

Blue Crystal Solutions

**Information paper representing
Blue Crystal Solutions
capabilities, delivery & experience
within the
National Electricity Market**

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1 Document Control

1.1 Distribution List

Name	Role	Representing
Electricity Market Participant	IT Director / IT Manager	Electricity Market Participant Organisation
Vito Rinaldi	Managing Director	Blue Crystal Solutions

1.2 Amendment Record

Version	Date	Status	Comment
1.1	17 October 2005	Definitive	Definitive
1.2	15 December 2005	Definitive	Definitive

1.3 Terminology

Term	Definition
BCS	Blue Crystal Solutions
NEMMCO	National Electricity Market Management Company

1.4 Reference Documents

The following are key reference documents for this work group. Unless otherwise specified, the latest version should be used as the valid reference point.

Document Title	Location
Blue Crystal Solutions National Electricity Market Flier	

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2 Executive Summary

2.1 Overview

Blue Crystal Solutions can supply Electricity Market Participants with Daily Nemmco Interface, Daily monitoring, as well as providing customers with adhoc consultancies for Nemmco Application and General Database Administration services.

Blue Crystal Solutions employees have been working with and supporting the local energy industry for many years and have extensive experience working with the energy industry. Our work with local energy companies includes providing connectivity to and replication of the NEMMCO database.

3 Capabilities

3.1 Overview

Blue Crystal Solutions provide Electricity Market Participants with the daily and operational monitoring of the Nemmco Interface between Electricity Market Participants and Nemmco, as well as providing Electricity Market Participants with adhoc database consultancy services.

The types of activities, Blue Crystal Solutions can provide are:

- 1) Daily checking and Nemmco Operational Support; and
- 2) Adhoc Database Consultancy Support to Electricity Market Participants

3.1.1 Daily checking and Nemmco Operational Support

Blue Crystal Solutions provide Electricity Market Participants' with the following types of daily support:

- Day to day checking and daily operational tasks of the Nemmco interfaces between Electricity Market Participants and NEMMCO (the National Electricity Market Management Company);
- Provide 24X7 Nemmco Database Application support;
- Attend Nemmco User Group meetings on Electricity Market participants' behalf;
- Daily checking of the Nemmco Software including:
 - Nemmco to Electricity Market Participants (Infoserver) Downloads;
 - Infoserver to Secondary Infoserver Downloads;
 - Nextday/FRC/MSATS Parser Downloads;
 - Nemmco Replication Manager Client;
 - Nemmco Replication Server;
 - Producing a summarised daily status report.;
- Create a Weekly Report summarising:
 - Weeks activities; problems and outcomes;
 - Nemmco Application recommendations and advice to Electricity Market Participants ;
 - Nemmco Daily Bulletins, Nemmco Market Notices and Nemmco Change Notices
- Provide problem resolution to Nemmco Interface problems;
- Log Nemmco User group problem records with Nemmco;
- Nemnet password changes every three months;
- Onsite meeting with Electricity Market Participants;
- Run and monitor monthly archival routines; (provided they have been created)

3.1.2 Database Consultancy Support to Participants

Adhoc services Blue Crystal Solutions is able to perform for Electricity Market Participants (but not limited to) are:

- Onsite Application Database Administration;
- Application services to the Electricity Market Participant teams, and to assist in application administration and support;
- Service Requests as defined by Electricity Market participants’;
- Intense problem investigations requiring increased effort and resolution;
- The full application ownership and administration of the Nemmco Application Software including the MMS, Replication Server, Replication Client and Parser upgrades;
- Provide Nemmco Application recommendations and advice to Electricity Market Participants ;
- Develop Nemmco Application Upgrade Plans;
- Provide advice and complex architectural and application support issues of database and systems administration;
- Onsite Meetings as required.
- Provide Oracle database administration services;
- Reporting Services;
- SQL and PL/SQL Query writing; Including query performance tuning;
- Provide application support to other systems;
- Business Analysis and Functional Specification writing;
- Application design;
- Application construction;
- Provision or development of front-end analysis tools;
- Ongoing application support and management;
- development and implement data archiving and purging strategies;
- Develop Support Documentation for Electricity Market Participants ;
- Project manage any type of Nemmco Application or Database project as requested by Electricity Market Participants ;
- Provide integrated messaging functionality such as email and mobile phone SMS messaging initiated by data triggers and/or user requests. This facility may benefit the Electricity Market Participants by alerting resources of notable events in the electricity market (e.g. if the pool price exceeds a specific threshold(s)).
- Failover tests from Infoserver to the Secondary Infoserver and back again;

