



# **CASS**

by



## **Water Contract Management, Invoicing and Settlement System**

**March 2011**

## What is CASS?

CASS (Contracts and Settlements System) is a contract management solution for participants in the wholesale water supply chain. The system provides an end-to-end solution from capturing meter data to performing settlements and preparing invoices.

The system captures contract information and volumetric meter data and performs settlements, invoicing, reporting and auditing. Contracts can be written on various commodities and services including potable water, untreated water, treatment services and transport.

CASS can be tailored to the particular business needs of water supply entities, transport authorities and retailers and distributors.

The software system provides a configurable framework to define contracts, sales agreements and regulatory obligations. CASS enables a wholesale water market participant to manage contracts and provides an audit trail for meter data, changes to contracts, payments and receipts. The system presents sales and consumption, statistics, meter data, financial reports and contract summaries in a variety of configurable reports.

## Challenges of Wholesale Water Supply

Entities in the bulk water supply chain have endured significant organizational restructuring in recent times. The environment has evolved from public utilities into institutions which are privately or government owned and subject to the decisions of regulatory bodies and competition authorities.

Disaggregation and corporatisation has taken place with increasing pace, leading to an emphasis on efficient practices and transparent and auditable business dealings. Under the oversight of regulatory bodies, even statutory bodies must operate in much more sophisticated environment involving contractual obligations with other participants in the sector.

This trend is likely to continue and prudent business practices will see major operators in the water supply chain implement systems and procedures to enhance their businesses.

Issues facing participants in the modern water supply environment include:

- **Contract management:** Bulk supply authorities, desalinators, transport suppliers and distributors are subject to contractual arrangements with complex terms and conditions. Penalties, bonuses, obligations, tiered payment rates and service level agreements all feature in the contracts, along with essential service requirements imposed by regulation. The small number of wholesale contracts is contrasted with the complexity that underlies each one, and challenges arise to manage the contract from negotiation through to settlement and dispute resolution in an efficient and auditable way.
- **Reporting requirements:** The onus falls upon bulk water supply authorities to deliver detailed reporting for internal management, for corporate governance, to comply with the demands of regulators or to satisfy government reporting. Reporting demands cover financial reporting as well as volumes of products and services. Reports span historical periods and sometimes forecast for risk assessment or scenario assessment.

- **Changing regulatory environment:** The terms and structures of contracts can change as new regulatory frameworks arise. The need to manage price resets, to introduce new contracts and to manage the changing rules introduces challenges.
- **Changing business environment:** As the regulatory framework changes, the participants in the industry change too. Transport authorities, distribution authorities, bulk supply agencies, catchment authorities, direct customers, new supply entities and retailers can all appear as the industry is opened. Management of contracts, liabilities and cashflows with the various entities becomes a critical part of business. Requirements arise to novate contracts from old parties to new, while maintaining an audit record of the changes.
- **Managing cash flows:** The emerging business environment sees participants dealing with multiple parties as creditor and debtor and introduces the requirement to manage cash flows. Public and private entities need to issue accurate invoices and to reconcile payments and volumes.
- **Auditability:** Various auditing demands appear through the water supply chain. *Legal* requirements arise to keep an audit track of contracts from negotiation, through contract renegotiations and the progress of dispute resolution. *Financial* auditing of the invoice and settlement amounts is needed. *Reconciliation* of water flows and storage are demanded to complete audits on the volumes of product supplied and in inventory.

## CASS Functionality

CASS is a contract *capture, management, settlement* and *invoicing* system designed for wholesale water supply. CASS is intended for bulk water suppliers (dams, catchment authorities, desalinators, recycled water providers), for transport authorities, and for distributors or retailers.

