

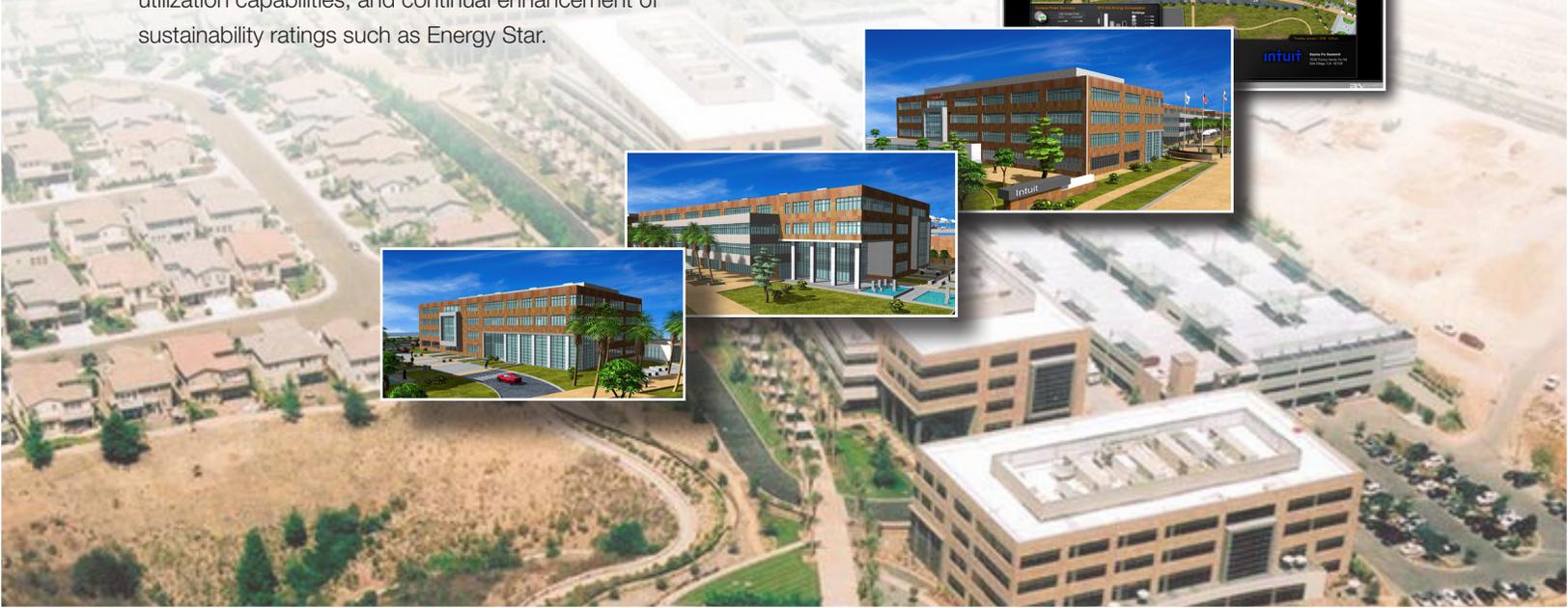
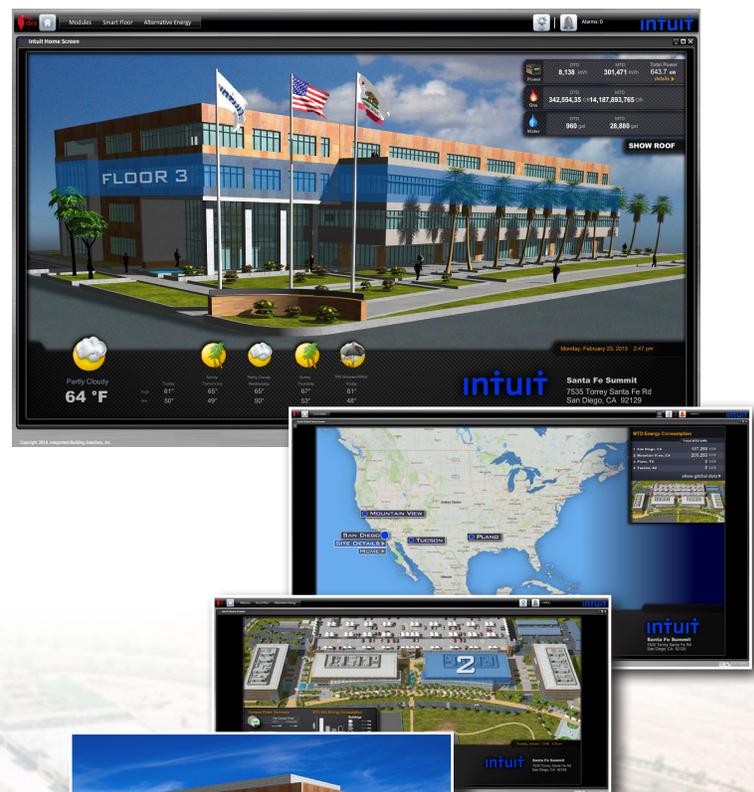


Best Practices for a High Performance Sustainable Campus

Committed to outstanding corporate citizenship through sustainable business practices and employee-driven philanthropy, Intuit infuses its facility management practices with the same focus.

