



# INFORMATION TECHNOLOGY STRATEGIC PLAN

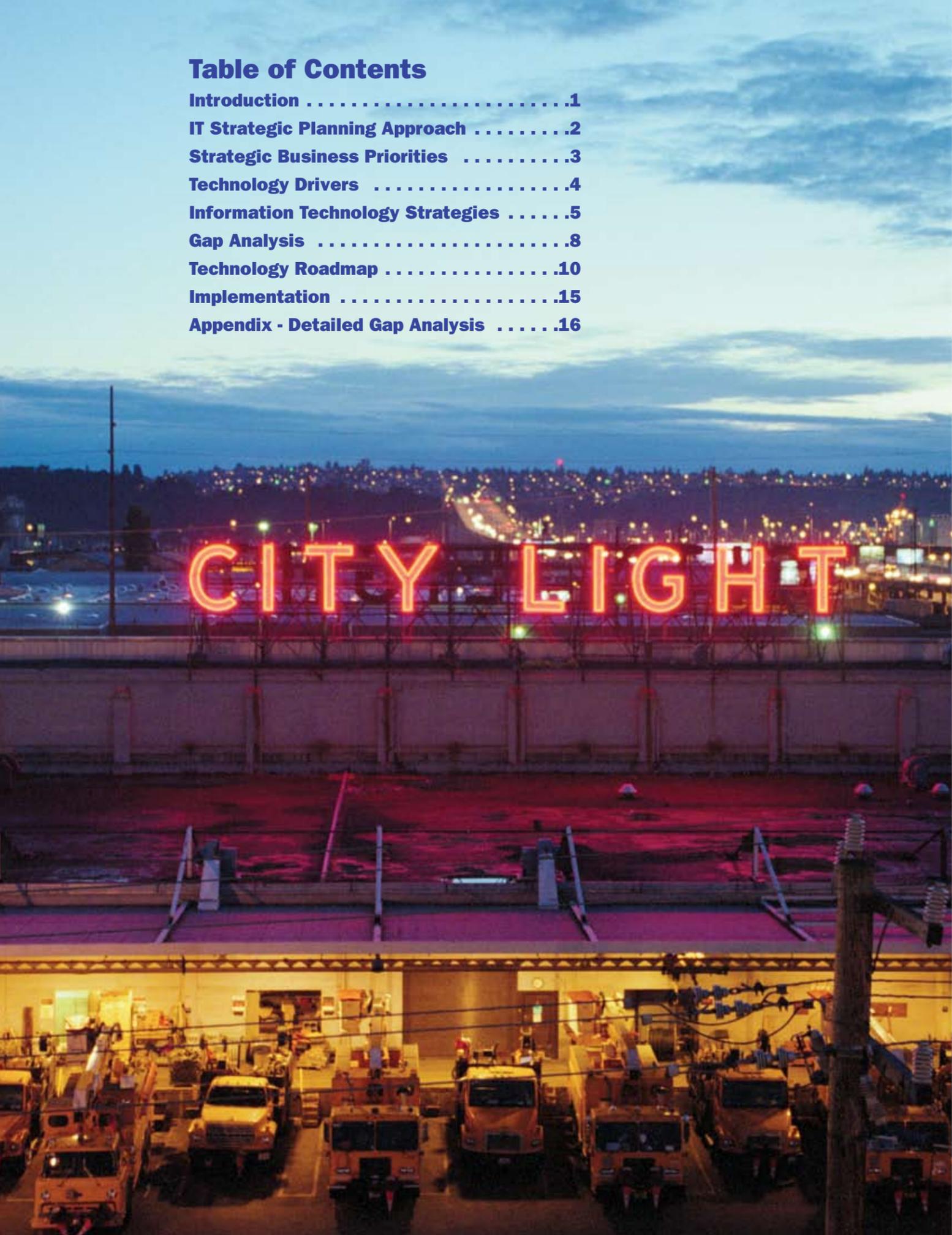
**2008-12**

 **Seattle City Light**

**ITSD**  **Expect Excellence**

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## Introduction

Seattle City Light is in the midst of a long-term industry transformation that has significant technology implications for Seattle’s municipally-owned utility. The electric power environment and energy marketplace are steadily changing from stable and predictable to dynamic and volatile. This is creating unprecedented levels of business risk and uncertainty for City Light. It signals a new era and means that City Light must develop new business capabilities, improve energy efficiency, and aggressively manage energy risk while meeting increasing customer expectations and demand for its product: clean, reliable, low-cost power. There is no doubt that significant, long-term technology investments are required to ensure that City Light thrives within this new set of business realities: modern tools are needed for a modern utility.