The functions offered within CASS include:

- **Contract structure and capture:** Design a contract in the configurable contract builder to cover supply, transport or consumption of water. The contract can cover various commodities or services: supply, transport, treatment services, pass-throughs, chemical costs, energy costs, pumping services. The contract can be configured to calculate payments based on complex formulas involving multiple meters, consumption volumes and tiered price structures.
- **Contract management:** Triggers are set for price resets, notifications, nominations, option exercise. The system enables auditable, date-effective changes to contracts, with the ability to store new *versions* of a contract.
- **Meter data capture:** The system captures volumetric flow data by meter ID and aggregates into regions. Meter data can be captured with irregular meter reading times. Users can configure meters into logical groupings.
- **Contract settlement and invoicing:** Monthly contract settlements are calculated for sales and purchases of goods and services. Reconciliation is available for invoices received, and invoice data is prepared in a format for export to the enterprise financial system.
- **Contract reporting:** Report summary data on contracts: volume, prices, revenues and costs.

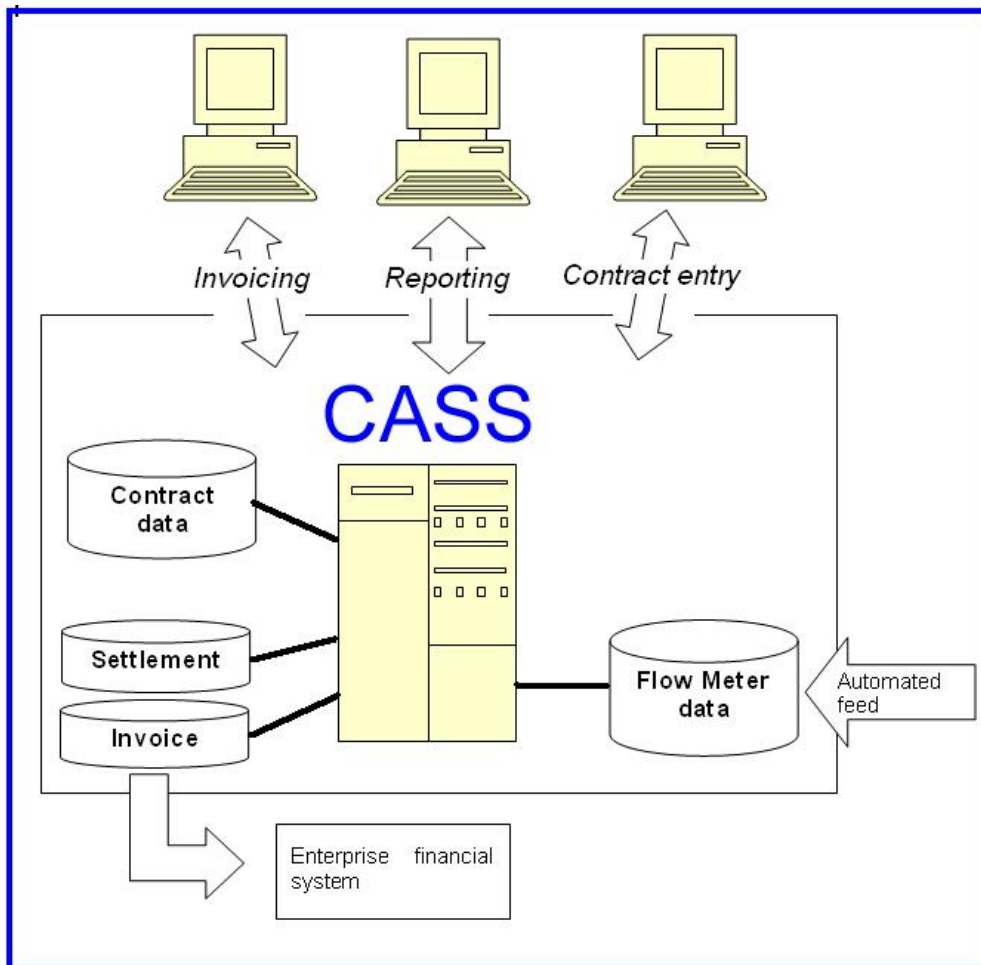
- **Meter data capture:** Capture meter data from disparate sources in a uniform format.
- **Meter data reporting:** Report cumulative flow between dates, calculate in flows and out flows. Reconcile flows into and out of regions and calculate losses.
- **Contract adjustments:** Retrospective changes to historical volume data flow through to an adjustment amount in the current invoice. Changes to contracts can be administered through contract *versions*.

