Gazifère
Une société ENBRIDGE

Building a New Gazifère Customer Information System: Analysis and Recommendations

Project Number: 00.59040151.210

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Date: August 17, 2006

Original : 2007-07-12

GI-2
Document 2
50 pages
Requête 3638-2007

Modification History

Date	Change
July 7, 2006	First draft created and ready for review
July 18, 2006	Updated with Requirements Section
July 22, 2006	Updated with Technology Requirements and updated costs
August 17, 2006	Updated list of Approvers

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Executive Summary

Gazifère currently leverages the Customer Information System of Enbridge Gas Distribution and related outsourced services from Accenture Business Services for Utilities to meet its customer billing requirements.

Because EGD has decided to replace its CIS by 2008, Gazifère must decide if it wishes to maintain this arrangement or to meet its requirements in some other way. Specifically, Gazifère must weigh the cost and benefits of participating in developing the new EGD CIS against the cost and benefits of other CIS alternatives. These alternatives include developing a CIS specifically for Gazifère's needs, joint development of a CIS with one or more utilities, and outsourcing the CIS function to another party.

This study is the first phase of a CIS replacement initiative, a definition phase. The aim of the study is to provide a high-level view of the options available to Gazifère and to estimate the cost, timelines, critical success factors and risks involved for each of the options identified. The study reviewed Gazifère's current business practices, the systems it uses to carry out these functions and the interdependencies of these systems. It analyzed at a high level the functional requirements of a new information system and the technical architecture of the system. This provided a basis to evaluate approximately a dozen CIS solution options.

The analysis led to the following conclusions:

- Gazifère should procure a mid-range or high-end CIS commercial package and customize the package for its needs.
- The option of leveraging the new EGD CIS should not be pursued.
- The new CIS should be hosted either internally or by a third party.
- The cost of developing this solution is estimated as:
  - One-time initial costs: $3.53 million
  - Cost for first year in production: $558K
  - Annual cost for subsequent years: $318K
- These costs do not include other operational costs such as those required for bill production and postage or for payment processing.
- Approximately 19 months will be required to implement the solution, followed by three months of post-production support.
- The first phase of the implementation effort would be a seven-month package selection phase during which the detailed functional and technical requirements of the software would be specified and a commercial CIS package would be selected.

As this is a high-level study of limited scope, the actual cost and time required may vary from the above estimates by plus or minus 20%. A more precise estimate will emerge from the package selection phase.

CIS implementation projects are fraught with difficulties. This report recommends a solution roadmap that will help Gazifère to successfully manage the challenges of such a project. In addition, the report specifically identifies many of the risks that will be encountered during the CIS implementation. It recommends measures to manage each of these risks.

The following next steps are recommended:

1. Gazifère's senior executive management should use this report to make an informed decision on how to proceed:
   - seek buy-in from other stakeholders on the recommended solution options and related roadmap;
   - obtain a better sense of the revised timelines for the EGD CIS replacement from EGD stakeholders;
   - determine the feasibility of cost recovery; and
   - specify targeted timelines to launch the initiative and to go live

2. If there is general agreement to undertake the CIS replacement effort, then:
   - seek regulatory approval to proceed ; and
   - request proposals to execute the package selection phase

Business Context

Gazifère currently leverages the Customer Information System of Enbridge Gas Distribution (EGD) and related outsourced services from Accenture Business Services for Utilities (ABSU) to meet its customer billing requirements.

Because EGD has decided to replace its CIS by 2008, Gazifère must decide if it wishes to maintain this arrangement or to meet its requirements in some other way. Specifically, Gazifère must weigh the cost and benefits of participating in the development of the new EGD CIS against the cost and benefits of other CIS alternatives. These alternatives include developing a CIS specifically for Gazifère's needs, joint development of a CIS with one or more utilities, and outsourcing the CIS function to another party.

There are significant differences between the billing needs of Gazifère and EGD. This stems from differences in the size of their customer base, range of services provided, and Quebec regulatory requirements. For example, Gazifère needs billing capabilities for services such as equipment rentals, on-bill financing, a heating insurance program and equipment servicing.

Gazifère's unregulated services are a key part of its business but they are not well served by the current arrangement. Gazifère has developed a patchwork of other applications and procedures to meet its needs, but this is an unsatisfactory arrangement over the long term. In addition, Gazifère has been frustrated by its inability to derive business intelligence from its customer data in a timely and economical fashion.

Gazifère's regulated services currently comprise utility gas supply and equalized billing. Its unregulated services include water heater rentals, furnace rentals, HVAC services, a heating insurance plan, and on-bill financing. At some future time Gazifère may choose to offer an Agency Billing Collection service, a regulated service, and Open Bill Access, an unregulated service.

Any new CIS system for Gazifère must provide support for these current and potential future lines of business.

Key factors in Gazifère's decision whether it wishes to continue using EGD as its CIS provider will be the extent to which the new CIS system will more adequately meet its needs, the cost of having its particular requirements included in the new system, and the risks to Gazifère associated with the implementation of the new EGD system. These factors must be weighed against the other options available to Gazifère.

The analysis of each of these courses of action must take into account related technology, data, and architectural considerations including in-bound and out-bound interfaces to other systems leveraged by Gazifère. This provides a broader perspective to help derive a more complete and accurate picture of the costs, timelines, and risks associated with replacing the CIS system.

Purpose and Scope of this Study

The aim of this study was to provide a high-level view of the options available to Gazifère and to estimate the cost, timelines, critical success factors and risks involved for each of the options identified. Senior management will then be able to make an informed choice between the available options, and to initiate the next steps toward developing and deploying a new CIS system.

This study is the first phase of a CIS replacement initiative, a definition phase. Figure 1 shows the relationship of the definition phase to the overall phases recommended for the CIS replacement initiative.

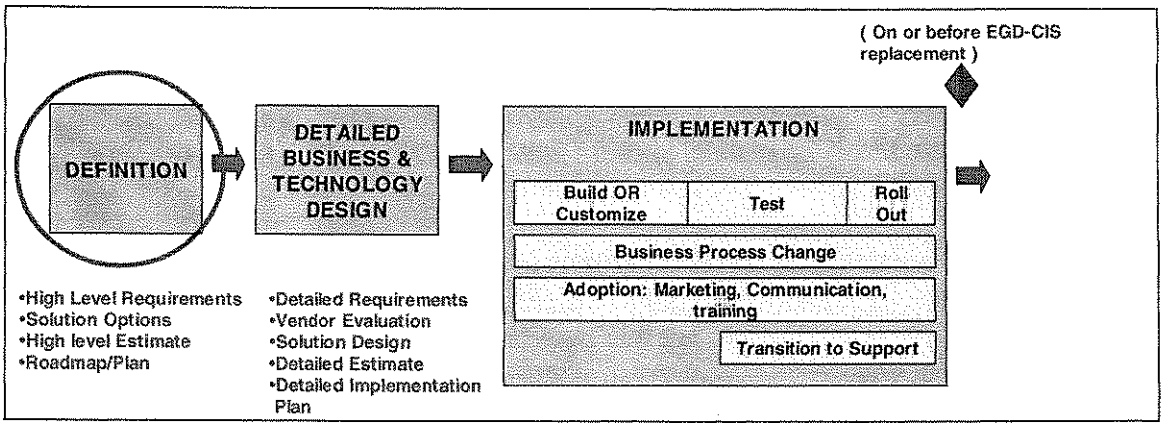


Figure 1: Phases of the CIS replacement initiative

The study was conducted at a high level, with the understanding that would be followed up with further inquiry and planning at a more detailed level. With this in mind, our analysis has:

- identified the high-level requirements of the new CIS system for Gazifère; these requirements encompass Gazifère's current and near-term requirements;
- defined the current and future state solution system architectures;
- identified at a high level and ranked the main alternatives that meet Gazifère's needs for a new CIS system;
- estimated the costs associated with each of the solution options;
- identified the data migration and conversion requirements associated with each option;
- developed a high level roadmap of the process required to implement the CIS replacement system; and
- identified outstanding issues, risks and mitigation strategies, and critical success factors for the implementation of the solution

We have not conducted a detailed examination of the packages offered by CIS vendors for this study. TMG Consulting Inc. are acknowledged as experts in evaluating CIS packages and in guiding their implementation. Two experienced members of their staff,

Greg Galluzzii and Curtis Tarr have worked closely with the InQvis team to gather Gazifère's requirements. They have applied their expertise in assessing the CIS products that best fit Gazifère's needs.

Study Methodology

The study was conducted over a five-week period commencing on June 1. The project team consisted of:

- Business Process Lead: Daniel Laprade, Manager, Financial Accounting, Reporting and Analysis, Gazifère Inc.
- CIS Experts: Greg Galluzzi and Curtis Tarr, TMG Consulting Inc.
- Solution Architect: Clyde Pinto, InQvis Inc.
- Project Manager and Senior Analyst: Arthur Young, InQvis Inc.

This team worked closely with Dawn Brotherton, Business Systems Manager, Enbridge Gas Distribution Inc.. The project was guided by an Executive Steering Committee consisting of:

- Jamie Milner, Regional General Manager, Enbridge Gas Distribution Inc. and Gazifère Inc.
- Lucie Vandal-Parent, Assistant General Manager, Gazifère Inc.
- Marc Weil, Director , Information Technology, Enbridge Gas Distribution Inc.

Figure 2 depicts the main project activities as they were planned at the start of the project. In the main the project unfolded as planned.

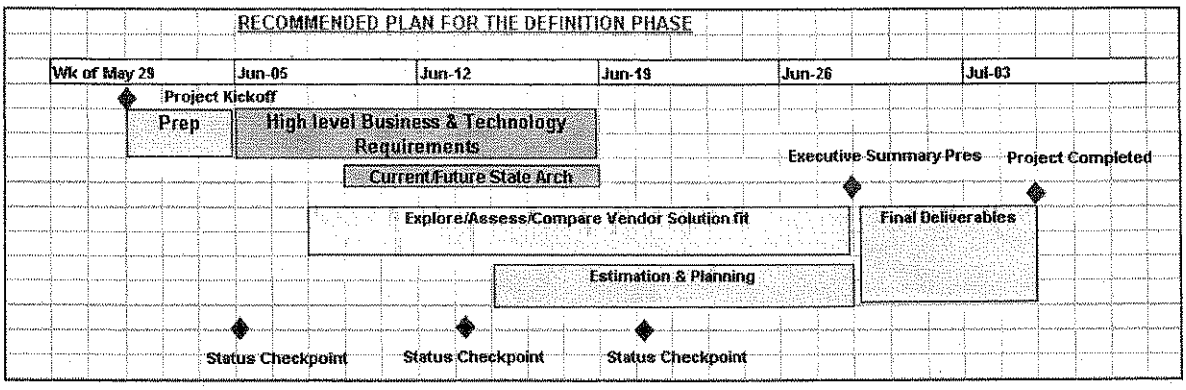


Figure 2: Main activities of the definition phase project

The following table provides more information on these activities.

Key Activity	Description
Project Kick-off	Meet with key stakeholders to walk through project plan, approach, and expectations
Prep	Prepare the project. This includes scheduling and preparing interviews with stakeholders, creating templates for capture of information, gathering existing documentation, and adjusting the project plan as required.
High Level Business and Technology Requirements	Interview key stakeholders and others to capture, validate, and document business and technology requirements
Current/Future State Arch	Document the current and future state system context including interfaces with other systems
Explore/Assess/Compare Vendor Solution Fit	Explore candidate vendor solution offerings. Identify the leading classes of packages that fit captured business and technology requirements Compare the solutions
Estimation and Planning	Estimate one-time and ongoing support and maintenance costs Create a high-level project plan showing phases, timelines Identify issues and risks Create and prepare a summary presentation
Summary Pres	Present an executive summary of the key findings of the project
Final Deliverables	Document, package, and present final deliverables
Status Checkpoint	1-hour status checkpoints with key stakeholders to report/track progress, and escalate key issues

Table 1: Main activities of the definition phase project

Much of the investigation of Gazifère's current business processes, system use, and business requirements was conducted with Gazifère staff at their headquarters in Gatineau, Quebec during three separate visits totaling eight days. Two members of the project team also met with Mark Smith of ABSU to validate and clarify the system architecture.

The project team held five meetings with the Executive Steering Committee. It also held a working meeting with Jamie Milner and Lucie Vandal-Parent on June 22 to report its preliminary findings and to receive their input a few days before the team presented its conclusions to the Executive Steering Committee on June 28.

Current Business and System Landscape

Figure 3 depicts the current business landscape. It shows how a number of third parties provide essential services to Gazifère. These business relations and their system implications must be taken into account in designing a new CIS system.

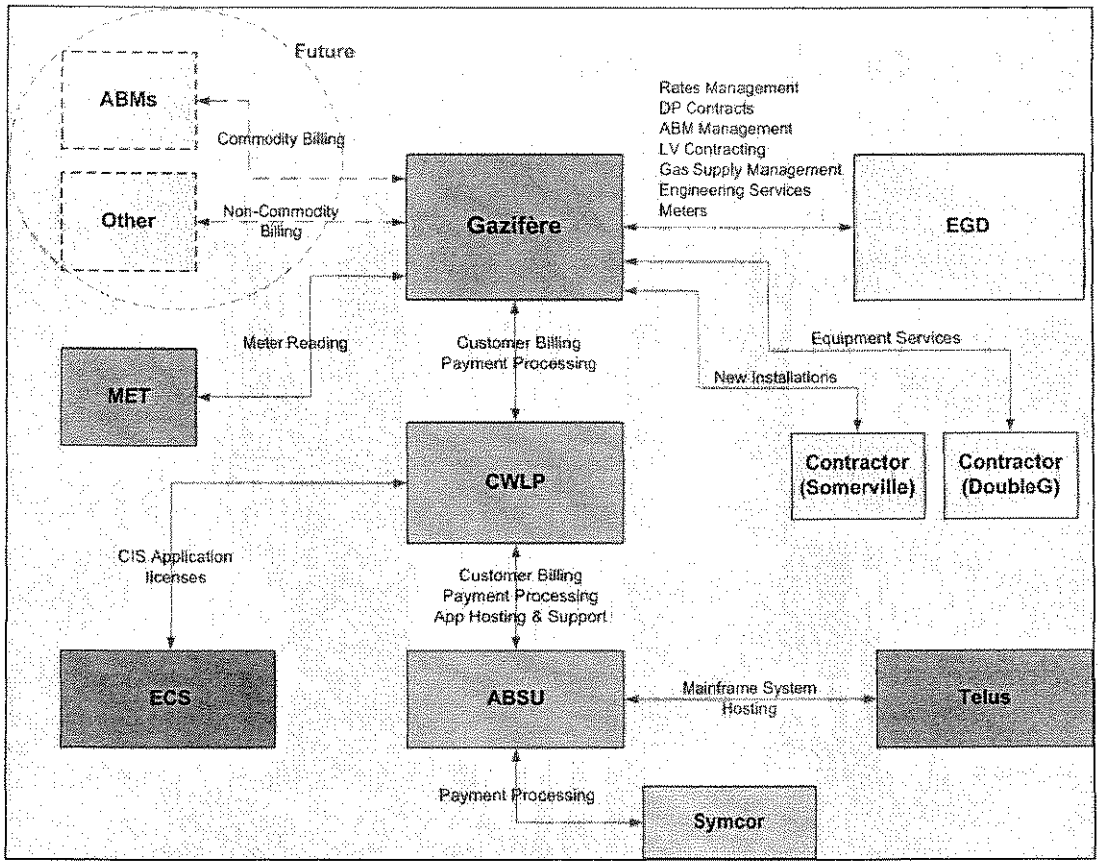


Figure 3: Gazifère business landscape

Figure 4 depicts the main business functions that have implications for a customer information system. It relates each of these business functions to the information systems that are currently used either by Gazifère staff or staff at one of the supporting companies depicted above.