Simultaneously, advancements in technology are fundamentally transforming electric utilities as operational and information technologies merge. The advent of the “Smart Grid” signals a future where Information Technology (IT) networks interconnect with the power delivery system to yield real-time business intelligence, drive energy efficiencies, and improve demand management capabilities. Concern over carbon emissions and the rising cost of fuel are driving the electrification of the nation’s transportation grid. As Plug-in Hybrid Electric Vehicles (PHEVs) enter the consumer market, these vehicles will connect to City Light’s power grid and will require appropriately scaled and architected IT solutions. Smart grid advancements will require careful planning and collaboration between IT and operational organizations to build powerful integrated systems that interconnect energy delivery engineering and information technology systems.

New federal regulations governing cyber security are also compounding complexities surrounding information technology at City Light. Federal Energy Regulatory Commission (FERC) mandates call for enterprise-wide cyber security compliance programs and threaten significant fines and penalties by regulating bodies. Historically, regulatory reliability standards have applied primarily to the bulk power system. As the power delivery system becomes fully automated and integrated with traditional information systems through smart grid technologies, IT security protocols and practices must be aligned to adequately address this new technology landscape.

It is clear that City Light will make significant choices about future technology investments within this dynamic and evolving context. The City Light 2008-12 Information Technology Strategic Plan is designed to guide these important decisions. The IT Strategic Plan addresses the next five years, is anchored in City Light’s strategic business priorities, and is consistent with its 10-year Financial Outlook. The IT Strategic Plan is intended to be a dynamic document that will continue to evolve over time and will be updated every two years. In the near term this plan provides a forward looking acquisition strategy that is intended to guide the 2009-10 budget process.

**There is no doubt that significant, long-term technology investments are required to ensure that City Light thrives within this new set of business realities: modern tools are needed for a modern utility.**



# Strategic Business Priorities

City Light's 2008 Strategic Plan, currently under development, identifies five critical strategic business priorities that are needed to achieve the mission of the utility. Together, these long-term focus areas signal where City Light must dedicate resources, devote management attention, and make investment choices, including Information Technology.

<b>Ensure Financial Resilience</b>	To ensure that the utility is financially resilient to protect our customers against the inevitable risks that arise from our hydro dependence and from our many links to the broader power market.
<b>Balanced Resource Portfolio</b>	To develop a cost-efficient portfolio of power resources that fills the needs of our customers with maximum efficiency while meeting all public-policy requirements.
<b>Improved Energy Delivery Infrastructure</b>	To strengthen and improve our energy delivery infrastructure so that it serves as a reliable platform for the increasingly complex customer interactions that will be expected of us, and so that it enables fully the City's economic and social development.
<b>High Performance Team</b>	To build on City Light's existing strengths in ways that transform the utility into a high performance organization-acting as an effective, well-supported team delivering superior customer service.
<b>Environmental Stewardship</b>	To protect and enhance the environment through our choices in power supply, our conservation efforts, our daily operations, and effective environmental programs.

## IT Strategic Planning Approach

The 2008 IT Strategic Plan begins with an overview of City Light's strategic business priorities and emerging technology trends. Together, they represent the relevant drivers that will shape the future of technology at City Light. Within this context, five key Information Technology Strategies are identified. The IT Strategies represent a set of priorities and directions that will be emphasized over the next 3-5 years. As such, the IT Strategies capture the future vision of information technology at City Light.

From here, a Gap Analysis assesses the current technology landscape, vis-a-vis the future vision, and realistically characterizes the position from which improvements can be made. The Gap Analysis forms the basis for the development of a strategic Technology Roadmap. The roadmap identifies major technology initiatives that drive the achievement of the IT Strategies and support City Light's long-term business objectives.