CASS consists of a system to interact with management, financial and operational personnel through their desktop PC. Behind the scenes, the interface connects to a SQL Server database at the client's location to capture contract data, meter data and to calculate and store settlement and invoice quantities.

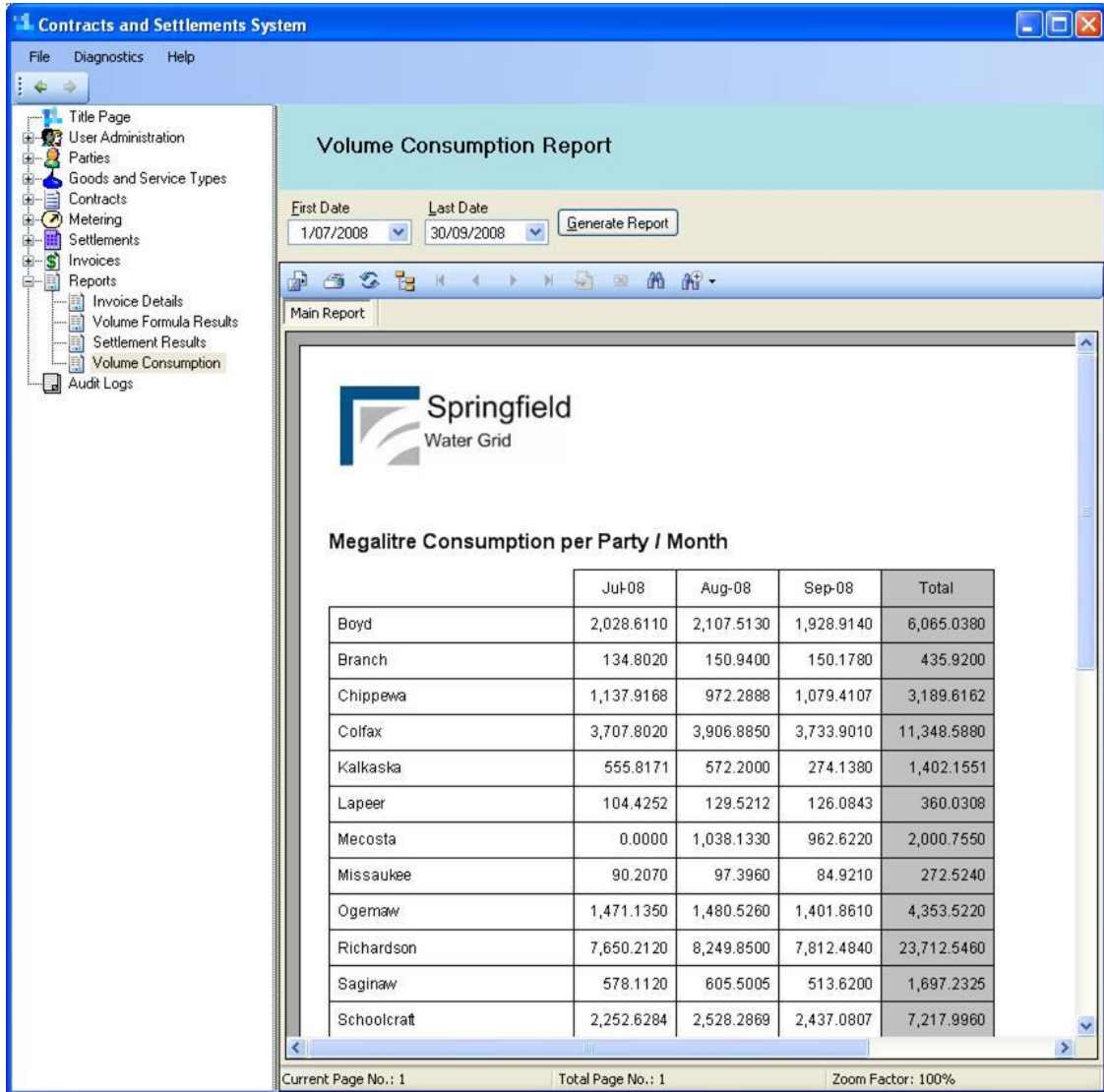
A collection of integrators collects meter data, and exports to financial systems to make CASS a fully integrated contract management system.