This figure makes clear that the systems comprising the current CIS are used across most of the business functions of Gazifère. The figure also highlights the systems that EGD plans to replace when it implements its new CIS.

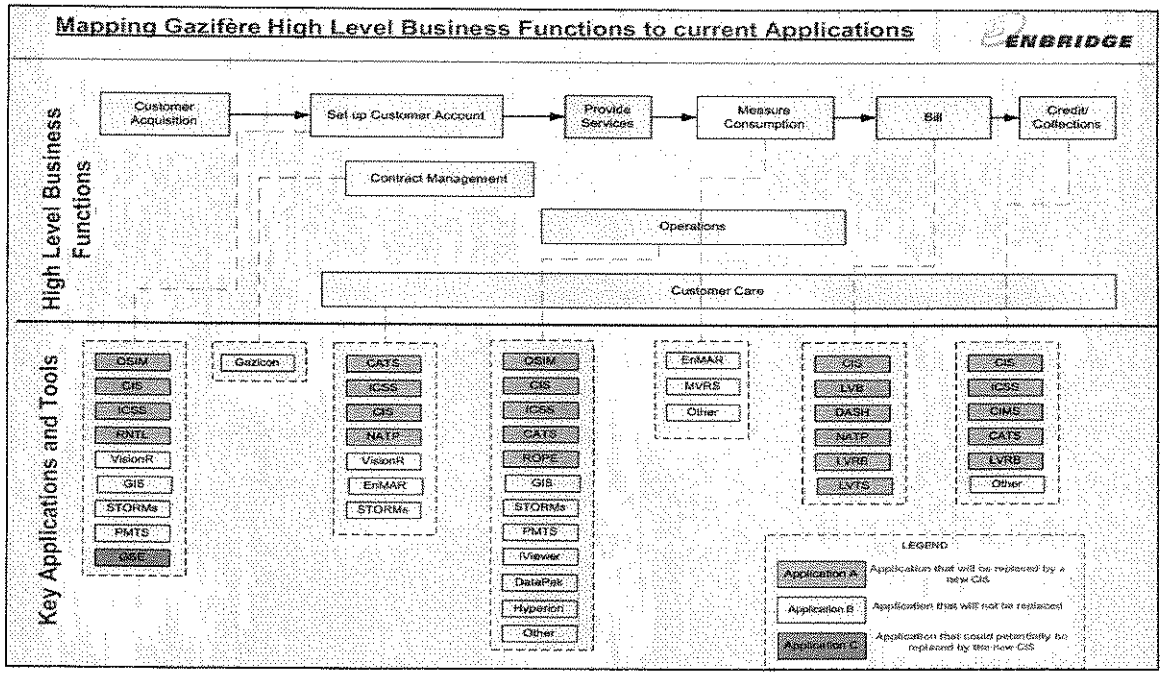


Figure 4: Gazifère business functions and current applications

Current State System Architecture

Figure 5 provides a detailed view of the architecture of the systems currently in use that are relevant to Gazifère's business operations. Figure 6 identifies the nature and number of interfaces between these systems. The letter B identifies a batch interface; the letter R identifies a real or near-real time interface. The number specifies the number of interfaces. For example, B1 denotes one batch interface and R5 denotes five real-time interfaces.

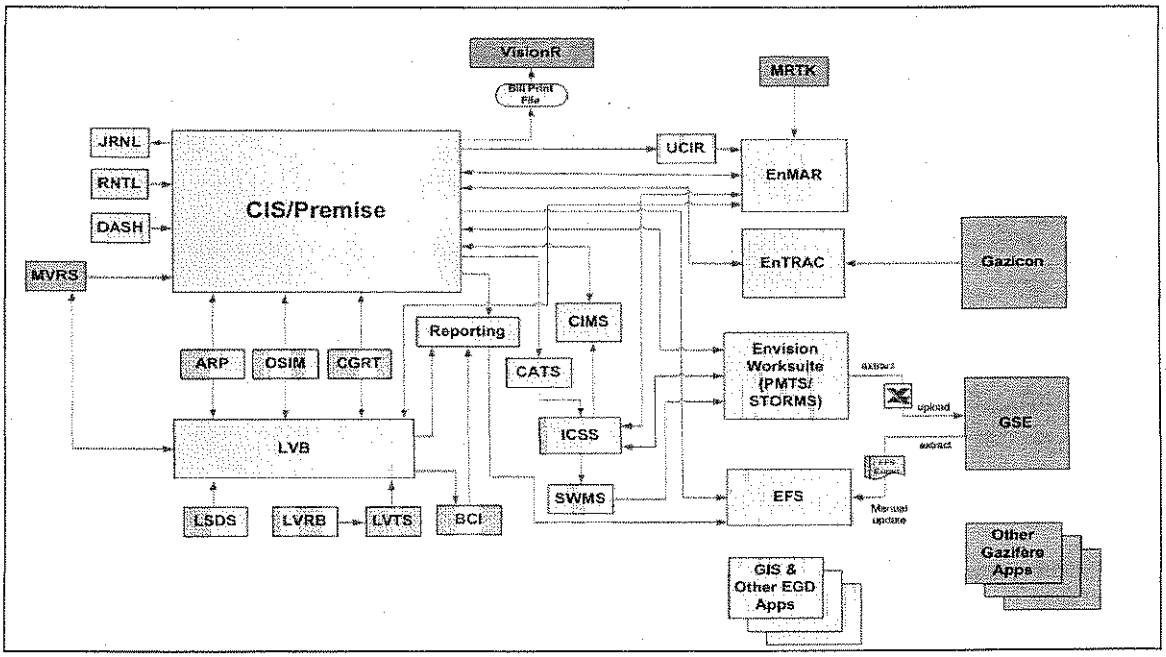


Figure 5: Current state system architecture

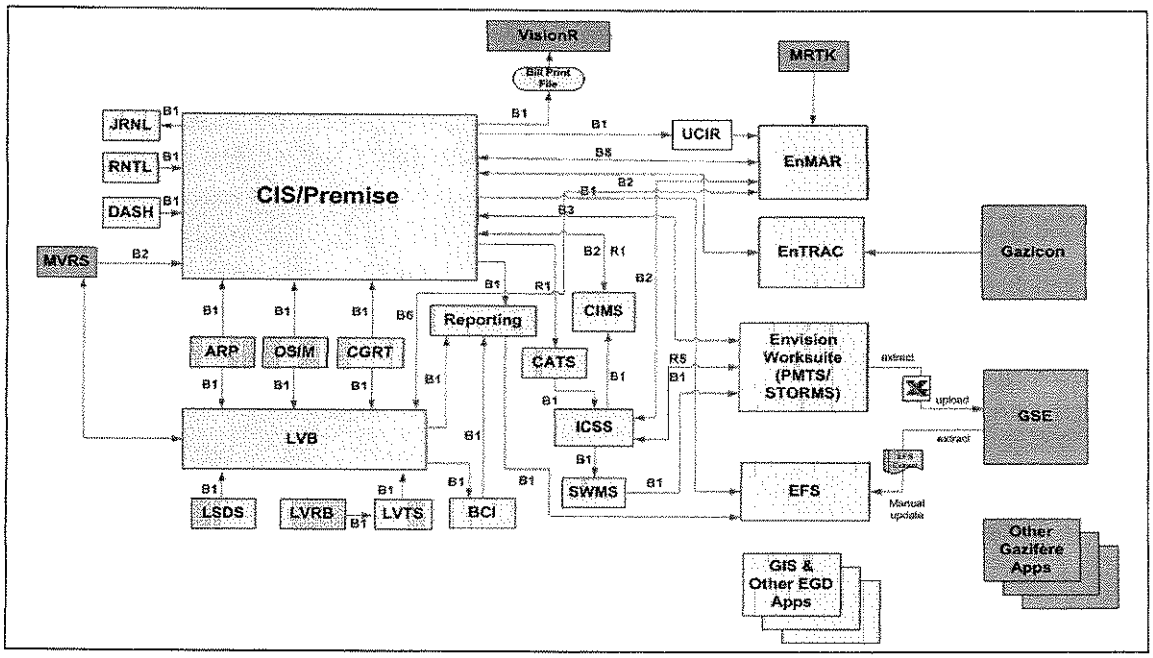


Figure 6: Current state system architecture with interfaces

Requirements and Architecture of a New CIS

High-Level Requirements

Functional Requirements

The high-level functional requirements of the new system were captured through a series of interviews with Gazifère personnel. They can be briefly summarized as follows:

- current CIS business functionality: all existing business functionality performed by Gazifère through the use of the current suite of legacy EGD CIS applications;
- current custom application functionality (optional): it is preferable that the functionality of GSE and some other custom Gazifère applications be provided by the new CIS;
- future business functionality: functionality to support new services that Gazifère may offer in the future (e.g. ABC Billing, Open Bill Access); and
- improved functionality for reporting and data intelligence

Appendix A provides a detailed listing of these requirements.

The new CIS will also have to conform to the requirements of Quebec language legislation. Among other provisions these stipulate that bills and other communication with customers must be issued either in French or in both English and French. It is likely that the user interfaces of the software and the reports that it generates must be in French. This scope of this requirement should be clarified in the next phase of the CIS project, before a CIS package has been selected, since it may have a major impact on the choice of the package and the cost and time required to implement it.

Technology Requirements

The high-level technology requirements of the new system can be briefly summarized as follows:

- system interfaces: real-time and batch interfaces to business applications that need and/or provide CIS data;
- data conversion and migration: one-time migration of historic data from applications being replaced into the new CIS;
- system decommissioning: structured decommissioning of the applications being replaced;
- security: appropriate levels of security for access to the data and functionality within the CIS; and
- other: other requirements related to availability and reliability of the CIS application, archiving and purging data, activity logging, and reporting

The system architecture of a future CIS solution is described below.

Business Change Management Requirements

The introduction of a new CIS system will require a number of business-centered activities including changes to current business processes. These include:

- business process design: design and implementation of changes to business processes affected by the new CIS
- training and adoption: training and marketing to prepare for the new system and related business process changes
- testing and quality control: extensive testing of the new CIS application to minimize errors and possible business disruption

Future State Solution Architectures

Although there are a number of possible CIS solutions for Gazifère, from an architectural perspective these solutions are essentially variants of two scenarios.

One scenario would leverage the new Enbridge CIS system (or the CIS of another party) to provide much of the functionality that Gazifère requires. GSE and other current Gazifère applications would continue to provide the functionality that would not be available through the new CIS. This option is shown in Figure 7.

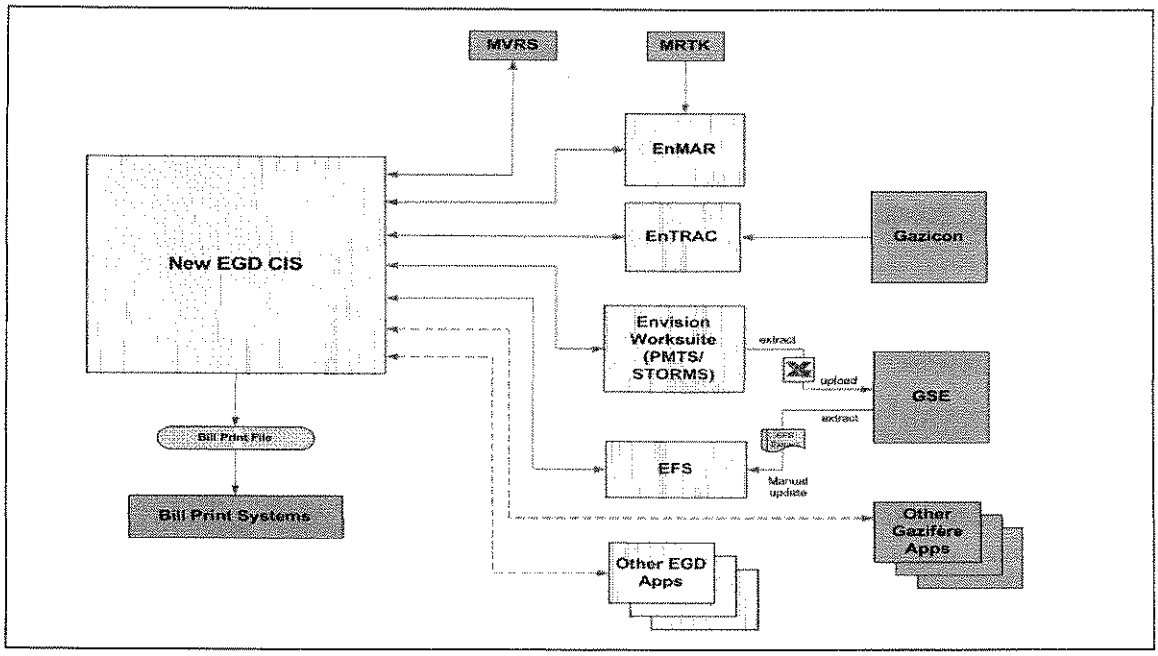


Figure 7: Architecture of a future state solution using the EGD CIS

This solution would require building 18 to 22 data interfaces between the new CIS and existing applications. These interfaces would be both real time and batch processes. In

addition, historic data would need to be extracted, cleaned, and migrated from at least 11 current CIS applications that will be replaced by the new CIS.