3.2 Company Details



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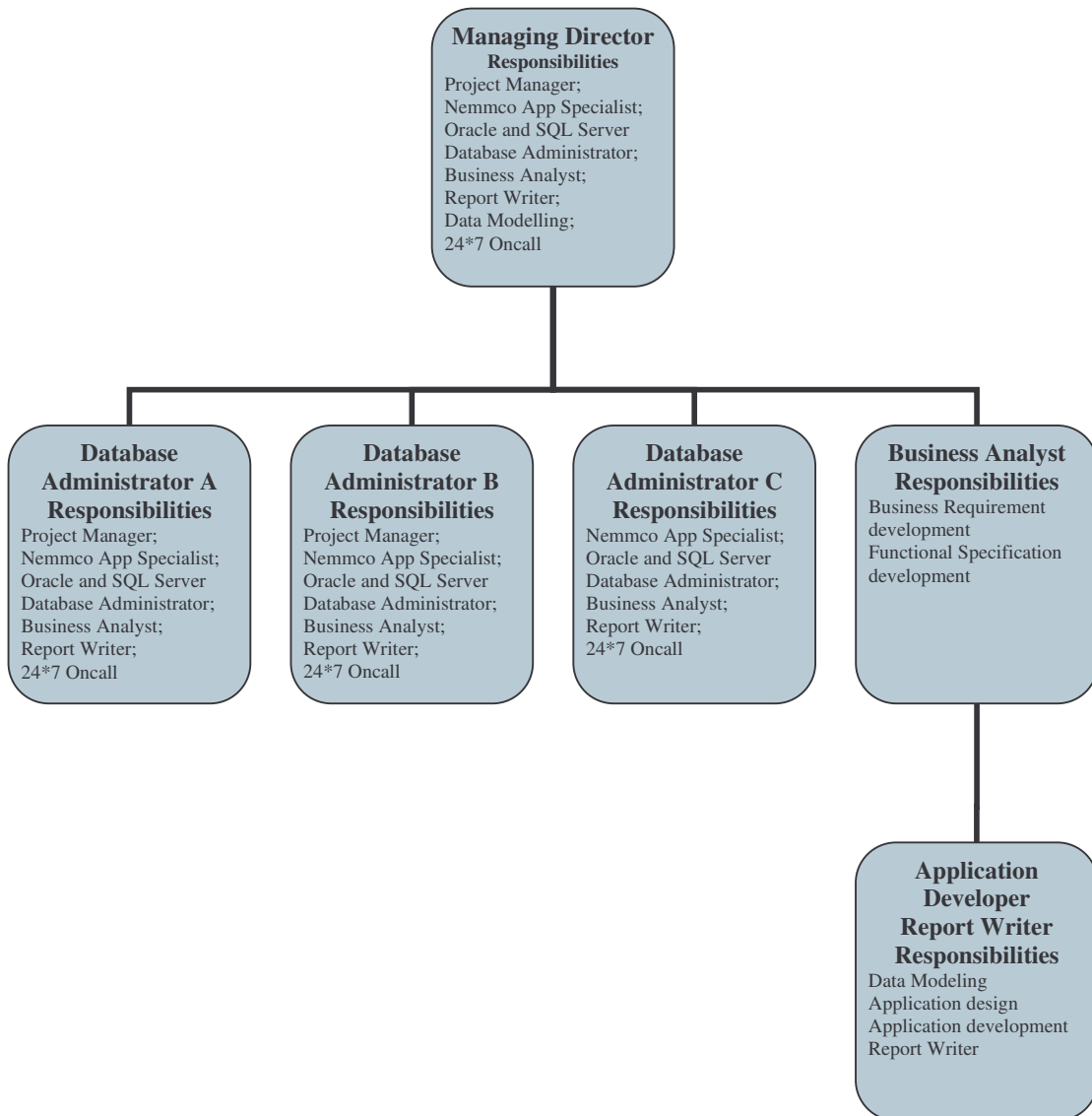
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Corporate Structure

