



ANNUAL QUANTITY MANAGER

Our customers asked us to supply a comprehensive AQ capability that would provide a consistent and efficient year-on-year approach to the annual review. Processing potentially very large amounts of data within short timeframes can present shippers with serious operational challenges and the dependence on key personnel for a successful review can pose unwelcome business risks. B-Smart Annual Quantity Manager (AQM) was designed to address these concerns by ensuring that the system was scalable to process large volumes through extensive multi-streaming and that business knowledge was retained within the application itself.

Whilst AQM can automatically manage the bulk volume processing using a tolerance rule based engine the application also provides facilities to identify and process individual meter point or supply point reviews allowing a user to obtain the most appropriate AQ and WC values should, for example, an erroneous through the zeros count have caused the GT to produce an artificially high or low value. AQM provides a means for users to drill down into the review data, isolating and prioritising lists of reviews that require manual intervention, ensuring that potentially high impact cases are not overlooked.

Now that independent gas transporters are gaining increased market share it has become important for gas shippers to have an effective means to challenge those proposed AQ values. AQM ensures that IGT reviews can be undertaken using the same familiar functionality that is employed for xoserve's meter points. AQM becomes the master repository for AQ



values across the entire portfolio.

We recognise that whilst there are clear benefits to using other B-Smart components in conjunction with AQM we also understand that it is important that shippers have the freedom to deploy AQM standalone and integrate it with their existing applications. Consequently AQM provides interfaces to third party meter asset management, meter reading management and supply point administration systems. This high level of integration avoids unnecessary replication of data and ensures that the appeal process can be brought to a successful conclusion by an automatic reconfirmation.

Our customers have also recognised that manage-

ment of annual quantities should be a year-round activity. AQM provides the tools to make this possible by monitoring new readings and ensuring that AQ appeals are made promptly. The success of the AQM system can then be measured by the reduction of effort in subsequent reviews.

Although it is always difficult to predict how the industry process will move in the future, a rolling AQ process looks most likely. AQM is already geared in this direction and so it is likely to make the transition to a new industry process simpler and less costly.

Read on and see AQM explained in much more depth. ■

LOCAL AQ & WC CALCULATION

AQM includes an AQ and WC calculation module that enables shippers to remove the reliance on the xoserve speculative calculation facility and avoids having to send the whole portfolio for speculative calculation. The AQM module employs the calculation module to allow shippers to make the majority of decisions in the review upstream of speculative calculation. This has a number of key benefits. First of all, shippers do not have to manage a process involving building, sending and receiving potentially very large files throughout the review. Also, new AQ or WC values can be generated interactively using the AQM screens, without interruption of a user work flow, allowing a user to work more efficiently. Finally, and quite apart from the cost of generating speculative calculations, there is less shipper review activity exposed to the wider community.

The AQM local calculation uses the published formula that xoserve uses in conjunction with the industry weather and CV information. The application can load and use WAALP (weather adjusted annual load profile) data supplied by xoserve, or calculate new daily values as the CWV (composite weather variable) values become available or use forecast values based on previous periods. The user can also choose to use CV (calorific value) histories or default values by LDZ (local distribution zone).

The local calculation automatically applies xoserve's read selection criteria when selecting a suitable start reading and takes account of any exchange in the period.

The meter asset details and meter reading details are



retrieved either from B-Smart or via APIs to any other meter asset and meter reading systems.

Where calculations cannot be made, for example where no suitable start reading could be found, then AQM generates an exception. The system can be

configured by exception to retry calculations on a regular basis where there is an expectation that new reading data, for example, might make more calculations possible.

The system provides drill down into data exceptions associated with local calculations that allows the user to work with a list prioritised by user selected criteria.

The local calculation is backed up by extensive reporting that can identify potential problems with the industry standing data used by the local calculation module ensuring that the system users can have full confidence in the results. ■





TOLERANCE CHECKING

The biggest gas shippers in the market place have to process many millions of meter points during the annual review. Clearly, it would not be commercially viable or even desirable for users to make decisions about AQ or WC outcomes on every meter point. AQM has the essential ability to make automatic decisions about AQ & WC values associated with a review. The application can compare any one value with any other value, for example, a proposed AQ value received on an amendment flow with a local calculation that used a more recent reading. Then by applying user-defined tolerances to this comparison the system can then make a decision. This decision is a simple stop, go or make available for user review.

By defining these tolerance rules in AQM the users are transferring their own business know-how into the system. The system can then operate as if an expert user were making the same checks manually on every meter point comparison in the application. AQ & WC movement reports allow the user to assess the effectiveness of the tolerance checks applied. Should these proved to be unsuitable, the user can refine them and tolerance check again. This 'what-if' ability of the system allows a user to fine-tune the outcome of the review, controlling key success factors such as the amount of manual reviews that will be required.