The other alternative is for Gazifère to implement a CIS specifically for its own needs. without relying on the Enbridge CIS. This would allow GSE and perhaps other custom Gazifère applications to be retired since the new custom CIS would provide the equivalent functionality. This option is shown in Figure 8.

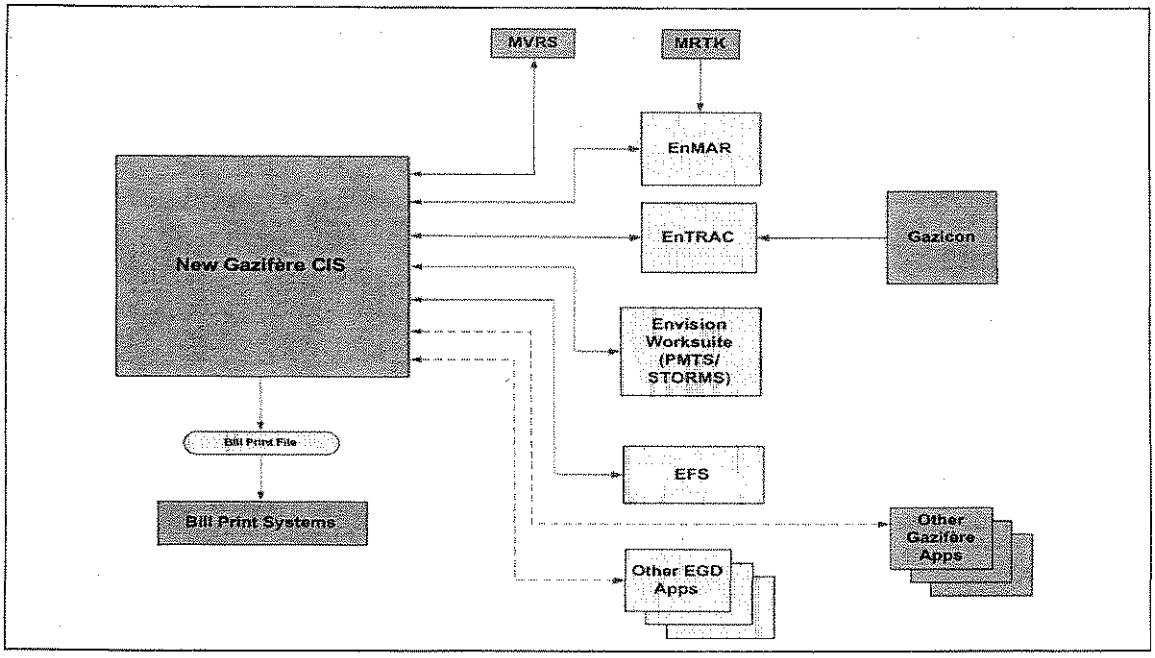


Figure 8: Architecture of a future state solution using a dedicated Gazifère CIS

This solution would require building 20 to 24 data interfaces between the new CIS and existing applications. These interfaces would be both real time and batch processes. In addition, historic data would need to be extracted, cleaned, and migrated from at least 12 current CIS applications that will be replaced by the new CIS.

Solution Options: Analysis and Recommendations

Using the analysis that had been done of the high-level requirements, TMG has applied its CIS expertise, experience and analytical tools to:

- identify the full list of solution options;
- identify the subset of the most viable options for Gazifère's specific requirements;
- evaluate and rank these options using a scoring mechanism developed by TMG;
- estimate the costs and time frame required to implement the options; and
- identify the most viable options for Gazifère

Solution Options: the Alternative Model

This analysis uses a model of CIS alternatives that is represented by Figure 9 . This model, while simplistic in nature, has proven to be accurate and dependable in supporting decisions to retain or replace an application. A software analysis typically considers four alternative directions: retain, enhance, migrate and replace.

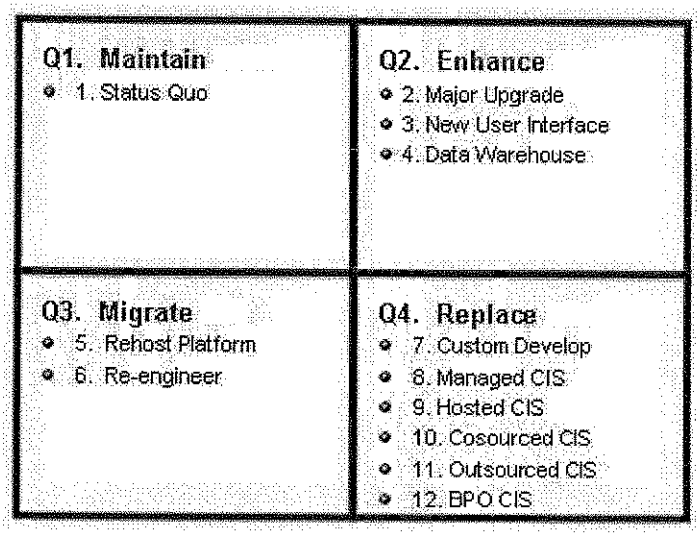


Figure 9: CIS decision quadrants

Quadrant 1 - Retain CIS

This quadrant considers retaining the current CIS, providing operation and application support using company resources. No significant enhancements will be conducted.

Quadrant 2 – Enhance CIS

Several alternatives within this category include: retain the current CIS and conduct major upgrades, construct a new user interface, and enhance data access and reporting capabilities through a data warehouse.

Quadrant 3 – Migrate CIS

Using the current functional capabilities and data design migrate the existing CIS to another technology platform, or use the existing CIS design as the base for developing a new CIS solution.

Quadrant 4 – Replace CIS

There are two basic alternatives to consider when evaluating a replacement strategy: custom development and a product solution. Many variations exist around these two strategies. For example, custom development may consider alternative starting points such as the use of codeware, a design guide, the existing system, or the purchase of a product with extensive modifications. For a product solution, operational alternatives which are frequently considered include: managed CIS, hosted CIS, cosourced CIS, outsourced CIS, and a BPO (business process outsourced) CIS.

Assessing the Options for Gazifère

This model utilizes a technical assessment in combination with a business assessment to arrive at a general direction which drives the identification of specific alternatives and subsequent analysis. This analysis results in the information presented in Figure 10. A scale for the technical fit has been added to the Y axis with the business fit scale along the X axis.

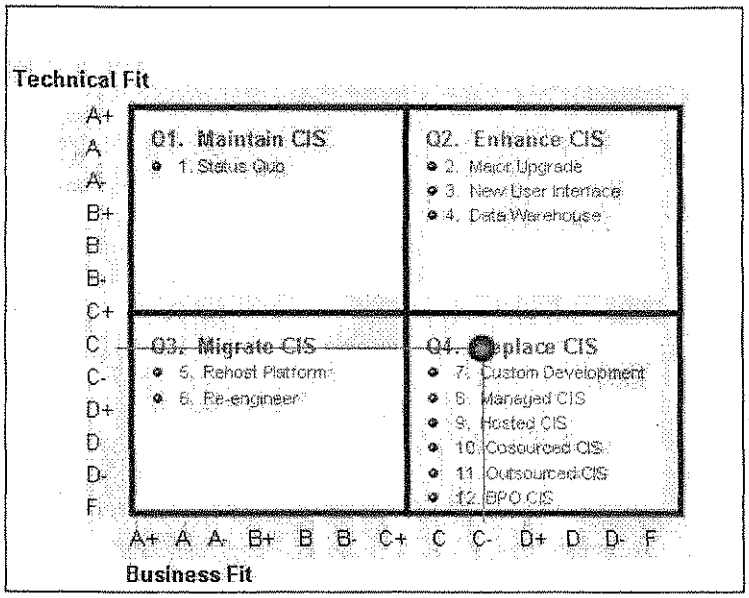


Figure 10: CIS decision quadrants with technical and business grades

With this additional information the model reveals the following:

- If the existing billing system provides a strong business fit in combination with a strong technical fit the model indicates "Quadrant 1 Retain CIS" is the optimum direction for the utility to pursue.

- If the existing billing system does a poor job of supporting the business yet offers a strong and well positioned technology the model indicates "Quadrant 2 Enhance CIS" is the optimum direction for the utility to pursue.

- If the existing billing system supports the business with rich functionality and a strong data architecture, in combination with a weak technology, the model indicates "Quadrant 3 Migrate CIS" is the optimum direction for the utility to pursue.

- Finally, if the existing billing system is not providing support for the business or is not expected to provide the level of support required, and the technology is not meeting current or target needs, the model indicates "Quadrant 4 Replace CIS" is the optimum direction for the utility to pursue.

The assessment model indicates that the existing billing system falls within Quadrant 4, indicating it should be replaced. This recommendation is consistent with Enbridge's direction of replacing its current billing system with a new CIS solution. Specifically, the movement to replace the existing billing system has the following impacts:

- Eliminates options 2, 3, and 4 within the "Enhance CIS Quadrant".

- Eliminates options 5, and 6 within the "Migrate CIS Quadrant".

- Eliminates option 7, "Custom Development" within the "Replace CIS Quadrant" as this is not a reasonable option to pursue due to extreme costs and timeframes.

- Eliminates option 12, " BPO CIS" within the "Replace CIS Quadrant" as this is not an option which is readily available in today's market.

- The project team therefore identified options 8, 9, 10, and 11 as potential viable solutions. Option 8 is the use of Enbridge's SAP CIS solution as the new CIS platform. The following scenarios, which are variations on option 8, were also evaluated:

- The implementation of a new high-end CIS product solution, managed by the vendor, and operated in-house. Vendors in this category include SAP, SPL, Peace, Indus, etc.

- The implementation of a new mid-range CIS product solution, managed by the vendor, and operated in-house. Vendors in this category include Conversant, S&S, Harris-Cayenta, Prophecy, etc.

- The implementation of a new low-end CIS product solution, managed by the vendor, and operated in-house. There are as many as 50 CIS vendors in this category offering products to small utilities serving up to 20,000 customers.

Based on this analysis the following alternatives are documented and evaluated in the following section.

#	Alternative	Discussion
1	• Status Quo.	• The status quo is used as the baseline for comparison of all other options.
8	• Managed CIS – Enbridge SAP CCS	• The implementation of a new CIS product solution, managed by the vendor, and operated in-house.
8A	• Managed CIS – High-End CIS	• The implementation of a new CIS product solution, managed by the vendor, and operated in-house. The solution will come from vendors such as SAP, SPL, Peace, Indus, etc.
8B	• Managed CIS – Median CIS	• The implementation of a new CIS product solution, managed by the vendor, and operated in-house. The solution will come from vendors such as Conversant, S&S, Harris-Cayenta, etc.
8C	• Managed CIS – Low-End CIS	• The implementation of a new CIS product solution, managed by the vendor, and operated in-house. The solution will come from as many as 50 other CIS solutions offered to small utilities serving 1 to 20,000 customers.
9	• Hosted CIS	• The implementation of a new CIS product solution, managed by the vendor, and hosted by a third party.
10	• Co-sourced CIS	• Pursue a solution with another utility (e.g. in the industry, in the region) to implement a new CIS solution.
11	• Outsourced CIS	• The implementation of a new CIS product solution, managed by the vendor, and outsourced by a third party.

Figure 11: Alternatives to be evaluated

Evaluation Process

The solution options were assessed using TMG Consulting's evaluation methodology. This methodology, which has been successfully applied to assess the CIS needs of a large number of TMG's utility clients, applies a scoring mechanism consisting of ten distinct evaluation criteria. The evaluation criteria reflect three main areas of concern: financial, risk, and strategic and tactical fit.

The model assigns weights to each criteria. Increasing the weight makes the item more important, decreasing the weight makes it less important. The total of all assigned weights equals 100. For the Gazifère analysis all categories were weighted equally.

The assessment produces a single score for each solution option, providing a measure of how the options meet Gazifère's needs and how they compare to each other.

Assessment Criteria and Guidelines

The model uses the following assessment criteria to evaluate the alternative solutions.

Assessment Category	Description	Weight
Installation Costs	The one time IT costs required to implement the solution.	10
Ongoing Costs	The ongoing annual IT costs to operate the solution:	10
Installation Timeframe	The length of time required to implement the solution.	10
Installation Risk and Viability	The risk associated with implementing and operating the solution along with the viability of the solution.	10
Resource Utilization	The level of IT staffing required to implement and operate the solution.	10
Business Strategic Fit	The ability to support Gazifere's business strategy, vision, and critical success factors.	10
Technology Strategic Fit	The ability to support Gazifere's technology architecture, strategy, and target environment.	10
Benefits and Improvements	The solution will result in the realization of tangible benefits for Gazifere and its customers.	10
Return On Investment	The solution benefits and the costs result in a positive return on investment.	10
Buy-In and Support	The solution is supported by internal and external users of the system	10

Table 2: CIS assessment categories and weighting

Some of the assessment categories are subjective. In assigning the grade, the following guidelines for each assessment category and possible grade are considered.

Assessment Category	A	B	C	D	F
1. Installation Costs	Cost is Minimized $1M or less	Cost is Attractive > $1 M to $1.5 M	Cost is Acceptable > $1.5 M to $2.0 M	Cost Issues Exist > $2.0 M to $3.0 M	Cost Unaffordable > $3.0 M
2. Ongoing Costs (Incremental)	Cost is Minimized $1.00 or less	Cost is Attractive > $1.00 to $1.50	Cost is Acceptable > $1.50 to $1.75	Cost Issues Exist > $1.75 to $2.00	Cost Unaffordable > $2.00
3. Installation Timeframe	6 months or less	12 months or less	18 months or less	24 months or less	More than 24 months
4. Solution Risk and Viability	Piece of Cake / Very Realistic	Manageable Risk / Workable	Acceptable Risk / Worth Considering	Considerable Risk / Questionable	Extreme Risk / Impractical
5. Resource Utilization	No Problem < $100k	Achievable $100k to $300k	Issues To Resolve > $300k to $400k	Significant Issues > $400k to 500k	Cannot Resource > $500k
6. Business Strategic Fit	Positions Future Strategy	Exceeds Current Strategy	Meets Current Strategy	Falls Short Of Current Strategy	Opposite Direction of Current Strategy
7. Technology Direction Fit	Next Tech Curve	Exceeds Tech Curve	Meets Tech Curve	Behind Tech Curve	Way Off Tech Curve
8. Benefits and Improvements	Outstanding Benefits / Improve	Exceeds Expectations	Some Tangible Benefits / Improve	No Tangible Benefits	No Benefits or Improve-ments
9. Return On Investment	Low Cost / High Benefit	High Cost / High Benefit	Cost = Benefit	Low Cost / Low Benefit	High Cost / High Benefit
10. Buy-in and Correctness	Embrace Total Buy-in and Support	Acceptable Majority Buy-in and Support	Cautious Prove It Required Buy-in and Support	Grave Concerns Lack Buy-in and Support	Wouldn't Touch It No Buy-in or Support

Table 3: CIS evaluation guidelines

Results of Comparison of Options

The following figures and tables summarize the results of TMG's analysis of the selected options.