The IT Strategic Plan was undertaken at the direction of the Information Technology Services Division (ITSD) Director and was guided by City Light's IT Strategy Council. The IT Strategy Council is chartered to establish the strategic direction of information technology at City Light. Members include Herb Hogue, Chief Financial Officer; Chris Heimgartner, Customer Service and Energy Delivery Officer; Steve Kern, Power Supply and Environmental Affairs Officer; Jean West, Human Resources Officer; and Roy Lum, Director of Information Technology Services Division. Input was also provided by key stakeholders within City Light and the City.

IT Strategic Planning Process:



We need to know how much product we can produce, acquire, conserve and sustain to meet demand.

Jorge Carrasco  
City Light Superintendent



# Information Technology Strategies

Five key IT strategies are identified that describe the future direction of information technology at City Light. Together, they address City Light’s strategic business objectives and form a vision of the future. Each strategy and their benefits are presented below along with the business priorities that they support: 1) Ensure Financial Resilience, 2) Balanced Resource Portfolio, 3) Improved Energy Delivery Infrastructure, 4) High Performance , and 5) Environmental Stewardship.

## Technology Drivers

Evolutions in the energy sector coupled with aging transmission and distribution infrastructures are causing new technology advancements in the electric utility industry. Many supporting software technologies are maturing to meet the challenges of a real-time utility industry. The mainstream advancements in information management, knowledge management, mobile computing, wireless communication, and solution delivery through a service oriented architecture all promise better performance to an industry that is in the process of streamlining its business processes.

The following technology trends represent new challenges and opportunities surrounding the electric utility technology landscape to which City Light must respond.

### Operational Technology

- Aging infrastructure will be replaced with smart devices
- Field device automation merges operations with back-office systems
- Adoption of distributed energy technologies
- Energy monitoring by smart devices enable customer conservation strategies

### Information Technology

- Service oriented architectures promise greater interoperability of systems
- Ubiquitous, mobile computing enables point of data entry to work location
- NERC/FERC standards will drive increased security investments
- Regulatory changes will impact IT service delivery (e.g. carbon emission reduction monitoring, analytics, and reporting)
- Knowledge management systems facilitate knowledge transfer
- Emerging technologies require investments in technology training

### IT STRATEGIES

**MODERN • REAL-TIME • MOBILE • INTEGRATED • SECURE**

- Consolidate and Modernize Information Technology Solutions
- Enable Real-time Information Across the Utility
- Drive Enterprise Mobile Business Solutions
- Anticipate and Integrate Smart Grid Technologies
- Promote Ubiquitous, Enterprise-wide Information Technology Security

### MODERN

**Consolidate and Modernize Information Technology Solutions**

This strategy reinforces the critical need to replace obsolete legacy systems with a planned set of modern and commercially sustainable technologies that will simplify and ease the interoperability of business solutions across City Light.

### Benefits

- Eases integration of business solutions in support of end-to-end business processes
- Reduces costs of integration and software upgrades
- Shifts risks from City Light to vendors
- Results in a practical number of computing platforms and business solutions to support
- Increases likelihood of acquiring needed technical expertise in the market place

**Ensure Financial Resilience**

**Balanced Resource Portfolio**

**Improved Energy Delivery Infrastructure**

**High Performance Team**

**Environmental Stewardship**

## ITSD Mission

Drive tomorrow’s decisions through relentless delivery of advanced technologies and business solutions.

# Information Technology Strategies

<b>REAL-TIME</b> <b>Enable Real-time Information Across the Utility</b>				
<p>This strategy recognizes the increasingly dynamic and uncertain business environment facing City Light and how information is key to an organization's ability to operate in an agile and customer focused manner. To be of value, information must be accurate, timely, and highly available across all levels of the enterprise. This strategy recognizes the transformational shift to the real-time enterprise with the advent of the Smart Grid. It also acknowledges that information access is a mainstream expectation of City Light customers and business partners.</p> <p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>• Increase agility in sensing and responding to changing business and market conditions</li> <li>• More informed decision making and at lower levels of the organization</li> <li>• Engages the customer in decision-making</li> <li>• Drives continuous improvement by enabling measurement</li> </ul>				
Ensure Financial Resilience	Balanced Resource Portfolio	Improved Energy Delivery Infrastructure	High Performance Team	Environmental Stewardship