Headquartered in Mountain View, California, the company operates numerous locations globally. Part of the company's real estate portfolio since 2006, the Santa Fe Summit campus in San Diego houses 1,500-2,500 employees and produces the consumer tax products like TurboTax. Intuit set off on a mission to reduce their carbon footprint by making their buildings operate smarter. As part of this effort Intuit partnered with an outsourced facilities engineering team to help streamline building operations. From there they selected their next key partner, Integrated Building Solutions, which was brought on board to provide the energy management platform along with their expertise in energy and integration services.

While optimizing facility energy performance was the primary goal, other key goals included sustainability objectives as well as implementing robust data analytics capabilities to maintain continuous optimization. Additionally, the project team identified secondary goals: identifying opportunities for improved building systems performance; better space utilization capabilities, and continual enhancement of sustainability ratings such as Energy Star.





Making Intuit's Campus Smarter

To achieve its goals, the project team focused its approach in three key areas:

- Integrating major building systems and subsystems so performance data was accessible via a single interface
- Leveraging energy efficiency investments to achieve other facility goals
- Simplifying O&M workflows for building operations teams with data tool tooling and readily available actionable information
- Intelligent lighting systems with occupancy sensor capabilities

"The combined IBIS and lighting system projects have provided upwards of 20% reduction in campus energy consumption, and with greater analytics allowed us to target further opportunity and test emerging technologies before investing elsewhere."

Daren Smith
Intuit Global Critical Systems Manager

Because these approaches were mutually supportive, implementing solutions in parallel achieved a holistic, multi-layered building infrastructure capable of delivering on all Intuit's identified program goals.

Integration of major building systems

The project team selected the IBIS (Intelligent Building Information System) and major systems integration support from Integrated Building Solutions, Inc. to connect all the facility systems together. An on-premise software platform, IBIS provides a single pane of glass view into the workings of major systems—Lighting, HVAC and Power—together with subsystems like renewable generation, such as solar arrays and the onsite fuel cell generation system Intuit uses at the Santa Fe Summit campus. This provides the building operations team with 365/24/7 visual checks in real time as well as the ability to perform data analytics in a myriad of ways.

For instance, using the IBIS Smart Floor module, the building operations team can swiftly identify real-time occupancy patterns and coordinate HVAC setpoints and lighting schedules accordingly.



IBIS SmartFloor Dashboard provides real-time comprehensive view of the floor and its associated subsystems.

Leveraging energy efficiency investments

This unified view of the building infrastructure also enables the project team to utilize energy efficiency investments such as occupancy sensors to track space utilization or submetering along with measurement and verification for validating promised ROIs from various subsystem vendors. At the Santa Fe Summit campus, employee headcount ebbs and flows with the seasonality of the consumer tax product lifecycle. Optimizing existing square footage with space utilization tools avoids adding square footage that would sit empty for part of the year.