The following diagram depicts the Blue Crystal Solutions “family tree”.



Blue Crystal Solutions Structure

The Blue Crystal Solutions team has a flat structure where by all employees assigned to a project are able to back fill each other. BCS would set Electricity Market Participants up as a support customer that would include assigning Electricity Market Participants a specific Project Manager and a Technical Lead as part of a ‘virtual team’.

3.3 Capability and Capacity to Deliver

Electricity Market Participants will benefit by gaining broad access to Blue Crystal Solutions resources. Blue Crystal Solutions ensures that as resource requirements change, qualified resources can be sourced and applied to achieve delivery without the need to delay progress.

Local Adelaide Personnel

Blue Crystal Solutions sources all employees and staff from the renowned Adelaide market. We ensure that all staff are highly skilled to work with your company and more importantly, local.

Blue Crystal Solutions undertakes to select the best available resource candidates for a project from these personnel. We will work with the Electricity Market Participants to establish the project team from the available resources.

Physical Database design and construction

The Blue Crystal Solutions team of skilled Database Administrators currently support database environments running on LAN and mid-range systems. Some Blue Crystal Solutions employees have been providing high quality, mission critical support to participants of the National Electricity Market since preparations for inception began in 1997.

The team supports applications that are required to be available 24 hours a day, 7 days a week and 365 days a year with guaranteed availability ensuring that our clients are positioned to deliver critical services to the people of South Australia. Our physical database design experience ensures that the overall application performance meets business requirements and that the data is accessible to the end-user.

Blue Crystal Solutions has significant experience with the construction of physical databases and in particular, the building and configuring of NEMMCO Infoserver databases.

We are highly skilled in configuring databases for specific requirements. Our capabilities include, managing multiple NEMMCO replication suites replicating concurrently and handling problems experienced with communications to the central NEMMCO server.

Database population

Due to Blue Crystal Solutions experience with supporting client's NEMMCO Infoservers and Secondary Infoservers, we have significant exposure to the data population errors that can occur from time to time. One example of this is when a network problem causes a NEMMCO replication suite to become suspended. In this state, the NEMMCO replication software is unable to continue replication of the data for that particular suite until there is manual intervention by a BCS Nemmco Database Administrator. The Blue Crystal Solutions Database Management Group has developed tools to

- a) monitor the replication and notify a Database Administrator, either via email or paging, of its occurrence and
- b) rectify this problem in a controlled and auditable manner.

Reporting Tools

Blue Crystal Solutions perform report writing using PL/SQL, SQL Query language or TSQL (Query Analyser), and Crystal Reports.

When a report is required, Blue Crystal Solutions define the Business Requirements, develop the necessary Functional Specifications, obtain all the necessary signoffs, then create the database objects to perform all of the report logic before displaying the output via a report. The end result means that all a report writing tool needs to do is pass parameters to the objects and display the information.

When a reporting solution is required the BCS DBA team will create the business logic inside the database as objects (views, stored procedures, UDF's) where and whenever possible so that the reporting logic is centralised. This means that the report writing tool is invisible.

Several examples of tools used by the Blue Crystal Solutions include:

- SQL/TSQL
- Crystal Reports
- Microsoft Studio Suite
- Generating MS Office Documents (Word and Excel)
- VBA Programming Language

3.4 Experience

Blue Crystal Solutions comprises of trained database administrators in which several have significant experience supporting databases for the electricity industry. This support includes a fully rostered 24x7 capability to respond to problems. Blue Crystal Solutions provides a totally integrated 24x7 service to satisfy mission critical levels of system availability.

