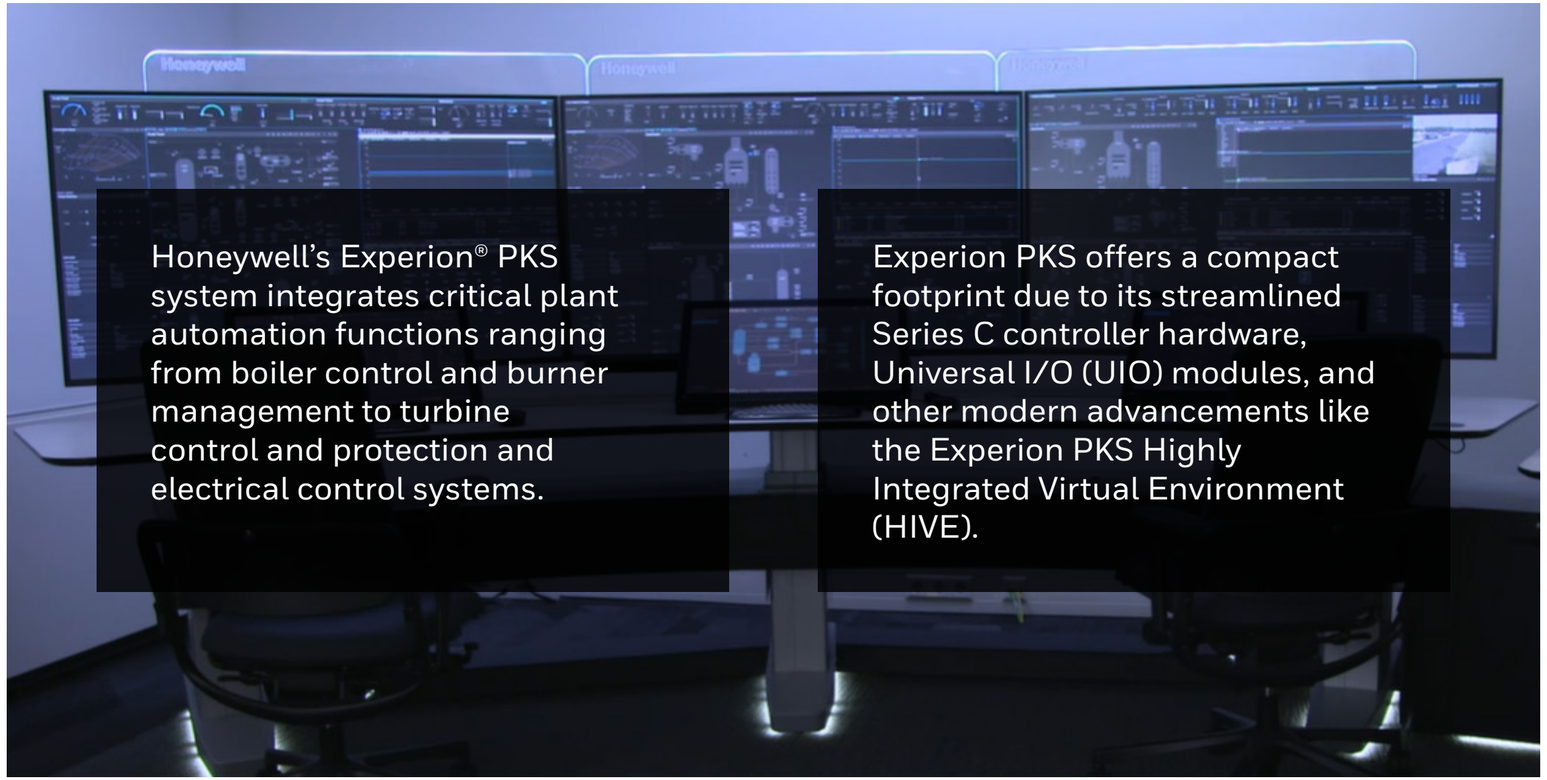
A growing number of power industry companies are looking for a more uniform control system as an alternative to traditional point solutions.

A unified distributed control system (DCS) can be deployed at a cost that is comparable to or less than individual systems for different control functions.

Plant operators can realize numerous advantages by choosing an integrated solution to avoid multiple vendor interfaces, which are difficult to use and expensive to maintain.