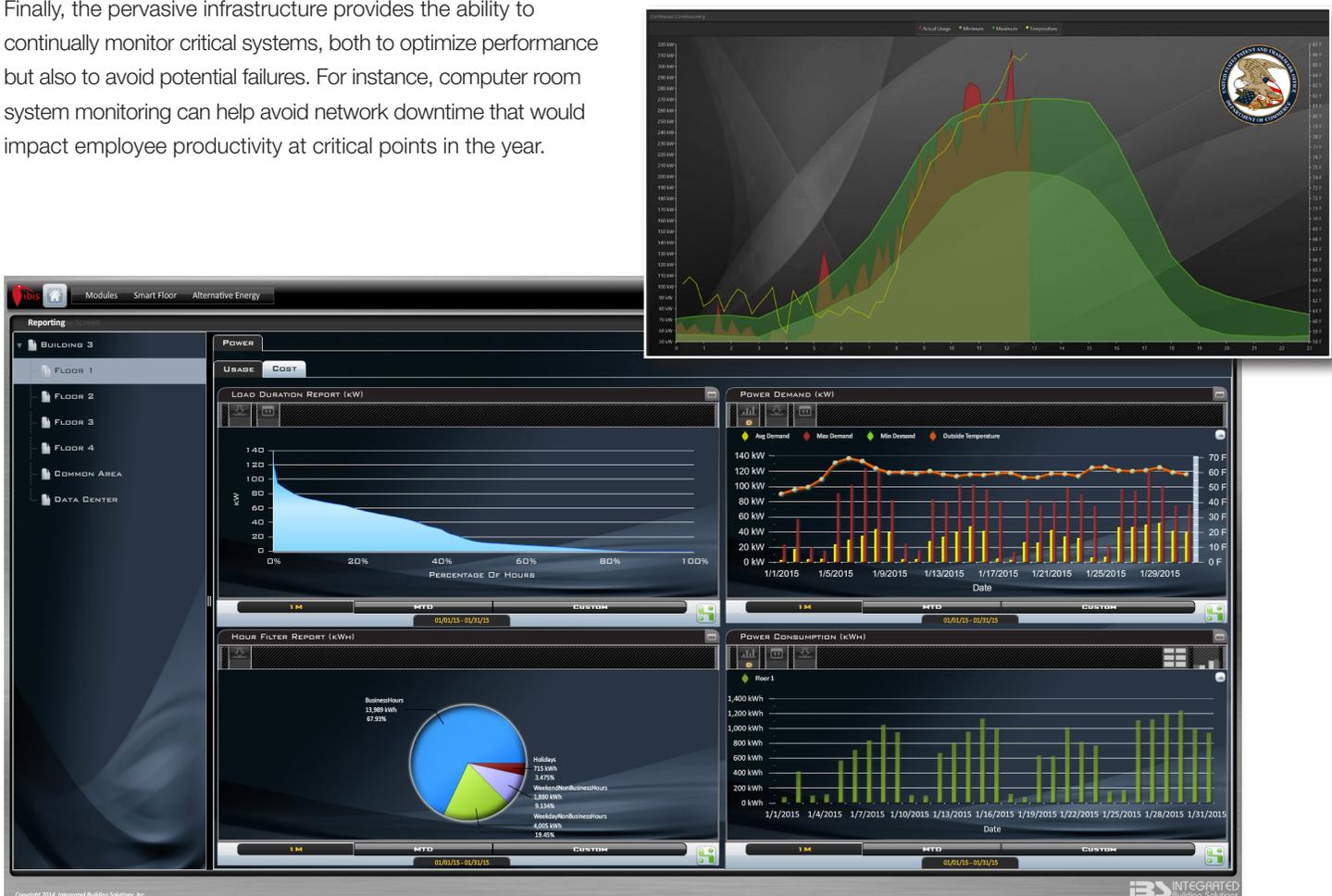
The building operations team also relies on the easily accessible data views via IBIS to identify irregular energy use patterns. These can be used to pinpoint subpar performance issues or temporary overrides that failed to reset, both of which could contribute to sub-optimal building performance if left uncorrected.

Finally, the pervasive infrastructure provides the ability to continually monitor critical systems, both to optimize performance but also to avoid potential failures. For instance, computer room system monitoring can help avoid network downtime that would impact employee productivity at critical points in the year.

Simplify O&M workflows for building operations team

IBIS data tools arm the Intuit building operations team with the ability to maintain facility performance at an extremely high level. Real-time slideshows offer continuous visual checks of mission-critical systems and real-time alerts and notifications enable immediate response. Fault detection proactively identifies potential subsystem performance deterioration so that continuous commissioning programs succeed. Tools such as IBIS lighting kiosk screens support space utilization objectives also.

Monthly reporting provides comprehensive energy analysis against project KPIs as well as a way to document continuous commissioning activities for subsequent evaluation.





Exceeding Expectations

Completed in 2015, the project achieved its goals in every area, and has poised the company for continued excellence in sustainable building practices. The overall Santa Fe Summit campus energy consumption decreased by more than 20% as a result of project initiatives including:

- Optimized real-time performance with continuous commissioning
- Shortened time delays on occupancy sensors for direct energy savings
- Enabled reduced annual HVAC zone operating time by approximately 1.4 million hours, or 488,879 kWh energy, or 802,112 lbs of carbon emissions savings, equating to 78 cars taken off the road

The campus' Energy Star rating of 82 has earned it a position as a top performer in the EPA's Energy Star program. And the ongoing practices, honed over the life of the project and continuing since then, will help Intuit easily comply with San Diego's emerging benchmarking ordinance. Being pursued by the city as part of its Climate Action Plan to encourage creation of more energy-efficient buildings, the ordinance would require Intuit to benchmark and publicly disclose its building energy usage.



Just as importantly, the investment into a smart infrastructure complete with IBIS enabled Intuit to identify substantial opportunities for improvement. For instance, on this campus, a key energy consuming center is the data center and computer rooms. Using IBIS data tools, project members realized ICOM CRAC configurations were not yielding the expected energy savings and reconfigured ICOM controls accordingly.

Another significant win was identifying the low-efficiency performance of the campus fuel cell system so this could be flagged as a priority for improvement. In addition, the team was able to recognize the need for standard HVAC setpoint policies campus-wide. By implementing changes in the latter area, for example, the project team was able to establish a standard based on a normal operating temperature range of 69-79° and reduce HVAC operating hours accordingly.

Other retro-commissioning ECMs (Energy Conservation Measures) included SAT reset, econo-optimization, static pressure reset, Liebert fan optimization, heating hot water pump differential pressure reset, and hot water system lockout. These improvements alone realized 1,000 MW worth of energy savings annually.

While the payback for the overall project was 2.5 years, the project team is not resting on its laurels. Under consideration for integration in the future is campus-based wind or solar generation as well as rigorous monitoring of irrigation systems.

Project Team

Intuit

Daren Smith, Intuit Global Critical Systems Manager

Integrated Building Solutions

Sergey Gutkin, Program Manager

Jon Sargeant, Director of Engineering