TMG applied its standard metrics to derive estimates of the cost and the time to develop each of the options. These should be viewed as valid only for the purpose of comparing the options. The more detailed bottom-up estimates that are provided in the next section of this report should be used in Gazifère's decision-making and planning process.

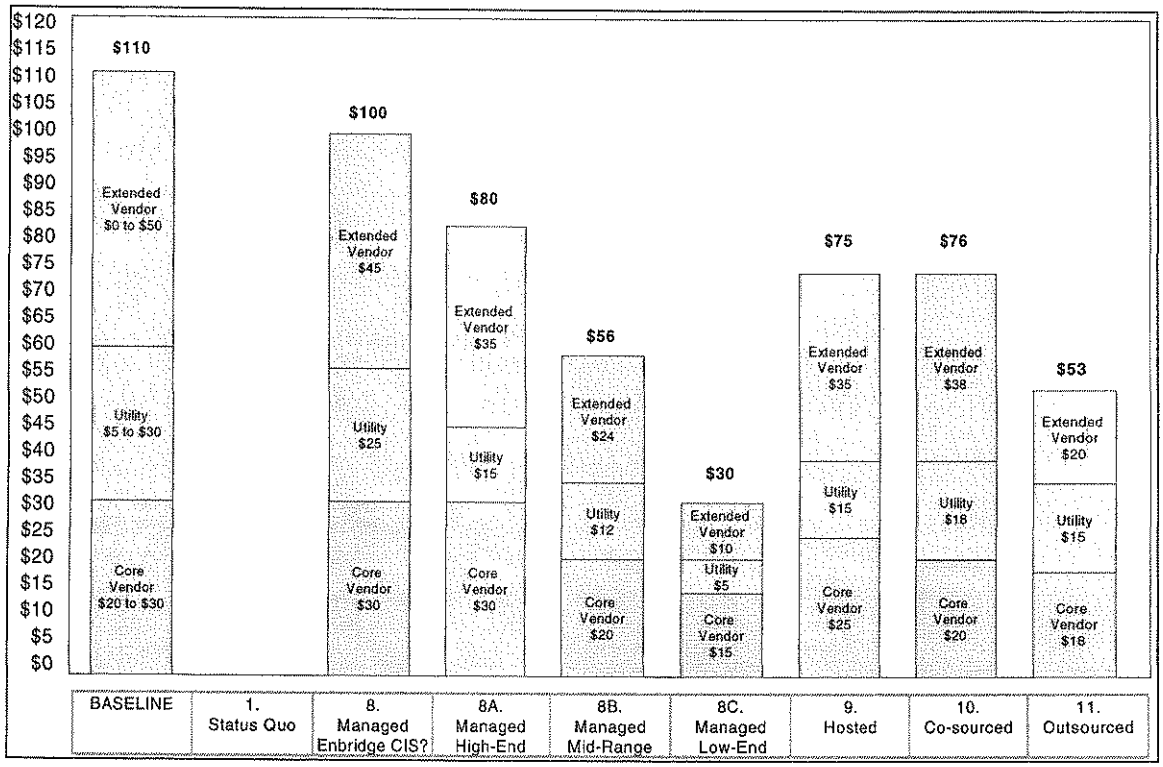


Figure 12: Installation costs: one-time cost per customer

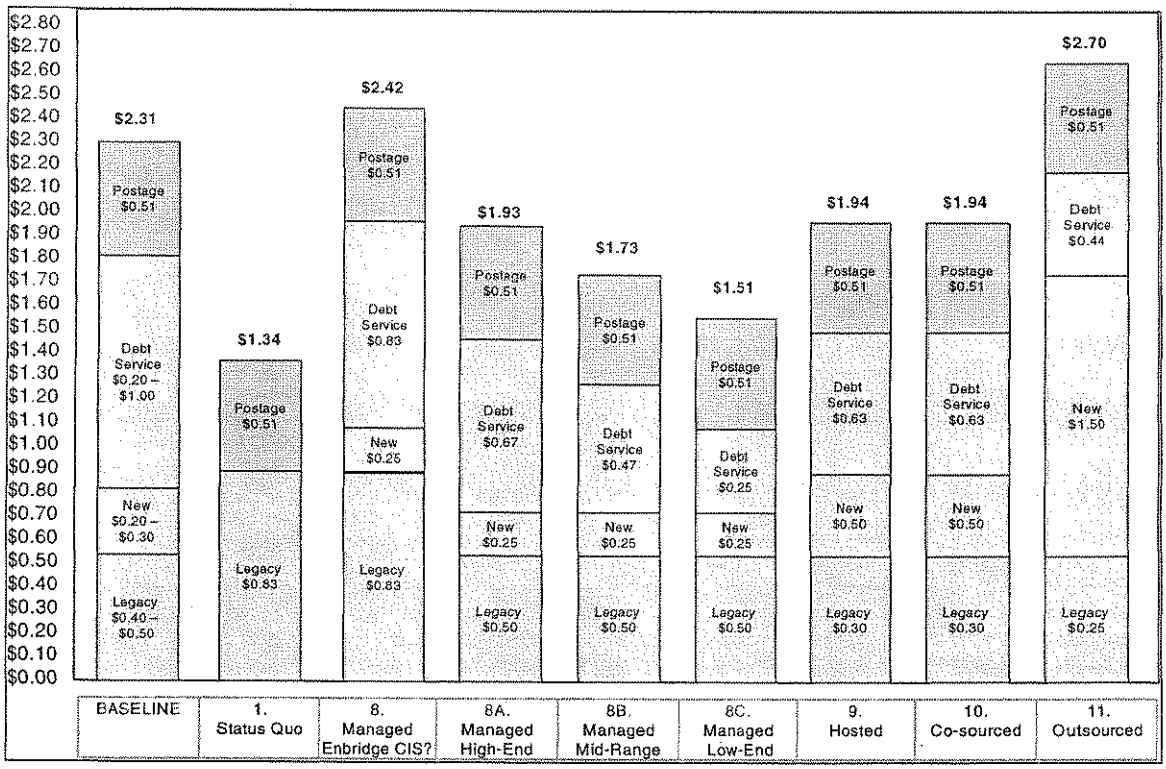


Figure 13: Ongoing costs: monthly cost per customer

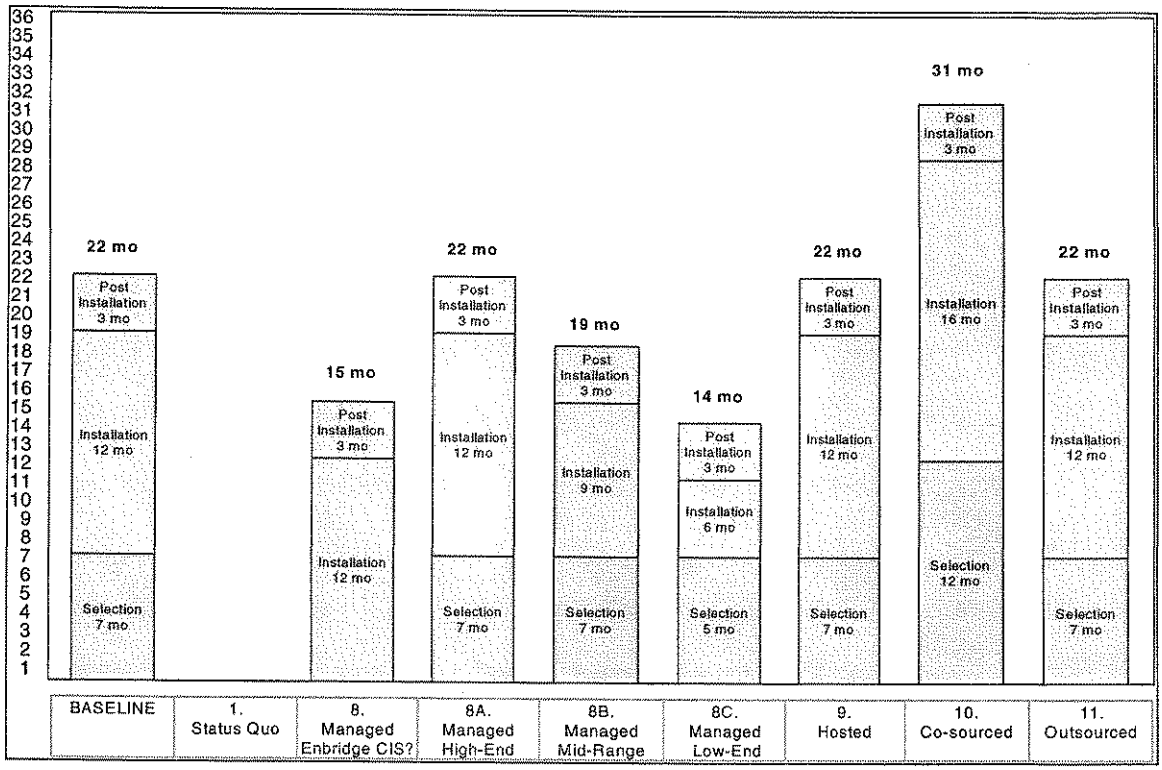


Figure 14: Development timeframes

Recommended Solution Alternatives

Assessing the solution alternatives using the ten categories and their weightings described above produced the ranking of the alternatives shown in Table 4. For a more detailed analysis of how each of the solution alternatives were scored, please see Appendix B.

Three alternatives clearly stand out. They suggest replacing the current CIS with a packaged CIS that is configured and customized for Gazifère's needs. The CIS could be hosted either by Gazifère or by a third party.

Mid-range and high-end CIS packages are the most suitable. Vendors of mid-range packages include Conversent, S&S, Harris, and Prophecy. Vendors of high-end packages include SAP, SPL, Peace, and Soluziona.

The alternative of sharing the new Enbridge CIS has a distinctly lower score than the three leading alternatives and should not be pursued.

The three leading alternatives should be subjected to a detailed solution comparison and selection process. This process should include a detailed and thorough examination of Gazifère's business and technology requirements.

Approach	Score	Solution Alternative	Observations
TMG recommends pursuing these alternatives which do the best job of meeting overall criteria. Positive Return. Generally solutions with a score greater than zero should be pursued as they provide a positive return and acceptable risk.	80	8B. Replace – Managed CIS (Mid-Range)	A robust mid-range solution at a lower cost tailored for the needs of Gazifere (implemented by 70% of utilities who have replaced their legacy billing system).
	60	9. Replace – Hosted CIS	A robust high-end solution at a lower cost tailored for the needs of Gazifere. It utilizes an external IT organization (Recently the most popular in the marketplace).
	50	8A. Replace – Managed CIS (High-End)	A robust high-end solution at a lower cost tailored for the needs of Gazifere (implemented by 70% of utilities who have replaced their legacy billing system).
	10	8. Replace – Managed CIS (Enbridge)	Higher costs due to use of a system integrator. Complicated solution, requires work specific to Gazifere.
TMG recommends the utility could pursue these options, however, the net value will be zero meaning it may be better off in some areas but worse off in others. Ground Zero. As a solution approaches zero, the utility should consider doing nothing.	0		
TMG recommends not pursuing these alternatives as they do not adequately address the utility's overall criteria. Negative Return. Generally solutions with a score less than zero should not be pursued as they provide a negative return or unacceptable risk.	-10	11. Replace – Outsourced CIS	Limited availability in the market. Tough sell given high operational per click charges
	-20	8C. Replace – Managed CIS (Low-End)	Although the lowest cost, this solution sells to very small utilities and it may not meet the business and technology needs of Gazifere.
	-30	10. Replace – Cosourced CIS	More costly, risky and time consuming as you involve several utilities in the selection and implementation process.
	-50	1. Retain – Status Quo	Not an option given the age of the system and its inability to meet business and technical direction.

Table 4: Ranking of solution alternatives

Solution Implementation

The roadmap and cost estimates in this section are based on the implementation of a high-end or mid-range vendor package. Figure 15 depicts the recommended approach to implementing the new Customer Information System. It shows the key activities and the timeline for the implementation.

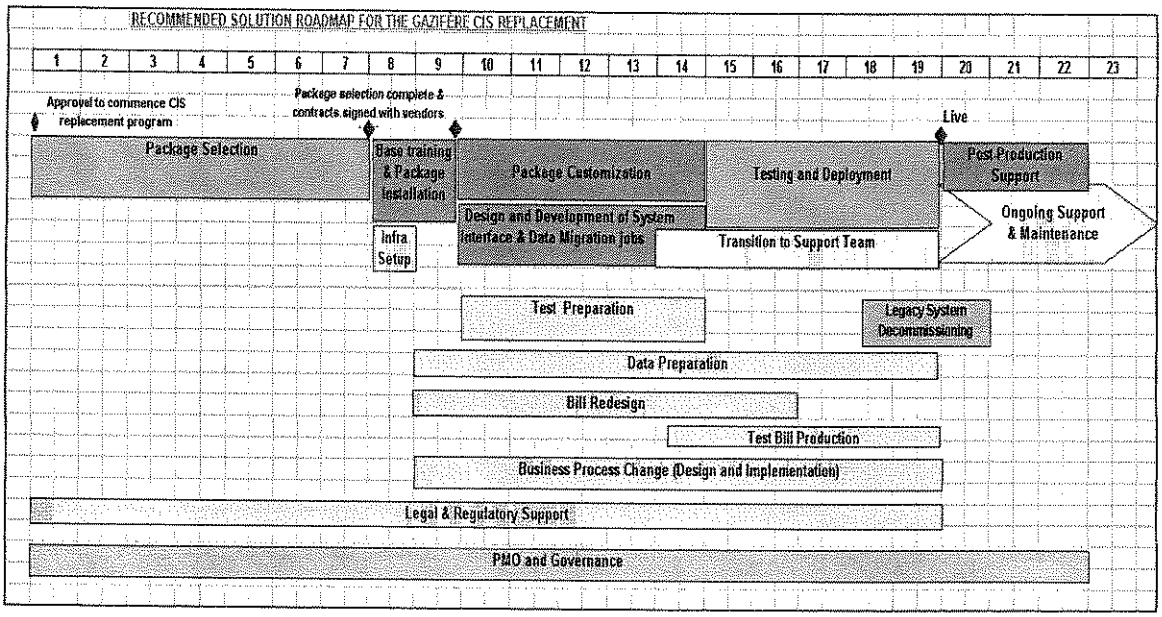


Figure 15: Recommended solution roadmap

Analysis of Costs

As mentioned previously, the solution options were compared using TMG's top-down cost metrics. These metrics have been derived from a large number of CIS projects. A second, bottom-up, approach was also used to estimate the implementation costs. This approach estimated the costs associated with the different activities depicted in the solution roadmap using a cost estimation tool used by EGD IT. The cost estimation included:

- one-time costs for hardware and software, vendor services, and out-of-pocket expenses;
- one-time costs of additional staff required to free up key internal resources for the implementation project;
- one-time costs to customize the package to provide a French user interface and reports in French;
- one-time training costs;
- ongoing costs for hardware and software and for infrastructure support and maintenance; and
- an allowance for risk contingency

The result of the bottom-up estimate was consistent with the top-down estimates with the addition of the risk contingency allowance.