<b>MOBILE</b> <b>Drive Enterprise Mobile Business Solutions</b>				
<p>This strategy advocates greater reliance on enterprise mobile solutions to achieve a high performing organization by driving transparency between the office and field. It stresses a common mobile computing architecture to support business and operational functions across the enterprise.</p> <p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Values the timely capture of information at the source</li> <li>• Information access is increased through-out City Light</li> <li>• Productivity and customer service are improved</li> <li>• Eases application interoperability across all wireless devices</li> <li>• Limits wireless devices to a practical number for use by field personnel</li> </ul>				
Ensure Financial Resilience	Balanced Resource Portfolio	Improved Energy Delivery Infrastructure	High Performance Team	Environmental Stewardship

<b>INTEGRATED</b> <b>Anticipate and Integrate Smart Grid Technologies</b>				
<p>This strategy anticipates the transformation of Information Technology through emerging Smart Grid technologies. It recognizes that Smart Grid technologies require integration with IT systems to enable real-time decision-making. Collaboration between IT and City Light operations is key to architecting and building a real-time network that meets the long-term business needs of City Light.</p> <p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• More proactive and agile decision-making by City Light and customer</li> <li>• Quicker diagnosis and response to service disruptions</li> <li>• ITSD prepared to support real-time operational data</li> </ul>				
Ensure Financial Resilience	Balanced Resource Portfolio	Improved Energy Delivery Infrastructure	High Performance Team	Environmental Stewardship

<b>SECURE</b> <b>Promote Ubiquitous, Enterprise-wide Information Technology Security</b>				
<p>This strategy acknowledges the urgency of an enterprise approach to Information Technology security to effectively protect City Light information assets, intellectual property and customer privacy. This strategy recognizes that the Smart Grid is merging information and operational technologies and requiring a broader and comprehensive approach to cyber security. It recognizes the significance of regulatory compliance.</p> <p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Avoid business and operational disruption due to cyber security incidents</li> <li>• Protect information assets and customer privacy</li> <li>• Avoid regulatory fines and penalties</li> </ul>				
Ensure Financial Resilience	Balanced Resource Portfolio	Improved Energy Delivery Infrastructure	High Performance Team	Environmental Stewardship



## Gap Analysis

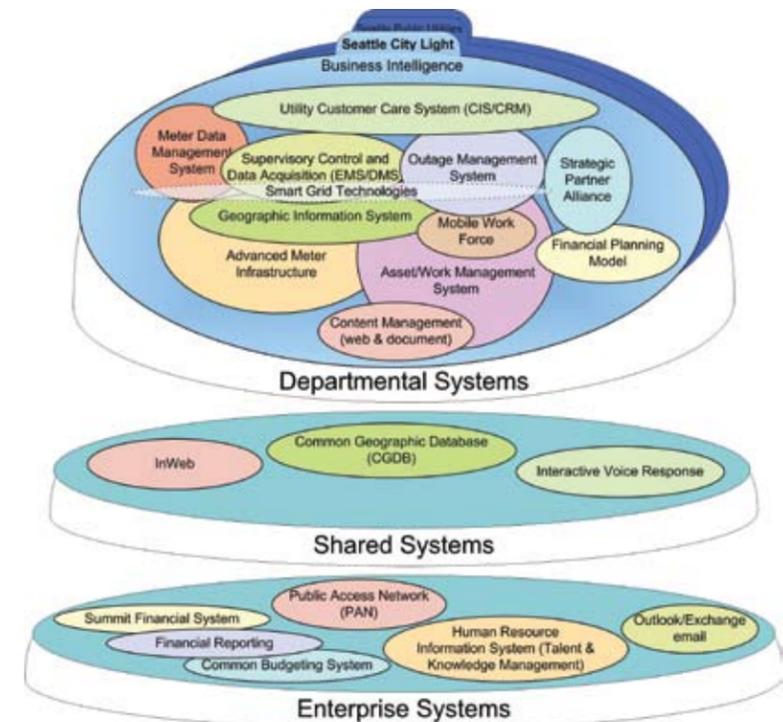
The IT Strategies are intended to move City Light towards a technology future that envisions an architected portfolio of utility oriented and business driven software applications. A comparative assessment known as a Gap Analysis is presented to help determine how to get from where we are today to our **Future Vision**. The Gap Analysis identifies the deficiencies in the **Current State** that are to be mitigated through a series of technology **Objectives**. The objectives are intended to transition City Light to the vision of our future: modern, real-time, mobile, integrated and secure information technology. The Gap Analysis (see appendix) is approached from the perspective of Enterprise Architecture, which recognizes that **Business, Information, Solutions, and Technology** all work together to enable City Light's core mission across its value chain.