TRUenergy

Blue Crystal Solutions currently works in partnership with TRUenergy to implement NEMMCO Infoserver repositories.

Adelaide Brighton Cement

Blue Crystal Solutions performed a successful migration of their Oracle 8i to Oracle 10G database environments.

Medical Board of South Australia

Blue Crystal Solutions developed various front end reports and front end screen functionality to enable the Medical Registrar application perform merchant bank processing with their end of year renewal processing.

3.5 Electricity Industry

Blue Crystal Solutions Support the Nemmco Application and Database environment for the data interfaces between TRUenergy and NEMMCO, providing Application Database services and Nemmco application administration , providing 24*7 oncall Database and oncall support.

Blue Crystal Solutions employees specialise in the Nemmco MMS data model, Nemmco Replication Manager, Nemmco Replica Server applications and FRC/MSATS, Parser. This combined with their in depth Database Management skill set ensures that all team members are equipped to meet and exceed the expectations of their role .

Blue Crystal Solutions participate in all monthly Nemmco User group meetings held by Nemmco.

Our team of Nemmco Application Specialists, Oracle DBA's are experts in the Nemmco Electricity market applications and downloads. Blue Crystal Solutions currently support Torrens Island Power Station and East Energy in Victoria, on behalf of TRUenergy.

The TRUenergy database and server upgrades are undertaken by Blue Crystal Solutions, we are also responsible for creating the architecture, design, and engineering of all technology required to meet a TRUenergy's business requirements.

Please refer to the Performance Section of this proposal for specific customer references.

Market Development

Blue Crystal Solutions is well positioned to assist the Electricity Market Participants to manage data relating to the electricity market due to our involvement with this industry with TRUenergy.

NEMMCO Database Structure

During the last few years, several Blue Crystal Solutions employees have assisted several energy companies with their IT interfaces and support systems to the National Electricity Market (NEM). This has involved the planning, upgrading implementing and supporting the market trading applications and databases.

3.6 References

3.6.1 TRUenergy

TRUenergy have agreed to be a reference site for Blue Crystal Solutions, included are several referees that will be glad to communicate to the Electricity Market Participants .

1) Contact Details – TRUenergy Torrens Island Power Station

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3.6.2 Medical Board of South Australia

5) Contact Details – Medical Board of South Australia

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3.6.3 Adelaide Brighton Cement

6) Contact Details – Adelaide Brighton Limited

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3.7 Additional Information

3.7.1 General Information

Blue Crystal Solutions provides applications, Oracle Database Management support to organisations. I have attached our flier in Appendix A within that illustrates some of BCS's capabilities, our website also illustrates some further information www.bluecrystal.com.au.

Our team of Nemmco Application Specialists and Oracle DBA's are knowledgeable in the Nemmco Electricity market applications and downloads. Blue Crystal Solutions currently support Torrens Island Power Station and East Energy Nemmco Downloads in Victoria, on behalf of TRUenergy.

Blue Crystal Solutions perform the day to day database administration and support the Nemmco Application replication toolset including Nemmco Replication Manager, Nemmco MMS, Nemmco Replication Server, Nemmco FRC/MSATS.

Blue Crystal Solutions also provide adhoc Nemmco consultancy support for several other electricity participants in Victoria and South Australia.

Blue Crystal Solutions Oracle Unix and Oracle NT Specialists, as we currently support Oracle Nemmco Applications under Unix and NT operating systems.

If Electricity Market Participants require skilled Nemmco Application and Application DBA's that know the Nemmco electricity applications, and that can support your environments 24*7, then please inform us if Blue Crystal Solutions can assist, anywhere from a few hours, to a few weeks, to months, to ongoing service contracts.

Blue Crystal Solutions currently roster Nemmco Application DBA's on a 24*7 roster.

Blue Crystal Solutions offices are based at 6 Todd Street, Port Adelaide SA 5015.