CASS is complete with security control, access control and full auditing capabilities. The software is delivered with documentation to provide the technical framework to administer the system and user guides for ongoing operational use of the tools.

**CASS high level system overview**



# Screen Shots - Volume Reporting



**Contracts and Settlements System**

File Diagnostics Help

**Volume Consumption Report**

First Date: 1/07/2008 Last Date: 30/09/2008

Main Report

**Springfield Water Grid**

**Megalitre Consumption per Party / Month**

	Jul-08	Aug-08	Sep-08	Total
Boyd	2,028.6110	2,107.5130	1,928.9140	6,065.0380
Branch	134.8020	150.9400	150.1780	435.9200
Chippewa	1,137.9168	972.2888	1,079.4107	3,189.6162
Colfax	3,707.8020	3,906.8850	3,733.9010	11,348.5880
Kalkaska	555.8171	572.2000	274.1380	1,402.1551
Lapeer	104.4252	129.5212	126.0843	360.0308
Mecosta	0.0000	1,038.1330	962.6220	2,000.7550
Missaukee	90.2070	97.3960	84.9210	272.5240
Ogemaw	1,471.1350	1,480.5260	1,401.8610	4,353.5220
Richardson	7,650.2120	8,249.8500	7,812.4840	23,712.5460
Saginaw	578.1120	605.5005	513.6200	1,697.2325
Schoolcraft	2,252.6284	2,528.2869	2,437.0807	7,217.9960

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# Screen Shots - Settlements and Invoicing

**Contracts and Settlements System**

**Settlement Results Report**

Path: Mecosta | Month: August 2008 |

**Springfield Water Grid** | Settlement Results for August 2008 | 10/10/2008  
Mecosta

Contract: S1newsense

**Monthly Cost Breakdown**

Source	Goods/Service	Quantity	Price per Unit	Cost
Lucas	Treated Water	468.96	\$562.00	\$644,432.63
Mansfield	Treated Water	25.30	\$562.00	\$14,282.27
Mansfield	Treated Water	13.73	\$562.00	\$7,718.51
Platte	Treated Water	30.22	\$562.00	\$16,981.39
<b>Total Cost:</b>				<b>\$583,433.75</b>

**Daily Costs per Zone**

	Lucas	Mansfield	Mansfield	Platte	Total
10/01/2008	\$17,081.20	\$466.33	\$246.63	\$547.25	\$18,028.36
20/02/2008	\$17,664.28	\$466.33	\$246.63	\$547.25	\$18,828.35
30/09/2008	\$17,664.28	\$466.33	\$246.63	\$547.25	\$18,828.35

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**Contracts and Settlements System**

**Invoice Details Report**

Path: Invoices | Published on 11/09/2008 | Published on 11/09/2008

**Springfield Water Grid** | Invoices for August, 2008 | 10/10/2008

**Richardson**

Description	Exclusive GST	GST	Amount
388,641 ML of Treated Water @ \$165.00 per ML	357,323.42	0.00	357,323.42
8249.9 ML of Treated Water @ \$225.00 per ML	7,331,157.50	0.00	7,331,157.50
<b>Total Amount Due:</b>	<b>7,969,077.92</b>	<b>0.00</b>	<b>7,969,077.92</b>

Note (1) Adjustment of 385,341 ML applies to July 2008 invoice 0000017 - refer attached file details.