City Light's technology landscape exists within an environment that is best described as a three-tiered application architecture within the City of Seattle. This architecture includes 1) Departmental Systems, 2) Shared Systems, and 3) Enterprise Systems. Departments such as City Light acquire and support their own IT systems that drive towards the achievement of their core vision and mission. Shared Systems such as the City's GIS landbase support common business needs that are shared among several city departments. Finally, Enterprise Systems are deployed across the City for use by all departments and include software solutions such as the Summit Financial System, Human Resources Information System (HRIS) and Public Access Network (PAN) internet site. Enterprise Systems are intended to support Citywide business needs and functions. City Light strives for Shared and Enterprise Systems that address the City's broader objectives while also meeting the business needs of the utility. City Light is committed to working proactively with other City departments to realize these goals, attain the greatest business value, and position the utility to achieve its strategic business objectives.

Quality data in the enterprise is like breathable air - you don't truly appreciate it until it's gone.

Rob Karel, Forrester Research

## Future Vision

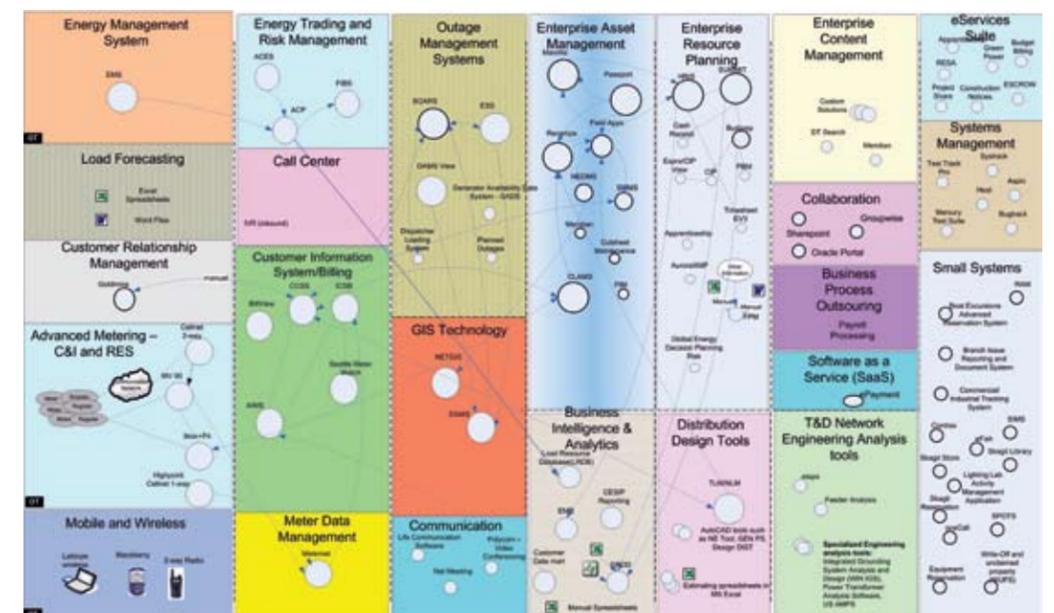


## Objectives

Initiatives designed to move from current state to Future Vision

Business	Information	Solution	Technology
<ul style="list-style-type: none"> <li>Implement Business Process Modeling</li> <li>Focus on Developing Process Models Through Major Business Projects</li> </ul>	<ul style="list-style-type: none"> <li>Implement Information Management Program</li> <li>Practice Data Resource Management</li> <li>Build Information Framework</li> </ul>	<ul style="list-style-type: none"> <li>Develop Solution Footprint</li> <li>Migrate in High Priority Areas</li> </ul>	<ul style="list-style-type: none"> <li>Develop Standard Configurations</li> <li>Consolidate Approaches</li> <li>Design for Business Continuity</li> <li>Service Delivery Governance</li> </ul>

## Current State



# Technology Roadmap

The Technology Roadmap delineates a five year investment strategy for City Light technology. Each technology investment included in the roadmap enables the achievement of City Light's long-term business objectives. At the same time the strategies drive the utility towards its future vision of information technology.