The application enforces strict audit control over the tolerance rules using powerful administration screens ensuring that groups of tolerance checks can be maintained in a straight-forward manner and that the full history of previously used tolerance checks is always available for reference.



Users may choose to define tolerance checks that look at absolute differences, percentage difference, movements within consumption bands and also define additional user defined checks. The user defined checks provide an un-restricted checking ability. Checks can be defined on any data item inside or outside of the application. This provides a powerful facility to bring additional information into the decision making engine of the application.

Key reports in the system give users a full analysis of AQ and WC movements and clearly reference the tolerance checks that produced the result shown.

Tolerance checks are also used to enforce all of the GT imposed review rules such as the 20% restriction on AQ movements for small supply points in the amendment phase.

USER CONTROL AND AUDIT

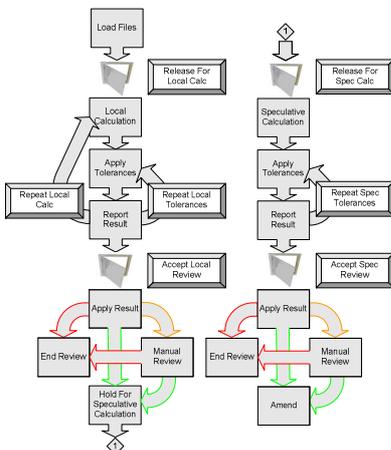
Throughout the amendment and appeal phases of the annual review it is essential that users can confidently control the end to end processes. AQM has been designed to allow the user to establish pre-defined groupings of data that cut through the entire portfolio, for example meter points with an AQ above 73,200 kWh. These data groupings are called control groups. Control groups move independently of one another from the start to end of the amendment or appeal processes allowing the users to focus fully on the areas that may have significant financial impacts e.g. upward threshold crossers or large meter points. Users that are experts in those particular areas may make decisions about the reviews safe in the knowledge that they have not affected another control

group. Another benefit of this approach is that the system is not dependent on IS intervention to control the end to end process. Batch jobs can then be run as part of a regular, automatic schedule. These jobs will then only action those user requests made using the AQM Administration Control screens. There is less chance of a communication breakdown between the business and support analysts and, therefore, less chance of a costly mistake being made.

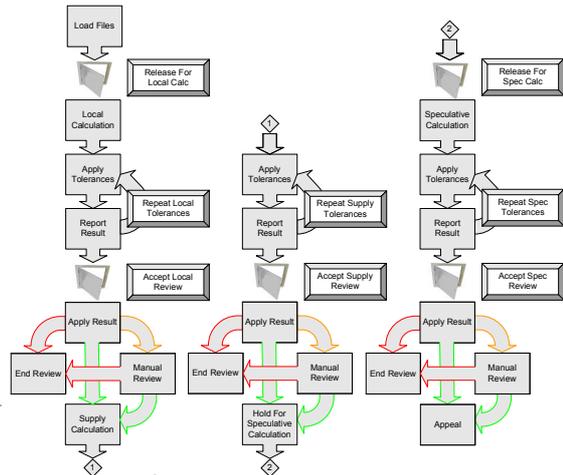
The system supports two levels of user access. Ordinary users can make decisions about individual reviews that they may have responsibility for but cannot make any decisions about accepting bulk positions or moving control groups on. All control group related decisions, including the tolerance checks used, are the responsibility of AQM senior users. As senior users make decisions about the end to end process these are recorded and shown on screen. Consequently, there is never any doubt as to who made a decision on a control group and when that decision was made and, where appropriate, what analysis reports were current and should have been used to make that decision.

As ordinary users work AQ or WC reviews any decisions that they make on these reviews are also recorded in an audit log. This can be useful to trace activities that might indicate a training issue or that a change to a user work flow is required.

Amendment Control



Appeal Control



The diagrams show how control group movement through amendments and appeals is controlled by users using buttons on the AQM Administration Control screen. Some buttons open 'trap doors' allowing control group data to move onto the next stage. Other buttons give users the 'what if' ability of tolerance checking or allow users to repeat a local calculation for an entire control group. The diagrams also show that there are two user review stages in the amendments processing and three in the appeals processing. The result of a review is always stop (red arrow), go (green arrow) or review (amber arrow).