Some packages under consideration may offer localization options that might significantly reduce the effort required to produce a French-language user interface and reports in French. This would reduce the cost of the implementation.

The timeline and cost estimates presented in this section are the ones that should be used for planning purposes. The estimated costs have a margin of error of plus or minus 20%. The package selection phase of the implementation will produce a more precise estimate of the overall cost of the project.

The cost estimates in this report do not include taxes.

Table 5 summarizes the estimated cost of the new CIS.

Project Cost Category	Approx. Cost
One-time initial cost	$3.5M
Cost for first year in production	$470K
Annual cost for subsequent years	$320K
Other operational costs: Bill production and postage Payment processing	TBD

Table 5: Summary of cost of a new CIS

Table 6 provides a more detailed view of these costs.

Project Cost Category and Key Items		Approx. Cost	Comments
One-Time Initial Costs		$3.53M	
	Hardware	$330K	Hardware infrastructure that is needed in the development, test, and production environments.
	Software licenses (including first year's maintenance fees)	$675K	Software infrastructure that is needed in the development, test, and production environments.
	SUBTOTAL: Infrastructure	$1.005M	
	External Vendor Services	$1.48M	Services provided to Gazifère by vendor and / or external consultants to configure and customize the CIS.
	Internal Labour	$448K	Additional Gazifère staff and training required to free up business resources to work on the implementation
	Out-of-Pocket Expenses	$213K	Travel and related expenses for external vendor services
	SUBTOTAL: Labour and Expenses	$2.141M	
	Contingency	$386K	Budget contingency
Costs for first year in production		$558K	
	Hardware Upgrades and Maintenance	$33K	
	Licenses for Software Tools and Package	$135K	
	System Support and Maintenance staff	$390K	Support and maintenance costs are higher in the first year to accommodate a higher volume of support and maintenance.
Annual ongoing costs (After the first year)		$318K	
	Hardware Upgrades and Maintenance	$33K	
	Licenses for Software Tools and Package	$135K	
	System Support and Maintenance staff	$150K	

Table 6: More detailed view of cost of a new CIS

Risk Management

The implementation of a new Customer Information System for Gazifère is a complex undertaking whose risks must be clearly identified and carefully managed. Some of these risks are inherent in any CIS project. Others are specific to Gazifère. The following sections describe these risks and suggest proactive measures to manage them.

Generic CIS risks

TMG's experience with CIS systems has led it to identify the ten risks most commonly encountered in CIS implementations. They are shown in the following table, along with suggested mitigations for each of them.

Risk	Mitigation
False expectations regarding price, time frame, and scope of the delivered solution	The Definition process provides a top-down and bottom-up analysis of the costs and timeframes needed to implement the recommended CIS. Industry benchmarks have been used in the estimation process. A seven-month selection phase has been recommended to do an in-depth analysis of requirements, anticipated costs, and timeframes. This exercise will yield more accurate estimates.
Absence of strong executive involvement and project sponsorship, especially when multiple utilities and departments are involved	A PMO and related governance structure is strongly recommended. As part of governance, appropriate levels of executive involvement should be expected through regular project steering committee meetings. The governance process should include an escalation process for issues that need executive attention.
The utility does not change business processes but tries to make the CIS product conform to existing processes and procedures	A Business Process Change track of work has been recommended as part of the program plan. This effort must ensure that the business processes are aligned with the capabilities and design of the new CIS.
Lack of a comprehensive and ongoing training and education program	Education and training are part of the recommended solution roadmap. The roadmap recommends that this training be initiated early in the solution lifecycle
The utility goes live before the system and the business is ready for production	The solution roadmap recommends several tracks of work related to business readiness. Activities and milestones for all tracks of work should be coordinated through a Program Management effort.
Poor project management to administer and control the project	A PMO and related governance structure is recommended; it is vital to the success of the project.
Awarding work and developing contracts based on RFP responses without conducting due diligence, scope, and confirmation work	A seven-month selection phase is recommended as part of the due diligence to identify detailed requirements, scope, and in-depth evaluations of candidate vendor packages
Selecting solutions which are not complete and/or not installed at another location. Trying to do custom development	Due diligence should be conducted in the selection phase to ensure that the best solution is identified.

Risk	Mitigation
Utilizing third party implementers and consultants who have no knowledge of the CIS product	The selection phase should utilize senior CIS experts. These experts should be retained in a QA/Advisory role through subsequent stages of the solution lifecycle. Experience and expertise that can be validated through references should be used as a criterion while picking a vendor to implement the solution.
Customizing a product instead of configuring it with a goal of zero modifications	The package selection phase should spell out the scope of the implementation effort in detail. Scope should be designed to minimize customization effort. Experts from the selected package vendor should be actively involved in the solution design and implementation phases.

Table 7: Generic CIS risks and suggested mitigations

Specific Gazifère risks

The following risks are specific to Gazifère's situation.

Risk	Mitigation
Regulatory authority may impede recovery of costs	The process and results of comparison of vendor packages has to be well-documented and transparent. Cost and time estimates should be compared with industry benchmarks. Independent third party representing interveners should be invited to be part of the package selection process to ensure fairness of the selection and estimation process. Regulatory activities related to the CIS replacement should be coordinated with other activities as part of an overall program management approach.
Internal business resources may not be able to allocate enough time to be part of the solution activity. Their participation could result in disruption of regular business activities.	A CIS implementation requires extensive effort from internal business resources who know the business functions of the organization very well. Freeing up these resources is vital for the project. Other staff should be assigned to carry out the business activities that are part of their regular jobs.
Possible burn-out of internal business resources due to time commitments expected on the project	Backfilling critical business resources with staff to complete business activities that are part of their regular jobs.

Risk	Mitigation
Becoming disconnected from the EGD CIS replacement process	The PMO should conduct regular checkpoints with the EGD CIS team to align milestones. The Gazifère CIS solution should be designed so that it minimizes dependency on EGD's CIS system replacement effort.
ABSU participation and related costs	As part of the detailed solution planning process to be delivered as part of the package selection phase, requirements for ABSU's participation should be clearly specified . Financial and staffing commitments should be sought from ABSU to ensure its participation on the project. The detailed project budget estimate should include fees for such participation.

Table 8: Specific Gazifère CIS risks and suggested mitigations

Recommended Next Steps

The following are recommended as the next steps in the process that has been initiated with this CIS project:

1. Gazifère's senior executive management should leverage the outputs of this project to make an informed decision on how to proceed, specifically:
   - seek buy-in from other stakeholders on the recommended solution options and related roadmap;
   - obtain a better sense of the revised timelines for the EGD CIS replacement from EGD stakeholders;
   - determine the feasibility of cost recovery; and
   - specify targeted timelines to launch the initiative and to go live

2. If there is general agreement to undertake the CIS replacement effort, then
   - seek regulatory approval to proceed; and
   - request proposals to execute the package selection phase

Signatures

On Behalf of the Business Sponsors

Jamie Milner, Executive Sponsor	Date
Lucie Vandal-Parent, Business Sponsor	Date
Daniel Laprade, Business Project Lead	Date

On Behalf of Information Technology

Marc Weil, Director of Information Technology	Date
Dawn Brotherton, Business Systems Manager	Date

Greg Galluzzii, CIS Consultant (TMG Consulting)	Date
Clyde Pinto, Solutions Architect	Date
Arthur Young, Project Manager	Date

Appendix A: High Level Business & Tech Requirements

High Level Business Requirements :

Req #	Requirement Description	
1	*Account Management*	
1.01		An account is created to reflect the establishment of a financial agreement for the provision of a product or service.
1.02		Ability to access account information via attributes
1.03		Account Transfers
1.04		Account Processing/Closing
2	*Billing Management*	
2.01		Billing Triggers (Cycle, Date, Event)
2.02		Consumption Validation and Estimation
2.03		Billing Periods
2.04		Proration
2.05		Billing Calculations
2.06		Cancel / Rebill
2.07		Bill Adjustments
2.08		Bill Products and Services
2.09		What-If Billing
2.10		Customer Account Bills
2.11		Summary of Master Bill
2.12		One-time or Miscellaneous Bills
2.13		On demand billing
2.14		Flexible due date
2.15		Bill Production
2.16		Billing Controls
3	*Credit and Collections*	
3.01		Credit Profile
3.02		Credit Checking
3.03		Credit References
3.04		Credit Scoring Process
3.05		Third Party/Guarantor/Co-signer
3.06		Freezing an Account
3.07		Collection Process
3.08		Late Payment Penalty
3.09		Returned Checks
3.10		Payment Arrangements
3.11		Bad Debt
3.12		Bankruptcy
3.13		Deceased/Executor (Succession)
3.14		Liens
4	*Customer Account*	
4.01		Ability to identify and track customers in the system independent of the account, service or service location.
4.02		Customer Information
4.03		Potential Customers
4.04		Existing Customers

Req #	Requirement Description	
4.05		Special Conditions / Assistance
5	*Customer Care*	
5.01		The input, processing, and output of customer contact information received through various media.
5.02		Customer Contact Information
5.03		Inbound Calls
5.04		Outbound Calls
5.05		Ecommerce
5.06		Fax on Demand
5.07		Contact Management
5.08		Conversation Scripting
5.09		Marketing and Sales
5.10		Customer Satisfaction
5.11		Program Success
5.12		Correspondence
6	*Customer Choice*	
6.01		Ability to support deregulated market in Quebec. This market has not been defined at this time. This document assumes the Ontario deregulated market will meet these requirements.
6.02		Marketer Registration and Information
6.03		Customer Registration and Termination
6.04		Marketer Deactivation
6.05		ABC Billing / Invoice / Payment
6.06		Market Communication Interface
6.07		Settlement
7	*Inventory Management*	
7.01		Ability to identify, access and manage meter, equipment and product installed at customer sites.
7.02		Gazifere does not maintain an inventory of meters, equipment or products. All meters and products are ordered as needed from third parties.
7.03		Gas Meters
7.04		Meter Set, Exchange, Remove
7.05		Meter Testing Program
7.06		Products
7.07		Product Delivery, Exchange and Return
7.08		Product Warranty
8	*Financial Management*	
8.01		Deposit Processing
8.02		Payment Processing
8.03		Refund Processing
8.04		Financial Interfaces
9	*Portfolio Management*	
9.01		Contract Management
9.02		Service Offerings
9.03		Equipment Offerings
9.04		Product Offerings
9.05		Program Offerings
10	*Rates Management*	
10.01		Provide a flexible pricing structure to accommodate rates, charges, fees,

Req #	Requirement Description	
		discounts, surcharges, taxes, adjustment clauses, rate determinants and dynamic rate assignments.
10.02		Rate Processing
10.03		Charges and Fees
10.04		Surcharges
10.05		Rate Determinants
10.06		Rate Development
11	*Service Address*	
11.01		Ability to enter/upload, view, edit and delete Service Address Information
11.02		New Service
11.03		Service Points
12	*Service Order Management*	
12.01		Ability to process and manage work orders for service based and meter based services and products.
12.02		Initiate Service
12.03		Pending Orders
12.04		Service Order Distribution
12.05		Order History
12.06		Cancel service order
12.07		Generate order from/to handheld interface
13	*System Mechanics*	
13.01		System should provide strong access and integrity controls, flexibility and a user-friendly environment, facilitating the efficiency of user tasks.
13.02		Navigation / Search
13.03		Multiple Sessions
13.04		Help
13.05		Work queues - system generated
13.06		Work queues - personal
13.07		Notes/Comments
13.08		Security
13.09		Table Configuration
13.10		Reports
14	Usage Management	
14.01		Consumption Types
14.02		Consumption View
14.03		Routing
14.04		Reading Initiation
14.05		Reading Sources
14.06		Consumption Validation

High Level Technology Requirements:

The technology requirements described below are based on a high-level analysis of the current state of systems. The analysis is specific to the needs of Gazifère within the existing application landscape.This level of analysis is adequate to provide educated guidance on the costs and timelines required to fulfill the requirements. Requirements around system interfaces and data conversion will have to be examined in detail as part of the Design and Implementation of the solution.