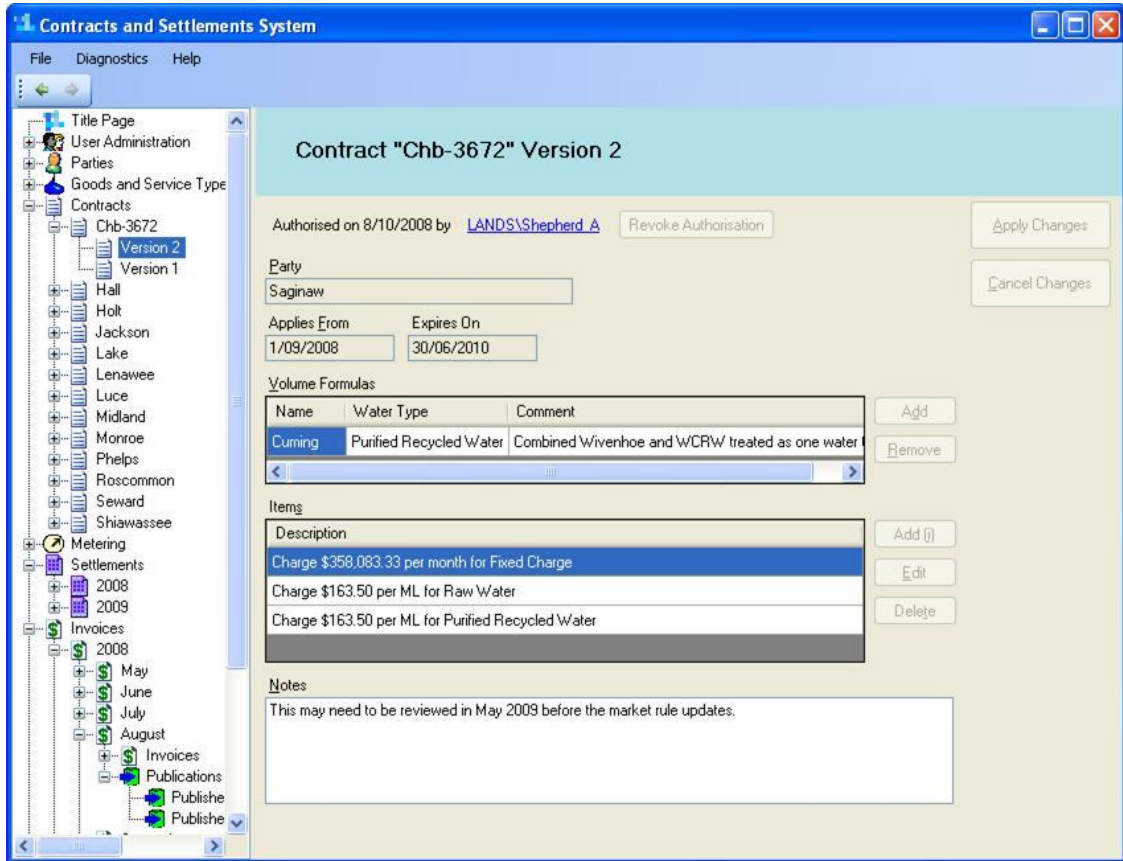
**Colfax**

Description	Exclusive GST	GST	Amount
3615,705 ML of Treated Water @ \$1,095.00 per ML	3,951,965.56	0.00	3,951,965.56
<b>Total Amount Due:</b>	<b>3,951,965.56</b>	<b>0.00</b>	<b>3,951,965.56</b>

Note (2) Adjustment for agreed 15ML per day transfer to Colfax - location of July 2008 invoice by 310ML  
Note (3) July 2008 adjustment increase in volume for ML46.0 of 16,820ML.

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## Screen Shots - Contract Management



## More Information

For more information on the CASS product or Energy Edge's other services visit [www.energyedge.com.au](http://www.energyedge.com.au) or alternatively phone Angus on 0419 739 260 or send an email to [amacleod@energyedge.com.au](mailto:amacleod@energyedge.com.au)

## Energy Edge Fact Sheet

Energy Edge is an innovative consulting organisation that specialises in commercial and market risk management services and business activities. Energy Edge helps clients in utilities to meet their needs for managing commercial and market risk, trading requirements and exposures to environmental and energy costs.