Over the next five years, City Light is poised to invest over \$150 million to overhaul and modernize its technology base. Major upgrades to City of Seattle enterprise solutions will add to these projected costs. For example, the City's migration from Novell GroupWise™ to Microsoft Exchange™ email is estimated to cost \$7 million. The roadmap indicates that upgrades to enterprise solutions provided by the Department of Executive Administration (DEA) such as the Summit financials and Human Resources Information System (HRIS) are also anticipated. However, it is important to note that the projected initiatives, time frames, and costs associated with DEA-provided solutions are very preliminary and reflect rough order of magnitude (ROM) estimates, at best. They are included in the roadmap because of their strategic and budgetary significance.

As indicated by the roadmap, two initiatives comprise most of the outlay over the next five years for a projected, combined cost of \$100+ million: Advanced Meter Infrastructure (AMI), a cornerstone of the Smart Grid; and future replacement of the Consolidated Customer Service System (CCSS), the current utility billing system that supports both City Light and Seattle Public Utilities. The plan calls for the City's utilities to develop a replacement or upgrade strategy in 2009 that stages initial implementation activities at the end of the planning horizon. Underlying the Technology Roadmap is the development of a real-time architecture to support integration of core utility information systems with Smart Grid technologies. Development of City Light's real-time architecture is envisioned to occur in parallel with Smart Grid planning and incorporated into technology acquisition and implementation strategies.



Information Technology Initiatives <sup>1</sup>	2008	2009	2010	2011	2012	ROM Estimate <sup>2,3</sup> Unloaded	Estimate Source	Information Technology Strategies				
								Modern	Real-Time	Mobile	Integrated	Secure
<b>Financial Resilience</b>												
1. Financial Planning System						\$ .35 M	CIP 9915	●	●		●	
2. IT Disaster Recovery						\$ 1 M	CIP 9925 CIP 9211	●				●
3. IT Infrastructure/Security						\$ 15.6 M	CIP 9915	●	●	●	●	●
4. Citywide Summit Financials - Upgrade						\$ 7-10 M	DEA	●				
5. Citywide Common Budget System						\$ 5-7 M	DEA	●				
6. Citywide – Financial Reporting						\$ 7-10M	DEA	●				
<b>Improved Energy Delivery Infrastructure</b>												
7. Outage Management System						\$ 5.2 M	CIP 9942	●	●	●	●	
8. Asset/Work Management System						\$ 30 M	CIP 9940/41	●	●	●	●	
9. Mobile Work Force						\$ 5-7 M	New 10 YFO	●	●	●	●	
10. Advanced Meter Infrastructure						\$ 56.4 M	New 10 YFO	●	●		●	●
11. Smart Grid Technologies – DMS						TBD	New	●	●		●	●
<b>Balanced Resource Portfolio</b>												
12. Strategic Partnership – ETRM						\$ 7.0 M	New 10 YFO	●	●			
13. Smart Grid Technologies – EMS						TBD	New	●	●		●	●
<b>High Performance Team</b>												
14. Business Intelligence – EPM						\$ .5 M	CIP 9933	●	●		●	
15. Utility Customer Care System <sup>4</sup>		Strategy	Requirements	Procure	Begin Implement	\$ 50 M	New 10 YFO CIP 9937	●	●		●	
16. Complex Billing/MDM						\$ .3 M	CIP 9932	●	●		●	
17. Content Management System						\$ 4-5 M	New 10 YFO	●			●	
18. Citywide GroupWise to Exchange						\$ 7 M	DoIT	●				
19. Citywide Talent Management System						in HRIS est	DEA	●			●	
20. Citywide Knowledge Management System						in HRIS est	DEA	●			●	
21. Citywide HRIS Upgrades or Replace						\$ 25-40 M	DEA	●			●	
<b>Environment Stewardship</b>												
22. Conservation Virtual Power Plant						\$ 2 M	Cons Plan	●	●		●	
23. Green IT						TBD	New	●		●		

<sup>1</sup> GIS is not addressed as a separate technology initiative but assumed to be an underlying and integrated element of software solutions requiring GIS capabilities (e.g., OMS, Asset/Work Management, Mobile Work Force, etc.).

<sup>2</sup> Rough Order of Magnitude (ROM) Estimates from either: a) actual CIP when available, b) City Light 10 Year Financial Outlook (10YFO), c) Department of Executive Administration or d) Department of Information Technology.