Req #	Requirement Description	
1	*System Interfaces : Real-Time and Batch interfaces for data exchange between the New CIS and other systems that either depend on CIS, or provide CIS with data*	
1.1		CIS to Envision Worksuite
1.1.1		Service Order Request (real-time interface)
1.1.2		Service Order Update/Cancellation (real-time interface)
1.1.3		Emergency Order (real-time interface)
1.1.4		Premise/Customer Updates (batch interface)
1.2		Envision Worksuite to CIS
1.2.1		Service Order Request (real-time interface)
1.2.2		Service Order Update/Cancellation (real-time interface)
1.2.3		Premise/Customer Updates (batch interface)
1.3		EnMar to CIS
1.3.1		Meter Details (batch interface)
1.3.2		Meter tables (batch interface)
1.3.3		Meter locations – large volume (batch interface)
1.3.4		Meter reads – large volume (batch interface)
1.3.5		Government inspection samples (batch interface)
1.3		CIS to EnMar
1.4.1		Premise (batch interface)
1.4.2		Elevator factor (batch interface)
1.4.3		Account Info (batch interface)
1.4.4		Customer Info (batch interface)
1.4.5		Meter reading info (batch interface)
1.4.6		Special Name (batch interface)
1.4.7		Meter Details – large volume (batch interface)
1.4.8		Revenue Master (one to two batch interfaces)
1.5		CIS to EFS
1.5.1		CIS Billings Journal (batch interface)
1.6		CIS to MVRS
1.6.1		Meter Reads Instruction and Data (batch interface)
1.7		MVRS to CIS
1.7.1		Meter Readings/Consumption, Reader notes (batch interface)
1.8		Gazicon/EnTRAC to CIS
1.8.1		Mass Market Contract Info (batch interface)
1.8.2		Large Volume Contract Info (batch interface)
2	*Data Conversionand Migration : This involves One-time extraction of historic data relevant to Gazifère from the following CIS applications that are targeted for replacement, transformation of that data into the format required by the new CIS, and loading of data into the appropriate data structures within the new CIS data repository*	
2.1		CIS/Premise

Req #	Requirement Description	
2.2		OSIM
2.3		CGRT
2.4		RNTL
2.5		CIMS
2.6		LVB
2.7		LVRB
2.8		LVTS
2.9		LSDS
2.10		ICSS
2.11		SWMS
2.12		GSE
3	*System Decommissioning*	
3.1		All CIS legacay Suite applications that contain Gazifère data must be decommissioned during or after the rollout of the new Gazifère CIS. It is recommended that this decommissioning be undertaken by the EGD CIS project team as part of the EGD CIS project. This decommissioning effort should be co-ordinated with the Gazifère CIS replacement project plan
3.2		GSE application should be replaced when the new CIS is rolled out (this assumes current functionality rendered through GSE is rolled into the new CIS functional scope
4	*Security Requirements*	
4.1		Authentication : Appropriate levels of secure access to the new CIS through the use of user ids and passwords
4.2		Authorization : Ability to manage the access privileges of users
4.3		Data Encryption : Ability to encrypt confidential data as needed
4.4		Secure Data Exchange through interfaces : Secure exchange of data through real-time and batch interfaces
5	*Miscellaneous/General Requirements*	
5.1		Logging : Ability to log usage and data transactions
5.2		Archiving & Purging : Ability to archive historic information and purge when necessary
5.3		Reporting
5.3.1		Must support ability to run canned reports
5.3.2		Must support ability to adhoc reports

Appendix B: TMG Analysis of CIS Solution Options

TMG's Analysis of CIS Solution Options is based on a weighted scoring mechanism that scores individual options based on 10 factors:

- Installation Cost
- Operation Cost
- Installation Timeframe
- Solution Risk and Viability
- Resource Utilization
- Business Strategic Fit
- Technology Strategic Fit
- Benefits & Improvements
- Return on Investment
- Buy-In and Support

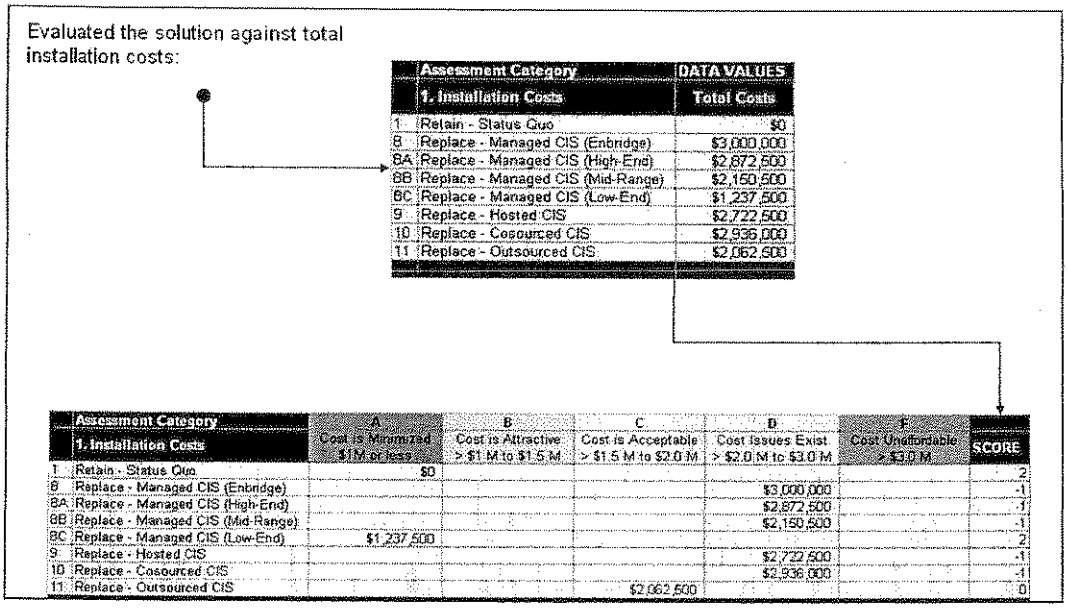
This Appendix section describes how each solution option was evaluated against each factor. Figures 16-25 shows scores assigned to each solution option.
Figure 26 summarizes the final weighted scores of each solution option.

Installation Cost

The costs associated with implementing the CIS solution for 30,000 customers.

- Option 1 – Status Quo will not require any implementation dollars and will receive a grade of an "A" indicated Cost Is Minimized.
- Option 8 – Replace with a Managed CIS with Enbridge will cost $3 million to implement and receives a grade of a "D" indicating Cost Issues Exist.
- Option 8A – Replace with a Managed CIS High-End Product will cost $2,872,500 to implement and receives a grade of a "D" indicating Cost Issues Exist.
- Option 8B – Replace with a Managed CIS Mid-Range Product will cost $2,150,500 to implement and receives a grade of a "D" indicating Cost Issues Exist.
- Option 8C – Replace with a Managed CIS Low-End Product will cost $1,237,500 to implement and receives a grade of an "A" indicating Cost Is Minimized.
- Option 9 – Replace with a Hosted CIS will cost $2,722,500 to implement and receives a grade of a "D" indicating Cost Issues Exist.
- Option 10 – Replace with a Cosourced CIS will cost $2,936,000 to implement and receives a grade of a "D" indicating Cost Issues Exist.
- Option 11 – Replace with a Outsourced CIS will cost $2,062,500 to implement and receives a grade of a "D" indicating Cost Issues Exist.

The following figure summarizes the installation cost analysis. Based on installation cost the best alternative is option 8C, to replace with a Managed Low-End CIS solution.



	Assessment Category	DATA VALUES
	1. Installation Costs	Total Costs
1	Retain - Status Quo	$0
8	Replace - Managed CIS (Enbridge)	$3,000,000
8A	Replace - Managed CIS (High-End)	$2,872,500
8B	Replace - Managed CIS (Mid-Range)	$2,150,500
8C	Replace - Managed CIS (Low-End)	$1,237,500
9	Replace - Hosted CIS	$2,722,500
10	Replace - Cosourced CIS	$2,936,000
11	Replace - Outsourced CIS	$2,062,500

Assessment Category	A	B	C	D	F	
1. Installation Costs	Cost is Minimized $1M or less	Cost is Attractive > $1 M to $1.5 M	Cost is Acceptable > $1.5 M to $2.0 M	Cost Issues Exist > $2.0 M to $3.0 M	Cost Unaffordable > $3.0 M	SCORE
1 Retain - Status Quo	$0					2
8 Replace - Managed CIS (Enbridge)				$3,000,000		-1
8A Replace - Managed CIS (High-End)				$2,872,500		-1
8B Replace - Managed CIS (Mid-Range)				$2,150,500		-1
8C Replace - Managed CIS (Low-End)	$1,237,500					2
9 Replace - Hosted CIS				$2,722,500		-1
10 Replace - Cosourced CIS				$2,936,000		-1
11 Replace - Outsourced CIS			$2,062,500			0

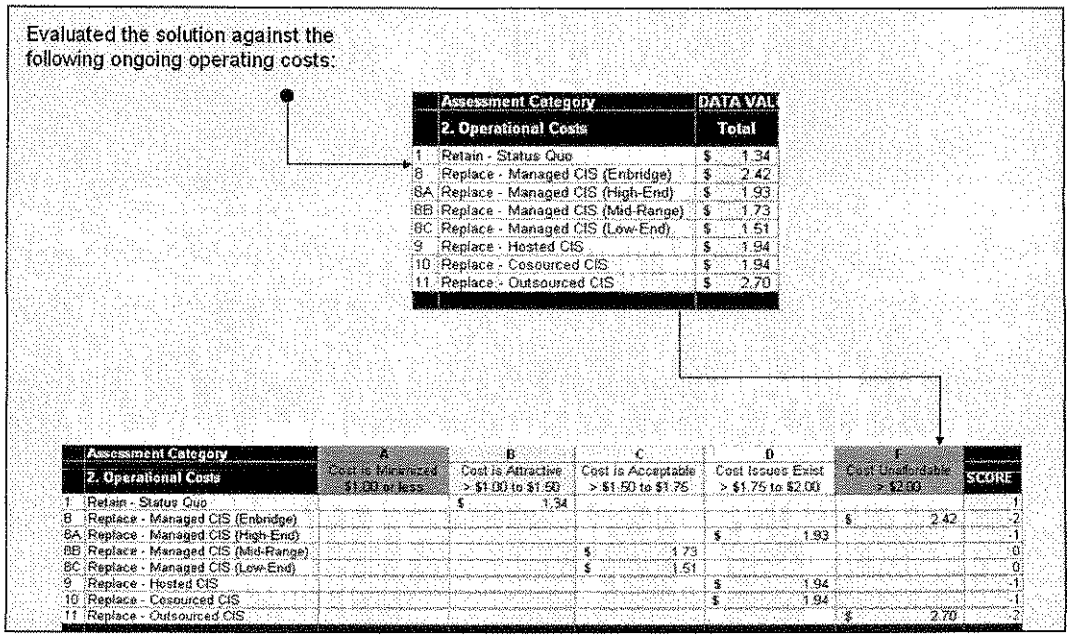
Figure 16: Installation cost analysis

Operational Cost

The costs associated with operating the CIS solution for 30,000 customers on a per customer basis each month.

- Option 1 – Status Quo will continue to incur $1.34 per customer per month to operate the existing billing system.
- Option 8 – Replace with a Managed CIS with Enbridge will cost $2.42 per customer per month to operate the new SAP CCS solution.
- Option 8A – Replace with a Managed CIS High-End Product will cost $1.93 per customer per month to operate the new high-end CIS solution.
- Option 8B – Replace with a Managed CIS Mid-Range Product will cost $1.73 per customer per month to operate the new mid-range CIS solution.
- Option 8C – Replace with a Managed CIS Low-End Product will cost $1.51 per customer per month to operate the new low-end CIS solution.
- Option 9 – Replace with a Hosted CIS will cost $1.94 per customer per month to operate the new hosted CIS solution.
- Option 10 – Replace with a Cosourced CIS will cost $1.94 per customer per month to operate the new cosourced CIS solution.
- Option 11 – Replace with a Outsourced CIS will cost $2.70 per customer per month to operate the new outsourced CIS solution.

The following figure summarizes the operational cost analysis. Based on operational cost the best alternative is option 1, to Retain The Status Quo.



Assessment Category	DATA VAL
2. Operational Costs	Total
1 Retain - Status Quo	$ 1.34
8 Replace - Managed CIS (Enbridge)	$ 2.42
8A Replace - Managed CIS (High-End)	$ 1.93
8B Replace - Managed CIS (Mid-Range)	$ 1.73
8C Replace - Managed CIS (Low-End)	$ 1.51
9 Replace - Hosted CIS	$ 1.94
10 Replace - Cosourced CIS	$ 1.94
11 Replace - Outsourced CIS	$ 2.70

Assessment Category	A	B	C	D	F	
2. Operational Costs	Cost is Minimized $1.00 or less	Cost is Attractive > $1.00 to $1.50	Cost is Acceptable > $1.50 to $1.75	Cost Issues Exist > $1.75 to $2.00	Cost Unaffordable > $2.00	SCORE
1 Retain - Status Quo		$ 1.34				1
8 Replace - Managed CIS (Enbridge)					$ 2.42	2
8A Replace - Managed CIS (High-End)				$ 1.93		1
8B Replace - Managed CIS (Mid-Range)			$ 1.73			0
8C Replace - Managed CIS (Low-End)			$ 1.51			0
9 Replace - Hosted CIS				$ 1.94		1
10 Replace - Cosourced CIS				$ 1.94		1
11 Replace - Outsourced CIS					$ 2.70	2

Figure 17: Operational cost analysis

Installation Timeframe

The timeframe associated with implementing the CIS solution for 30,000 customers.

- Option 1 – Status Quo will require 0 months as it does not require a selection or implementation effort.
- Option 8 – Replace with a Managed CIS with Enbridge will require 15 months to implement a CIS solution.
- Option 8A – Replace with a Managed CIS High-End Product will require 22 months to select and implement a CIS solution.
- Option 8B – Replace with a Managed CIS Mid-Range Product will require 19 months to select and implement a CIS solution.
- Option 8C – Replace with a Managed CIS Low-End Product will require 14 months to select and implement a CIS solution.
- Option 9 – Replace with a Hosted CIS will require 22 months to select and implement a CIS solution.
- Option 10 – Replace with a Cosourced CIS will require 31 months to select and implement a CIS solution.
- Option 11 – Replace with a Outsourced CIS will require 22 months to select and implement a CIS solution.

The following figure summarizes the installation timeframe for the various alternatives. Based on the installation timeframe the best alternative is option 1, to Retain The Status Quo.