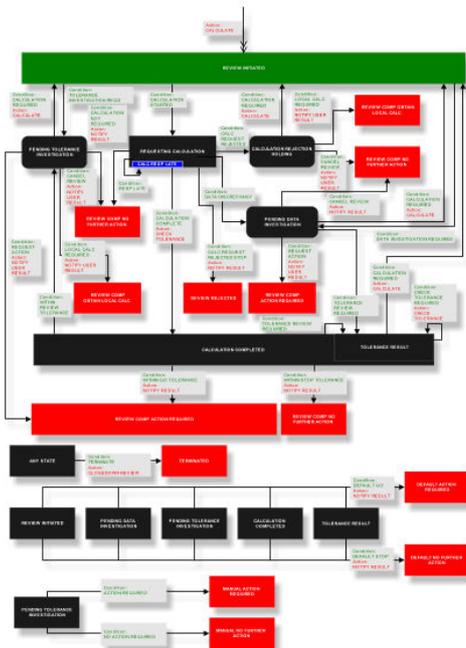


EVENT MANAGEMENT

The AQM applications makes use of the B-Smart Event Manager module (EVM) to provide complete end-to-end business process automation. In practical terms this means that EVM constrains the end to end business process to follow pre-defined paths between identifiable business process states. Although this is essentially a simple idea, in practice the EVM module provides a set of powerful facilities that control all aspects of the application functionality, e.g. determining when particular buttons should be available on a screen or triggering the production of an outbound flow.

EVM provides a screen that allows the user to drill down into the amendment or appeal business processes, for example, using customisable search criteria. This results in a list of amendments, say, that a user can then further drill down into, automatically presenting and populating the main AQM Review screen, where the user may work the individual review if required. Users can use this drill down ability to determine prioritised review lists providing an efficient mechanism to work with targeted groups of reviews.

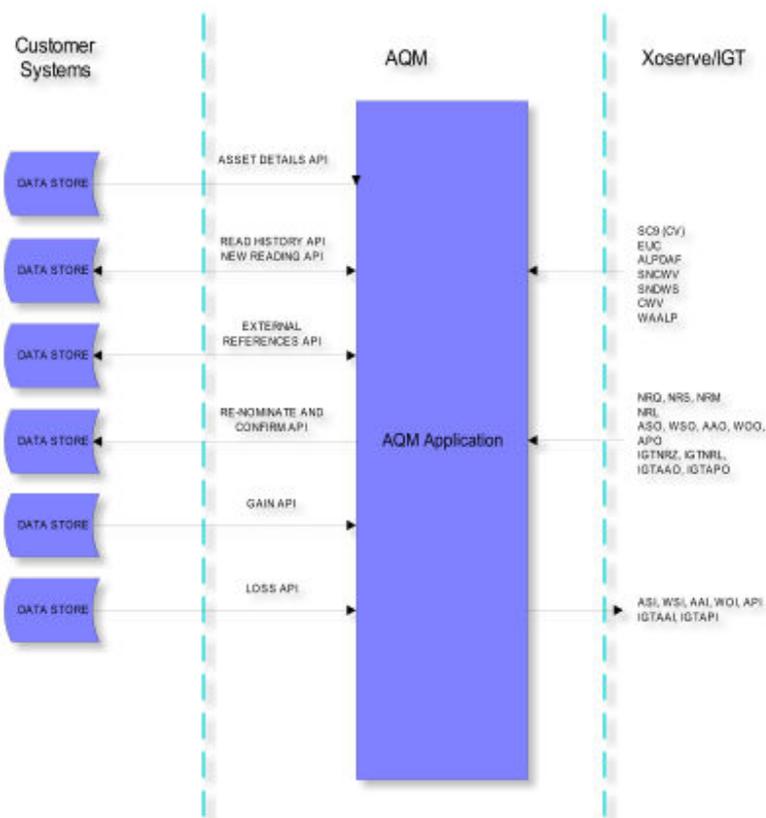
EVM also provides a data export facility that allows query results to be exported and saved locally on a user's PC. The data may then be further analysed in a spreadsheet program or distributed elsewhere. Our experience indicates that users make extensive use of the export facility to conduct analysis on the AQM data and this ability, coupled with the customisable search criteria, provides a powerful ad-hoc reporting and management information tool. ■



- EVM Features**
- End to end business process definition and control
 - Time based event initiation
 - Business process search screen with customisable search criteria
 - Business process history screen showing an individual business process timeline
 - Export of query results in CSV format

Example EVM Business Process Definition

SYSTEM INTEGRATION



Although AQM integrates fully with B-Smart Meter Asset Manager, Meter Reading Manager and Supply Point Administration the application has been designed so that it may be deployed in an environment that has some or even no other B-Smart components.