WORKING WITH A RECOGNIZED INDUSTRY LEADER

Honeywell brings decades of experience in both control and instrumentation technology and in delivering successful refurbishment projects.



Honeywell's Experion® PKS system integrates critical plant automation functions ranging from boiler control and burner management to turbine control and protection and electrical control systems.

Experion PKS offers a compact footprint due to its streamlined Series C controller hardware, Universal I/O (UIO) modules, and other modern advancements like the Experion PKS Highly Integrated Virtual Environment (HIVE).

The Experion solution is both efficient and cost-effective, minimizing hardware and power consumption requirements compared to older, disparate systems.

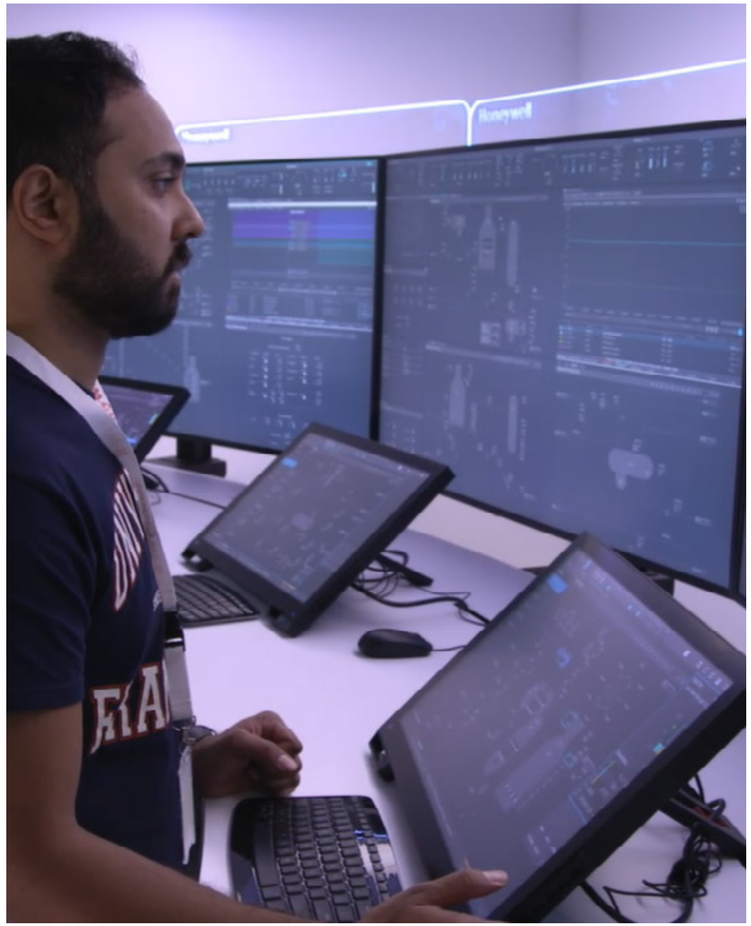
EMPLOYING PROVEN HONEYWELL CONTROL SOLUTIONS

By utilizing Honeywell's control system refurbishment strategy, power plant owners/operators can increase design flexibility and reduce schedule time for technology upgrades.

Honeywell works with customers to execute projects remotely, so they can reduce potential risk, minimize operational downtime, and eliminate unnecessary costs.

Honeywell offers a host of best-in-class solutions for control system upgrades, including:

- **Experion PKS Control System**
- **Experion PKS Turbomachinery Control Solution**
- **IEC 61508-compliant and TUV SIL-3 certified Experion Safety Manager**
- **LEAP Execution Methodology**
  - Virtual Engineering Platform
  - Late Binding
  - Universal Channel Technology
  - Virtualization of IT Hardware
- **Experion PKS HIVE**



UTILIZING LEAP™ PROJECT EXECUTION METHODOLOGY

The Honeywell LEAP™ Project Execution Methodology is a paradigm shift in the way automation projects are delivered, streamlining tasks and workflows to reduce schedules and provide substantial capital savings.

As part of this approach, Honeywell's Virtual Engineering Platform (VEP) provides a centrally-hosted cloud platform enabling testing and project execution to be done from anywhere in the world.