Evaluated the solution against the project timeline including:

	Assessment Category	DATA VALUES		
	3. Installation Timeframe	Total	Plan / Select	Install
1	Retain - Status Quo	0	0	0
8	Replace - Managed CIS (Enbridge)	15	0	15
8A	Replace - Managed CIS (High-End)	22	7	15
8B	Replace - Managed CIS (Mid-Range)	19	7	12
8C	Replace - Managed CIS (Low-End)	14	5	9
9	Replace - Hosted CIS	22	7	15
10	Replace - Cosourced CIS	31	12	19
11	Replace - Outsourced CIS	22	7	15

	Assessment Category	A	B	C	D	F	
	3. Installation Timeframe	6 months or less	12 months or less	18 months or less	24 months or less	More than 24 months	SCORE
1	Retain - Status Quo	0					2
8	Replace - Managed CIS (Enbridge)			15			0
8A	Replace - Managed CIS (High-End)				22		-1
8B	Replace - Managed CIS (Mid-Range)				19		-1
8C	Replace - Managed CIS (Low-End)			14			0
9	Replace - Hosted CIS				22		-1
10	Replace - Cosourced CIS					31	-2
11	Replace - Outsourced CIS				22		-1

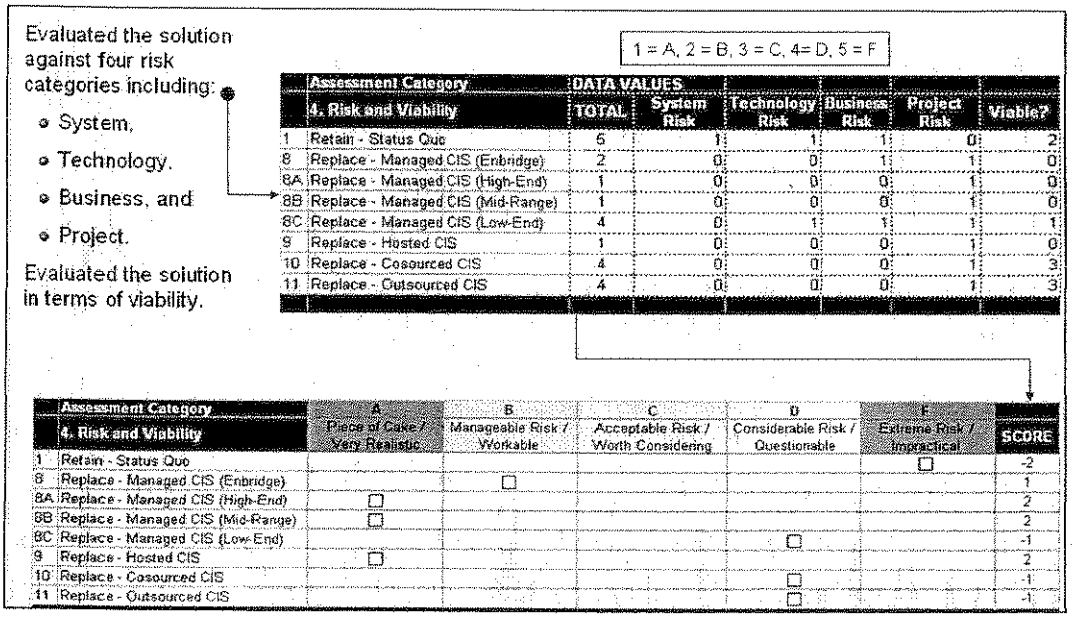
Figure 18: Installation timeframe

Solution Risk and Viability

The viability and risk associated with implementing the CIS solution for 30,000 customers.

- Option 1 – Status Quo is associated with extreme risk and a lack of viability in both the short-term and the long-term.
- Option 8 – Replace with a Managed CIS with Enbridge is associated with manageable risk and a viable solution.
- Option 8A – Replace with a Managed CIS High-End Product is associated with a very realistic and viable solution.
- Option 8B – Replace with a Managed CIS Mid-Range Product is associated with a very realistic and viable solution.
- Option 8C – Replace with a Managed CIS Low-End Product is associated with a risky and very questionable solution. The ability for these solutions to support the business and technology needs of Gazifere is very questionable.
- Option 9 – Replace with a Hosted CIS is associated with a very realistic and viable solution. Most of the contracts being signed in the last 12 months are for hosted solutions.
- Option 10 – Replace with a Cosourced CIS is associated with a risky and very questionable solution. The ability to bring multiple utilities together for a CIS selection and installation effort has proven more costly, risky, and time consuming.
- Option 11 – Replace with a Outsourced CIS is associated with a risky and very questionable solution. The availability of outsourced solutions is low, and their history is poor.

The following figure summarizes the risk and viability analysis. Based on risk and viability the best alternative is option 1, Retain The Status Quo.



Assessment Category	DATA VALUES					
4. Risk and Viability	TOTAL	System Risk	Technology Risk	Business Risk	Project Risk	Viable?
1 Retain - Status Quo	5	1	1	1	0	2
8 Replace - Managed CIS (Enbridge)	2	0	0	1	1	0
8A Replace - Managed CIS (High-End)	1	0	0	0	1	0
8B Replace - Managed CIS (Mid-Range)	1	0	0	0	1	0
8C Replace - Managed CIS (Low-End)	4	0	1	1	1	1
9 Replace - Hosted CIS	1	0	0	0	1	0
10 Replace - Cosourced CIS	4	0	0	0	1	3
11 Replace - Outsourced CIS	4	0	0	0	1	3

Assessment Category	A	B	C	D	F	
4. Risk and Viability	Piece of Cake / Very Realistic	Manageable Risk / Workable	Acceptable Risk / Worth Considering	Considerable Risk / Questionable	Extreme Risk / Impractical	SCORE
1 Retain - Status Quo					☐	-2
8 Replace - Managed CIS (Enbridge)		☐				1
8A Replace - Managed CIS (High-End)	☐					2
8B Replace - Managed CIS (Mid-Range)	☐					2
8C Replace - Managed CIS (Low-End)				☐		-1
9 Replace - Hosted CIS	☐					2
10 Replace - Cosourced CIS				☐		-1
11 Replace - Outsourced CIS				☐		-1

Figure 19: Risk and viability analysis

Resource Utilization

The resources required by the utility to staff the CIS implementation effort for 30,000 customers.

- Option 1 – Status Quo will not incur staffing costs as there will be no implementation effort.
- Option 8 – Replace with a Managed CIS with Enbridge will cost $750,000 and will require 10 FTE during the implementation effort.
- Option 8A – Replace with a Managed CIS High-End Product will cost $450,000 and will require 6 FTE during the implementation effort.
- Option 8B – Replace with a Managed CIS Mid-Range Product will cost $350,000 and will require 5 FTE during the implementation effort.
- Option 8C – Replace with a Managed CIS Low-End Product will cost $160,000 and will require 2 FTE during the implementation effort.
- Option 9 – Replace with a Hosted CIS will cost $450,000 and will require 6 FTE during the implementation effort.
- Option 10 – Replace with a Cosourced CIS will cost $530,000 and will require 7 FTE during the implementation effort.
- Option 11 – Replace with a Outsourced CIS will cost $450,000 and will require 6 FTE during the implementation effort.

The following figure summarizes the operational cost analysis. Based on operational cost the best alternative is option 1, to Retain The Status Quo.

Evaluated the solution against the utility staffing requirements to support the implementation effort.

	Assessment Category	DATA VALUES	
	5. Resource Utilization	Total	FTE
1	Retain - Status Quo	$0	0
8	Replace - Managed CIS (Enbridge)	$750,000	10
8A	Replace - Managed CIS (High-End)	$450,000	6
8B	Replace - Managed CIS (Mid-Range)	$350,000	5
8C	Replace - Managed CIS (Low-End)	$160,000	2
9	Replace - Hosted CIS	$450,000	6
10	Replace - Cosourced CIS	$530,000	7
11	Replace - Outsourced CIS	$450,000	6

	Assessment Category	A	B	C	D	F	
	5. Resource Utilization	No Problem < $100k	Achievable $100k to $300k	Issues To Resolve > $300k to $400k	Significant Issues > $400k to 500k	Cannot Resource > $500k	SCORE
1	Retain - Status Quo	$0.0					1
8	Replace - Managed CIS (Enbridge)					$750,000.0	-2
8A	Replace - Managed CIS (High-End)				$450,000.00		-1
8B	Replace - Managed CIS (Mid-Range)			$350,000.00			0
8C	Replace - Managed CIS (Low-End)		$160,000.00				1
9	Replace - Hosted CIS				$450,000.00		-1
10	Replace - Cosourced CIS					$530,000.0	-2
11	Replace - Outsourced CIS				$450,000.00		-1

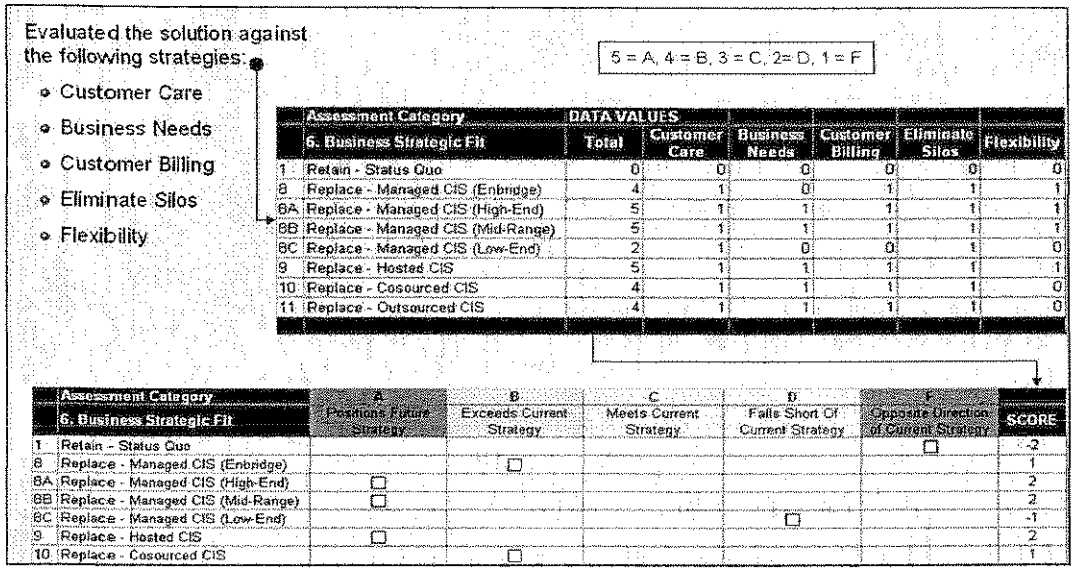
Figure 20: Operational cost analysis

Business Strategic Fit

The business strategic fit associated with implementing and operating a CIS solution for 30,000 customers.

- Option 1 – Status Quo takes Gazifere in an opposite direction from their business strategy.
- Option 8 – Replace with a Managed CIS with Enbridge exceeds Gazifere's current business strategy.
- Option 8A – Replace with a Managed CIS High-End Product exceeds Gazifere's current business strategy and positions them for their future business.
- Option 8B – Replace with a Managed CIS Mid-Range Product exceeds Gazifere's current business strategy and positions them for their future business.
- Option 8C – Replace with a Managed CIS Low-End Product falls short of Gazifere's current and target business strategy.
- Option 9 – Replace with a Hosted CIS exceeds Gazifere's current business strategy and positions them for their future business.
- Option 10 – Replace with a Cosourced CIS exceeds Gazifere's current business strategy.
- Option 11 – Replace with a Outsourced CIS exceeds Gazifere's current business strategy.

The following figure summarizes the business strategic fit analysis. Based on the business strategic fit the best alternatives involve replacement of the current system with either a high-end CIS, a mid-range CIS, or a hosted CIS.



	Assessment Category	DATA VALUES					
	6. Business Strategic Fit	Total	Customer Care	Business Needs	Customer Billing	Eliminate Silos	Flexibility
1	Retain - Status Quo	0	0	0	0	0	0
8	Replace - Managed CIS (Enbridge)	4	1	0	1	1	1
8A	Replace - Managed CIS (High-End)	5	1	1	1	1	1
8B	Replace - Managed CIS (Mid-Range)	5	1	1	1	1	1
8C	Replace - Managed CIS (Low-End)	2	1	0	0	1	0
9	Replace - Hosted CIS	5	1	1	1	1	1
10	Replace - Cosourced CIS	4	1	1	1	1	0
11	Replace - Outsourced CIS	4	1	1	1	1	0

	Assessment Category	A	B	C	D	E	
	6. Business Strategic Fit	Positions Future Strategy	Exceeds Current Strategy	Meets Current Strategy	Falls Short Of Current Strategy	Opposite Direction of Current Strategy	SCORE
1	Retain - Status Quo					☐	-2
8	Replace - Managed CIS (Enbridge)		☐				1
8A	Replace - Managed CIS (High-End)	☐					2
8B	Replace - Managed CIS (Mid-Range)	☐					2
8C	Replace - Managed CIS (Low-End)				☐		-1
9	Replace - Hosted CIS	☐					2
10	Replace - Cosourced CIS		☐				1

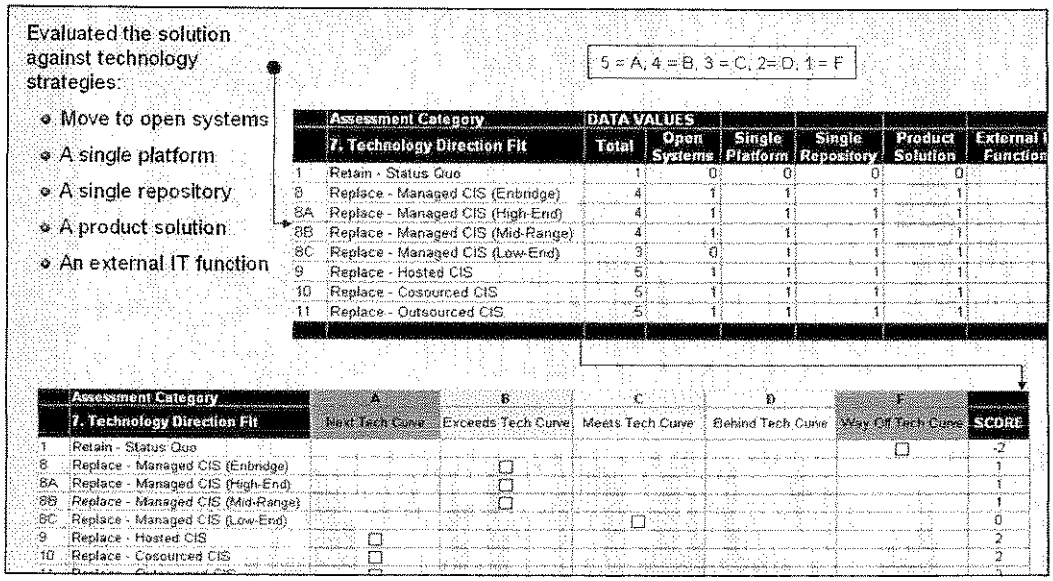
Figure 21: Business strategic fit analysis

Technology Strategic Fit

The technology strategic fit associated with implementing and operating a CIS solution for 30,000 customers.