The Energy Edge team has a combination of financial and commodity market experience through the full spectrum of trading and risk management areas, commercial and corporate finance activities. This breadth and depth of experience combined with extremely strong commercial, analytical, mathematical and software development skills forms the base from which Energy Edge provides a range of consultancy services to entities directly and indirectly impacted by energy, environmental and other commodity markets.

**Recent Projects:** Some recent projects undertaken by Energy Edge include

- Designing, developing and implementing pricing and risk management software tools in energy markets
- Developing and installing contract management software for urban water market settlement and invoicing
- Implementation, design, configuration and testing of third party software across front office, middle office and back office processes
- Designing and developing electricity price benchmarking tools and transfer pricing processes
- Commercialization strategies and feasibility studies for gas and gas generation projects
- Due diligence work for major utility acquisitions
- Valuation of real options embedded in gas supply agreements
- Enterprise wide reviews of carbon risk and opportunities
- Policy and procedure reviews and
- Delivery of a trader and risk manager decision support suite of software tools Market Edge, based on specific Energy Edge intellectual property.

### **Trading and market risk management**

- Trading strategy development
- Portfolio optimisation
- Training
- Market research and surveys
- Policy development and reviews
- Risk identification and measurement services

### **Commercial Advice**

- Assistance in due diligence processes
- Assistance in business plan development
- Analysis of commercial implications arising from regulatory or market changes
- Competitor analysis under different market structure scenarios
- Enterprise Wide Services

- Treasury risk management services
- Assistance to Internal audit teams
- Fitness for full retail competition
- Review of business risks and their correlations with other markets
- Development and implementation of Trading and Risk Management functions for emerging energy companies

### **Systems and Software**

- Development and installation of a Water Contract Management system.
- Development and implementation of customised analytical and pricing tools
- Development and installation of the Energy Edge proprietary trading and risk management software *Market Edge*.
- Project management of systems and software projects
- Retrospective documentation, standardisation and process management for ad-hoc in-house systems and tools.

### **Environmental Markets**

- Market structure advice
- Policy advice
- Modeling of environmental markets, price forecasts and assessment of commercial implications
- Assistance in registration and accreditation processes
- Environmental product strategy development
- Enterprise wide carbon risk assessments and management planning

### **Biographies of key personnel**

- **Angus Macleod**, Managing Director

Angus has over eight years experience in the Australian energy markets in roles establishing electricity trading desks and managing trading operations. His experience has spanned market trading activities and managing large commercial negotiations and projects. He was elected Chairman of the AFMA Electricity Committee in 2005 and 2006. Angus has experience in front and middle office roles across a range of markets including base metals, precious metals, foreign exchange, equity and interest rate markets. He has a further seven years experience in domestic and international financial and commodity markets and over four years as an auditor for Deloitte

In the role of Managing Director of Energy Edge since June 2006, Angus has lead a team to provide a wide array of clients with high quality advice and solutions across electricity, gas and environmental trading and risk management issues.

- **Elliot Tonkes**, Director Risk and Analytics

Elliot is an experienced analyst with background in commercial and academic environments. He has experience in energy markets as the chief analyst at a major generator leading small teams to perform forecasting, risk quantification, pricing and analysis of derivatives and structured financial products, strategy evaluation, project valuation, system development and software implementation.

As Director of Risk and Analytics at Energy Edge since September 2006, Elliot has provided high quality advice to analysts, and implemented solutions for a range of risk



management issues in electricity trading. Elliot has overseen substantial IT system implementations of complex analytical methods.

■ **Stephen Clapham, Lead Technical Consultant**

Stephen is a highly experienced IT professional with expertise in IT development and systems analysis. Stephen has experience across a range of industries including logistics and the Queensland urban water market. He has developed complex real-time scheduling systems and web-based retail systems across a range of languages and technologies.

As the Lead Technical Consultant at Energy Edge, Stephen ensures quality IT solutions are provided to clients with value for money and in under a managed framework to keep clients informed at all times.

■ **Other team members**

Other members of the Energy Edge team can be found at the website:  
[www.energyedge.com.au](http://www.energyedge.com.au)

## More Information

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