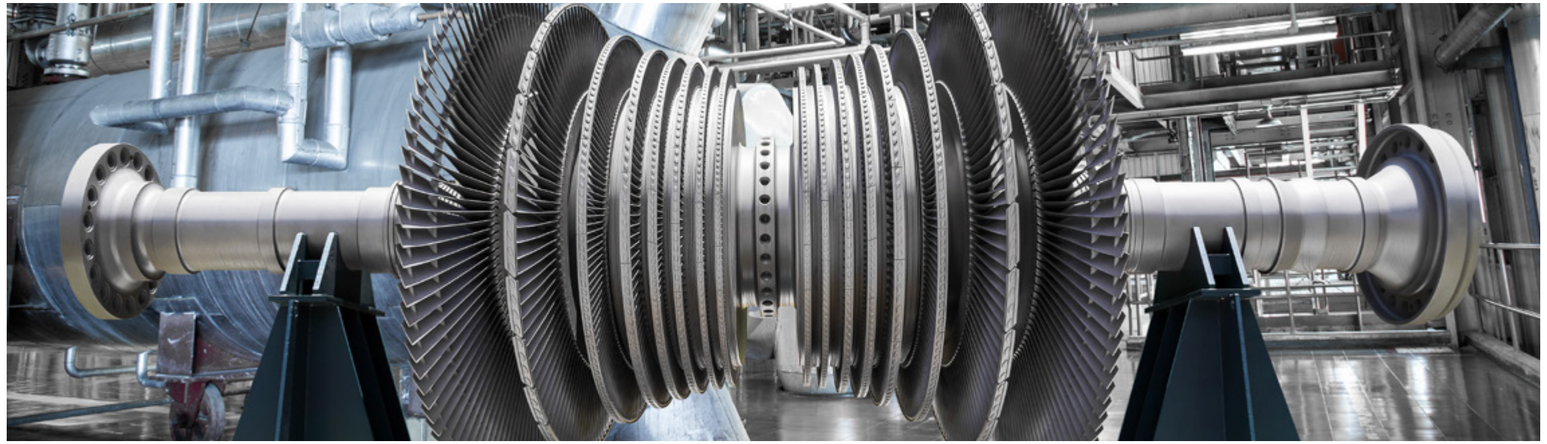
The use of a secure cloud platform minimizes physical interaction and allows project stakeholders to collaborate inside a common engineering environment, regardless of their location.

With the user's approval, the project can be moved from virtual machines on the private cloud to an on-premises system for final deployment.

BENEFITS TO POWER INDUSTRY END USERS

With improved control capabilities, power industry organizations can build a more flexible and agile operation, making people and processes more productive.

A modern, refurbished control system is an opportunity to bring people, the plant, and data together to drive better business results.



The multitude of point solutions normally found in power industry facilities can be unified as part of a single integrated platform, resulting in:

up to 25%

shorter project schedule time

up to 30%

reduction in control system hardware

REDUCTION

in plant outage time required for upgrades

EXAMPLES OF SUCCESSFUL CUSTOMER PROJECTS

With Honeywell's expert assistance, power industry customers around the world have executed successful projects to refurbish and extend the capabilities of their plant automation systems.

- A Middle Eastern public utility company worked with Honeywell to implement the latest control hardware and software platforms, which enabled higher reliability, better performance, and improved safety along with enhanced cybersecurity capabilities
- At a large coal-fired power station in North America, plant controls and HMI were upgraded to Experion PKS and offsite plants like coal handling, flue gas scrubber, and DM water plant added new Experion systems
- A major power generating company in south Asia renovated its aging control and instrumentation system with Experion PKS. The solution included a boiler and turbine protection system using Experion C300 controllers
- Experion PKS was chosen by a utility company in the Middle East for a large integrated power and water plant when they decided to replace obsolete controls with the latest state-of-the-art technology

CONCLUSION

As operational, regulatory, environmental, and economic issues facing the power industry continue to evolve, the ability to reliably control plant processes is more important than ever.

Power generation companies can optimize control system refurbishment projects by partnering with a supplier that offers advanced technology and proven industry domain expertise.

By deploying an integrated platform to replace disparate point solutions, plant operators can address the high cost and expertise needed to maintain control assets or troubleshoot problems that arise.

THE FUTURE IS WHAT WE MAKE IT.

As a global automation leader, Honeywell can help you plan your technology roadmap and stay current with the latest solutions. Furthermore, our turnkey project capabilities deliver the successful outcomes you need.

To learn more about Honeywell Migration Solutions, visit www.honeywellprocess.com or contact the Honeywell account manager in your country/region.

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