



## OPERATIONAL TECHNOLOGIES

# Energy Applications

*PSC provides bespoke software development, testing and system integration services to help our energy clients build robust, highly automated, scalable and maintainable software to meet their business needs. Our services are tailored to fit our clients' unique needs. We can provide software as part of a system integration service for leading vendor applications, as well as customised software development. We also provide our clients with short-, mid- and long-term planning of their IT infrastructure through the development of IT road maps and digital transformations. Pragmatic advice and sensible prioritisation are at the forefront of these services in such a disruptive industry.*

## Bridging the gap

One of the biggest challenges facing our industry today is the knowledge gap between the end business users (e.g. traders, market operators, system operators, controllers, etc.) that have deep problem domain knowledge, and the Information Technology teams that deliver projects that often have limited to no industry / problem domain knowledge. PSC combines our in-house IT digital delivery with experts from our Operational Technologies, Market Systems, DER and Power Network service offerings to bridge this problem-domain gap. This eases the project burden on these essential end-users who can focus on the operational side of their business and keep the lights on.

## PSC's qualified team

We've been working closely with our clients across Asia Pacific for over 20 years, leveraging our energy sector experience to develop fit-for-purpose digital solutions. Our teams offer a unique combination of skill sets, encompassing knowledge of power systems engineering, power flows, operational research

and information technology. Working with market operators, utilities and market participants, we've built an outstanding reputation for delivering and supporting specialised systems for the energy sector.

Our unique difference lies in our ability to leverage the domain expertise of specialists in our Operational Technologies, Market Systems, Power Networks and DER teams. This ensures our clients are receiving Energy Applications services that are specifically tailored to their system needs and the specialised requirements of the energy sector.

## Key capabilities

- Bespoke Software Delivery:
  - Program and Project Management (agile / waterfall)
  - Analysis and design
  - Conceptual and solution architecture designs
  - Software Development
  - Functional Testing
  - System Integration Testing
- Strategy and advice:
  - IT Roadmaps
  - Digital Transformations
  - Project Management Frameworks
- Cybersecurity:
  - Secure software design
  - Secure software implementation
- System Integration Services
- Data Provision:
  - Data Warehousing
  - Data Reporting and Platforms
- Support Services:
  - 24/7 Application Support
- Testing Services:
  - Test Management
  - Manual Testing
  - Automated Testing

# PSC projects

The following selection provides a sample of projects completed by PSC.

## Prudential Monitoring

### Bespoke software delivery, AEMO

PSC were heavily involved in building a bespoke settlements engine with the end goal of producing daily settlement amounts to more accurately determine prudential risk in the Market. The prudential framework is an essential risk management mechanism to protect all Market Participants in the event of a default.

The new system has automated and scheduled jobs in a single system that replaces a series of manual tasks across multiple systems and delivers a single certified calculation engine to replace two separate calculation systems. The system was built upon a modern technical stack including significant automated tests at both the unit and scenario level.

## Gas Bulletin Board

### Bespoke software delivery, Independent Market Operator

PSC custom developed a Gas Bulletin Board (GBB) for a national market operator from “ground up.” The bulletin board provides transparency of information about short- and near-term natural gas supply, transmission, storage and demand in the region. GBB participants have praised the easy to use interface of the GBB. More importantly, some participants have indicated that the information collected by the GBB will provide significant cost savings by collating data that was previously obtained through their in-house research.

## Market Systems Support

### Support Services, IMO

For the past eight years, PSC has provided onsite support, maintenance and development services to the Independent Market Operator for all aspects of their ABB Market Management System (MMS). This includes 24x7 support of the ABB MMS, developing IT roadmaps with the client, implementation of market rule changes to ensure compliance, and replacement of ABB systems. Throughout this engagement PSC has ensured all systems have met compliance criteria, and we have consistently exceeded reliability standards.

## Market Management System - System Integration

### MMS project for Philippines, Siemens

PSC worked closely with a large vendor in providing a Market Management System (MMS) to a client in Asia Pacific. This included a significant contribution in the Factory Acceptance Testing (FAT) of the MMS at their home-base in the US and providing customised interface development services.

## Market Evolution – Market Management Systems

### Bespoke software delivery, Independent Market Operator | Testing services | Strategy and advice

PSC successfully developed and implemented purpose-built market trading systems for a national market operator’s new real-time competitive market for Balancing and Load Following Ancillary Services (LFAS).



PSC’s contribution to this very significant project has been widely recognised in Australia, building PSC’s reputation as a leading market systems provider in the Asia Pacific region.

## Market Systems Roadmap

### Strategy and advice

PSC developed a comprehensive Market System IT Roadmap for a Market Operator in the Asia region. This included a current state analysis, a 3-year IT Roadmap, and an implementation plan to meet the roadmap objectives. The IT Roadmap has given the client a clear direction forward that aligns with their strategic objectives.

## Trading System

### Bespoke software delivery, Tuas Power | Strategy & advice

PSC developed a Market Trading Analysis Tool for one of the largest Market Participants in Singapore to support their trading activities and improve the bottom line with strategic bidding. PSC worked closely with the client advising numerous strategies before agreeing on systemising three key approaches.

The trading tool has been in use for over 3-years and has provided the client with improved trading behaviour / decision making in their bidding to the wholesale electricity market.

## Contemporary Methodologies for Outstanding Solutions

PSC utilises modern software development processes such as behaviour driven development, continuous integration, and automated testing. PSC, with a client in Australia, pioneered the automation of certification requirements (a process where market rule changes that impact price or quantity require a third-party audit).

We have also established a proven project management framework that is based on various agile methodologies such as Scrum and lean development while maintaining a sufficient level of governance for our regulated industry.

In 2013 PSC, in association with IMO, were Merit Recipients in the WA Information Technology & Telecommunications Awards (Financial Category) for our work on the Market Evolution Programme.



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