A series of APIs are provided:

- Asset Details API. This interface provides meter asset details to the local calculation function.
- Read History API. This interface provides meter reading details to the local calculation.
- New Reading APIs. This interface drives the continuous AQ validation and continuous appeals functionality with new reading data and supplies AQ validation responses.
- External References API. This interface provides key references, e.g. a billing reference, that should be associated with a review.
- Re-Nominate and Confirm API. This interface requests a nomination to be performed by a supply point administration application after a successful xoserve appeal.
- Gain API. This interface provides meter point details when a supply point is gained. The details include current AQ values.
- Loss API. This interface provides loss details when a supply point is lost.





SUMMARY OF FUNCTIONALITY

Major functionality provided by AQM

- AQ amendments
- WC amendments
- Manual AQ amendments
- Manual WC amendments
- NRL appeals
- Manual appeals
- Portfolio appeals (periodic portfolio review)
- Continuous AQ validation (AQ validation of new reading)
- Continuous AQ appeals (new reading driven AQ appeals)
- Local calculation (mimics xoserve speculative calculation)
- Tolerance checking
- Control groups (data segmentation)
- User review screens
 - Review screen and history tree
 - Calculation
 - Select readings
 - Rejection
- Administration screens
 - Timetable
 - Amendment control
 - Appeal control
 - Tolerances (all with history)

Major functionality provided by EVM

- Business process control
- Process tracking
- Timed event management (e.g. late flow monitoring)
- Process drill down and data export
- Business process history
- EVM Business process details screen
- EVM Business process history screen

Industry processes

- xoserve AQ amendments
- xoserve WC amendments
- xoserve AQ appeals
- IGT AQ amendments
- xoserve AQ appeals
- IGT AQ appeals (continuous AQ appeals only)

Flows processed

- NRQ, NRM, NRS
- NRL
- ASI, WSI, ASO, WSO
- AAI, AAO, WOI, WOO
- API, APO

- IGTNRZ (IGT NRQ like format)
- IGTAAI (IGT AAI like format)
- IGTAAO (IGT AAO like format)
- IGTNRL (IGT NRL like format)
- IGTAPI (IGT API like format)
- IGTAPO (IGT APO like format)

- SC9 (CV)
- EUC
- ALPDAF
- SNCWV
- SNDWS
- CWV
- WAALP

Other functionality

- Daily WAALP calculation
- Auto recalculation (exception based)
- Portfolio appeals selection
- Interactive (on-line) AQ and WC calculations
- Interactive tolerance checking
- MOD640 candidate identification
- Multiple shippers in one instance

Integration

- Major APIs
 - Asset details
 - Reading details
 - New reading
 - Gain API
 - Loss API

- Re-nominate
- External reference
- Minor APIs
 - Domestic indicator
 - Client tolerance filter value 1

Reports

- xoserve amendment initiation report
- IGT amendment initiation report
- AQ amendment status report
- WC amendment status report
- IGT challenge rejection reason report
- Amendment summary report
- Winter consumption missing reads report

- Appeal notification reconciliation report
- Manual appeal status report
- AQ appeal status report
- Portfolio appeal position report

- Continuous AQ daily control report
- Continuous AQ position report
- Non-appeal AQ affect report
- NRL appeal summary report
- Portfolio appeal summary report
- NRL appeal site movement report

- Invalid AQ calculation report
- Invalid WC calculation report
- xoserve rejection reason report
- Default data report
- xoserve re-registration status report
- User vs system amendment resolution report
- User vs system NRL appeal resolution report
- User vs system Portfolio appeal resolution report

Report notes

- Where appropriate, data broken down by shipper and/or control group and/or LDZ
- Reports are produced as CSV files for viewing in a spreadsheet application

Management information

- B-Smart portal providing distribution MI reporting interface, configurable report suite and drill down

B-Smart™ Suite Overview - The Dual Fuel Solution

The B-Smart™ suite delivers a comprehensive set of high performance, business rules driven applications to serve the needs of the energy industry. All B-Smart™ applications are built upon the same highly configurable B-Smart™ core architecture that provides them with the flexibility, scalability, reliability and traceability inherent in the core architecture. B-Smart™ applications enable the energy industry to manage their business critical functions effectively whilst benefiting from significant operational cost savings associated with



B-Smart™ Testimonial

"We chose B-Smart due to its innovative design and highly configurable flow engine. As part of a thorough product evaluation during which time B-Smart was successfully implemented at our Powergen premises, we were able to see first hand the power and flexibility of this product. The speed with which the system can be configured gives us great confidence that this is the right product for Powergen in the deregulating gas and electricity meter market."

[Don Leiper - UK IT Director, Powergen]



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