- Option 1 – Status Quo takes Gazifere way off of the technology curve and direction for the company.
- Option 8 – Replace with a Managed CIS with Enbridge exceeds Gazifere's technology direction.
- Option 8A – Replace with a Managed CIS High-End Product exceeds Gazifere's technology direction.
- Option 8B – Replace with a Managed CIS Mid-Range Product exceeds Gazifere's technology direction.
- Option 8C – Replace with a Managed CIS Low-End Product just meets Gazifere's technology direction.
- Option 9 – Replace with a Hosted CIS exceeds and positions Gazifere to move to the next technology curve.
- Option 10 – Replace with a Cosourced CIS exceeds and positions Gazifere to move to the next technology curve.
- Option 11 – Replace with a Outsourced CIS exceeds and positions Gazifere to move to the next technology curve.

The following figure summarizes the technology strategic fit analysis. Based on the technology strategic fit the best alternatives involve replacement of the current system with a product solution which is operated externally i.e. hosted, cosourced, or outsourced.



Assessment Category	DATA VALUES					
7. Technology Direction Fit	Total	Open Systems	Single Platform	Single Repository	Product Solution	External IT Function
1 Retain - Status Quo	1	0	0	0	0	
8 Replace - Managed CIS (Enbridge)	4	1	1	1	1	
8A Replace - Managed CIS (High-End)	4	1	1	1	1	
8B Replace - Managed CIS (Mid-Range)	4	1	1	1	1	
8C Replace - Managed CIS (Low-End)	3	0	1	1	1	
9 Replace - Hosted CIS	5	1	1	1	1	
10 Replace - Cosourced CIS	5	1	1	1	1	
11 Replace - Outsourced CIS	5	1	1	1	1	

Assessment Category	A	B	C	D	F	
7. Technology Direction Fit	Next Tech Curve	Exceeds Tech Curve	Meets Tech Curve	Behind Tech Curve	Way Off Tech Curve	SCORE
1 Retain - Status Quo					☐	-2
8 Replace - Managed CIS (Enbridge)		☐				1
8A Replace - Managed CIS (High-End)		☐				1
8B Replace - Managed CIS (Mid-Range)		☐				1
8C Replace - Managed CIS (Low-End)			☐			0
9 Replace - Hosted CIS	☐					2
10 Replace - Cosourced CIS	☐					2

Figure 22: Technology strategic fit analysis

Benefits and Improvements

The tangible benefits and improvements associated with operating the CIS solution for 30,000 customers.

- Option 1 – Status Quo will result in no tangible benefits for either internal or external users of the system.
- Option 8 – Replace with a Managed CIS with Enbridge will result in outstanding tangible benefits and improvements to both internal and external users of the system.
- Option 8A – Replace with a Managed CIS High-End Product will result in outstanding tangible benefits and improvements to both internal and external users of the system.
- Option 8B – Replace with a Managed CIS Mid-Range Product will result in outstanding tangible benefits and improvements to both internal and external users of the system.
- Option 8C – Replace with a Managed CIS Low-End Product will not result in any tangible benefits to either internal or external users of the system.
- Option 9 – Replace with a Hosted CIS will realize some tangible benefits and exceed expectations of both internal and external users of the system.
- Option 10 – Replace with a Cosourced CIS will realize some tangible benefits and exceed expectations of both internal and external users of the system.
- Option 11 – Replace with a Outsourced CIS will realize some tangible benefits and exceed expectations of both internal and external users of the system.

The following figure summarizes the benefits and improvements analysis. Based on this analysis the best alternatives involve replacement of the current system with a product solution which is operated internally.

Evaluated the solution against tangible benefits which will be realized by external and internal users of the system.

	Assessment Category	DATA VALUES					
	8. Benefits and Improvements	Total	External Customer	External Regulator	Internal Tech	Internal User	Internal Exec
1	Retain - Status Quo	0	0	0	0	0	0
8	Replace - Managed CIS (Enbridge)	5	1	1	1	1	1
8A	Replace - Managed CIS (High-End)	5	1	1	1	1	1
8B	Replace - Managed CIS (Mid-Range)	5	1	1	1	1	1
8C	Replace - Managed CIS (Low-End)	2	1	1	0	0	0
9	Replace - Hosted CIS	4	1	1	0	1	1
10	Replace - Cosourced CIS	4	1	1	0	1	1
11	Replace - Outsourced CIS	4	1	1	0	1	1

	Assessment Category	A	B	C	D	F	
	8. Benefits and Improvements	Outstanding Benefits / Improve	Exceeds Expectations	Some Tangible Benefits / Improve	No Tangible Benefits	No Benefits or Improvements	SCORE
1	Retain - Status Quo					☐	2
8	Replace - Managed CIS (Enbridge)	☐					2
8A	Replace - Managed CIS (High-End)	☐					2
8B	Replace - Managed CIS (Mid-Range)	☐					2
8C	Replace - Managed CIS (Low-End)				☐		1
9	Replace - Hosted CIS		☐				1
10	Replace - Cosourced CIS		☐				1
11	Replace - Outsourced CIS		☐				1

Figure 23: Benefits and improvements analysis

Return On Investment

The comparison of implementation and operating costs to total benefits for a CIS solution for 30,000 customers.

- Option 1 – Status Quo is a low cost option however, it results in low benefits which should result in a very low ROI.
- Option 8 – Replace with a Managed CIS is a high cost option with a high degree of benefits which should result in a positive ROI.
- Option 8A – Replace with a Managed CIS High-End Product is a high cost option with a high degree of benefits which should result in a positive ROI.
- Option 8B – Replace with a Managed CIS Mid-Range Product is a high cost option with a high degree of benefits which should result in a positive ROI.
- Option 8C – Replace with a Managed CIS Low-End Product is a low cost option however, it results in low benefits which should result in a very low ROI.
- Option 9 – Replace with a Hosted CIS is a high cost option with a high degree of benefits which should result in a positive ROI.
- Option 10 – Replace with a Cosourced CIS is a high cost option with a high degree of benefits which should result in a positive ROI.
- Option 11 – Replace with a Outsourced CIS is a high cost option with a high degree of benefits which should result in a positive ROI.

The following figure summarizes the return on investment analysis. Based on the ROI analysis the best alternatives are associated with implementation of a new CIS solution with the exception of a low-end solution.

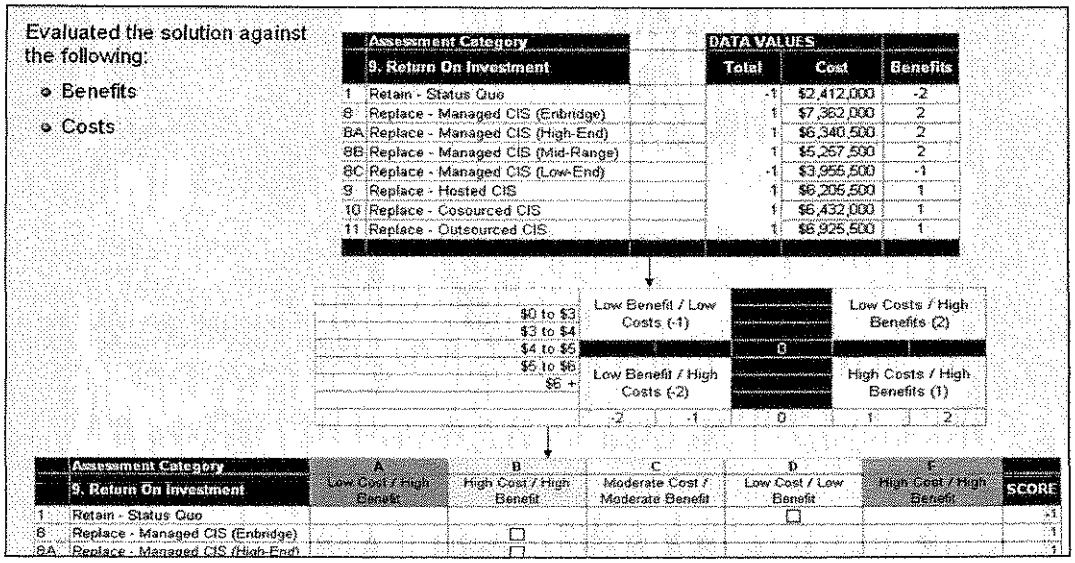


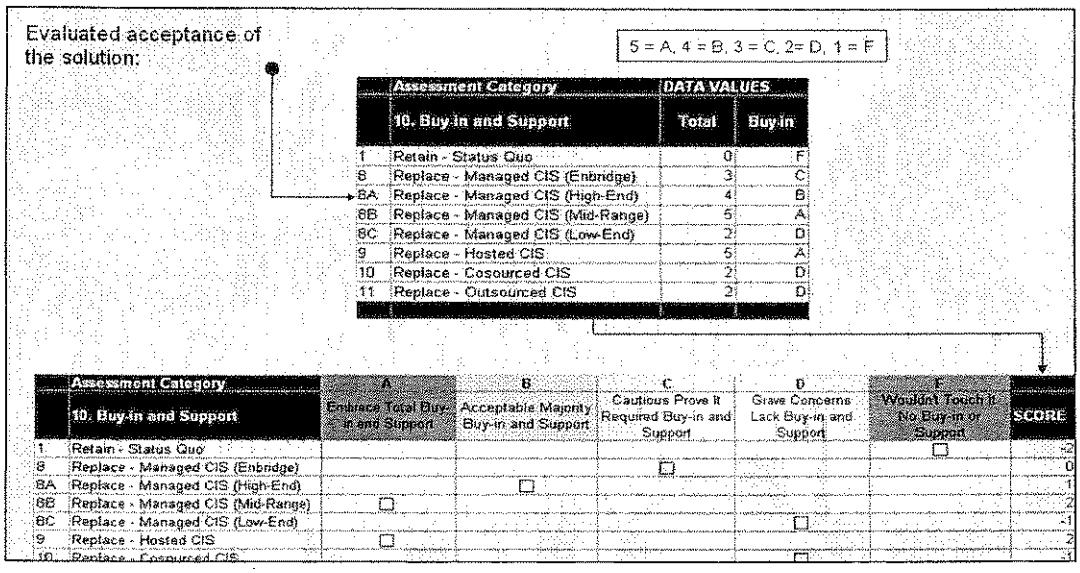
Figure 24: Return on investment analysis

Buy-In and Support

The buy-in and support for the proposed system associated with operating the CIS solution for 30,000 customers.

- Option 1 – Status Quo has absolutely no buy-in or support.
- Option 8 – Replace with a Managed CIS with Enbridge has everyone cautious and guarded.
- Option 8A – Replace with a Managed CIS High-End Product is acceptable.
- Option 8B – Replace with a Managed CIS Mid-Range Product is embraced.
- Option 8C – Replace with a Managed CIS Low-End Product is met with grave concerns.
- Option 9 – Replace with a Hosted CIS is embraced.
- Option 10 – Replace with a Cosourced CIS is met with grave concerns.
- Option 11 – Replace with a Outsourced CIS is met with grave concerns.

The following figure summarizes the buy-in and support analysis. Based on this analysis the best alternative is option 8B – A Managed CIS Mid-Range Product and option 9 – A Hosted CIS.



	Assessment Category	DATA VALUES	
	10. Buy-in and Support	Total	Buy-in
1	Retain - Status Quo	0	F
8	Replace - Managed CIS (Enbridge)	3	C
8A	Replace - Managed CIS (High-End)	4	B
8B	Replace - Managed CIS (Mid-Range)	5	A
8C	Replace - Managed CIS (Low-End)	2	D
9	Replace - Hosted CIS	5	A
10	Replace - Cosourced CIS	2	D
11	Replace - Outsourced CIS	2	D

	Assessment Category	A	B	C	D	E	
	10. Buy-in and Support	Embrace Total Buy-in and Support	Acceptable Majority Buy-in and Support	Cautious Prove It Required Buy-in and Support	Grave Concerns Lack Buy-in and Support	Wouldnt Touch it No Buy-in or Support	SCORE
1	Retain - Status Quo					☐	2
8	Replace - Managed CIS (Enbridge)			☐			0
8A	Replace - Managed CIS (High-End)		☐				1
8B	Replace - Managed CIS (Mid-Range)	☐					2
8C	Replace - Managed CIS (Low-End)				☐		1
9	Replace - Hosted CIS	☐					2
10	Replace - Cosourced CIS				☐		1

Figure 25: Buy-in and support analysis

Score Overview

Based on the analysis of all the 10 criteria across all the solution options, the following is a summary of how total scores were awarded to all the solution options. For a specific solution option, a "Total Award" was calculated by applying weights to scores for each of the criteria, and adding weighted scores for all criteria.

Evaluation Scorecard		1. Installation Costs		2. Operational Costs		3. Installation Timeframe		4. Solution Risk & Viability		5. Resource Utilization		6. Business Strategic Fit		7. Technology Direction Fit		8. Benefits & Improvements		9. Return On Investment		10. Buy-In & Support		Total Award
		Weight	10	Weight	10	Weight	10	Weight	10	Weight	10	Weight	10	Weight	10	Weight	10	Weight	10	Weight	10	100
#	CIS	Fit	Award	Fit	Award	Fit	Award	Fit	Award	Fit	Award	Fit	Award	Fit	Award	Fit	Award	Fit	Award	Fit	Award	
1	Retain - Status Quo	2	20	1	10	2	20	-2	-20	1	10	-2	-20	-2	-20	-2	-20	-1	-10	-2	-20	-50
8	Replace - Managed CIS (Enbridge)	-1	-10	-2	-20	0	0	1	10	-2	-20	1	10	1	10	2	20	1	10	0	0	10
8A	Replace - Managed CIS (High-End)	-1	-10	-1	-10	-1	-10	2	20	-1	-10	2	20	1	10	2	20	1	10	1	10	50
8B	Replace - Managed CIS (Mid-Range	-1	-10	0	0	-1	-10	2	20	0	0	2	20	1	10	2	20	1	10	2	20	80
8C	Replace - Managed CIS (Low-End)	2	20	0	0	0	0	-1	-10	1	10	-1	-10	0	0	-1	-10	-1	-10	-1	-10	-20
9	Replace - Hosted CIS	-1	-10	-1	-10	-1	-10	2	20	-1	-10	2	20	2	20	1	10	1	10	2	20	60
10	Replace - Cosourced CIS	-1	-10	-1	-10	-2	-20	-1	-10	-2	-20	1	10	2	20	1	10	1	10	-1	-10	-30
11	Replace - Outsourced CIS	0	0	-2	-20	-1	-10	-1	-10	-1	-10	1	10	2	20	1	10	1	10	-1	-10	-10

Figure 26: Summary of Scores