<sup>3</sup> Citywide initiatives, the ROM reflects the total estimated costs. Historically, City Light has funded approximately 33% of total project costs. DEA timelines, estimated costs, & initiatives are very preliminary, require additional planning, and are subject to change.

<sup>4</sup> The ROM represents the total estimated costs of a CCSS replacement project. If SCL and SPU continue to share a future CIS, assume costs would be shared equally between the two utilities.

City Light – Utility Solutions & Initiatives

Citywide – Enterprise Solution

# Technology Roadmap

Technology Initiative	Description	Strategic Choices
<b>Financial Resilience</b>		
1. Financial Planning System	Replace existing legacy Fortran models with a commercially sustainable financial planning system to support financial forecasting and utility rate setting analyses.	Integrated utility solution. Include in Smart Grid planning to support Time of Use rate setting.
2. IT Disaster Recovery	Identify and update sites that during a disaster, will allow staff to operate and maintain operational capability of the IT corporate network and critical applications infrastructure keeping them on-line and available to the utilities business units during a disaster.	Meet City Light's emergency response strategic objectives. Extend IT DR capabilities to address City of Seattle needs.
3. IT Infrastructure / Security	IT infrastructure provides a stable, reliable and secure City Light computing environment and includes servers, network and communications equipment, disk storage and application/operating system software.	Comply with NERC Cyber Security Critical Infrastructure Protection Standards (CIPS) and remain compatible with City of Seattle. Plan real-time architecture to support Smart Grid to IT systems integration.
4. Citywide Summit Financials - Upgrades	Upgrade Summit, the citywide Peoplesoft financial system.	Work proactively with Summit Project to ensure City Light's business needs are met through the Peoplesoft upgrade. Pursue City Light software solution to address gaps, if necessary.
5. Citywide Common Budget System	Replace REM with PeopleSoft budget preparation solution for all City departments to use or to feed data into.	Work proactively with Summit Project to ensure City Light's O&M and capital budgeting needs are met through the Peoplesoft solution. Pursue City Light software solution to address gaps, if necessary.
6. Citywide - Financial Reporting	Replace existing Summit Reporting system possibly with Peoplesoft's Enterprise Performance Management module.	Work proactively with Summit Project to ensure City Light's financial reporting needs are met through the Peoplesoft solution. Pursue City Light software solution to address gaps, if necessary.

Technology Initiative	Description	Strategic Choices
<b>Improved Energy Delivery Infrastructure</b>		
7. Outage Management System	Re-engineer business and operational processes to improve the Utility's outage response and restoration procedures. Identify affected customers, prioritize crew restoration activities, and improve customer communications during unplanned outages	Integrated, real-time utility solution. Smart grid planning to determine integration.
8. Asset/Work Management System	Re-engineer and automate work management processes to achieve greater cost effectiveness by increased operational efficiencies including lengthening the life and optimizing the operation of City Light's physical assets.	Integrated, real-time utility solution. Smart grid planning to determine integration.
9. Mobile Work Force	Re-engineer business and operational processes and provide uniform technology platform to support activities performed in the field and provide greater access to information by all field personnel.	Integrated, real-time utility solution. Smart grid planning to determine integration.
10. Advanced Meter Infrastructure	Provides two-way communication system throughout the City Light service territory to automate the collection of time-based consumption and billing data from all electric meters. Provides new demand management capabilities.	Integrated, real-time utility solution. Smart grid planning to determine integration.
11. Smart Grid Technologies - Distribution Management System	Implement Smart Grid capabilities throughout the distribution network to provide real-time information about power delivery system, aggregate load, & customer usage and also perform automated bulk power system operations.	Integrated, real-time utility solution. Smart Grid planning to determine scope and integration.

<b>Balanced Resource Portfolio</b>		
12. Strategic Partnership- Energy Trading Risk Management (ETRM)	Strengthen power risk management and wholesale market capabilities with industry-competitive tools and resources.	Software and Process as a Service or City Light performed functions and owned software solutions or viable mixture. Smart Grid planning and integration.
13. Smart Grid Technologies - Energy Management System	Upgrade SCADA and Energy Management System to incorporate Smart Grid capabilities.	Integrated real-time utility solution. Smart Grid planning to determine scope and integration.

# Technology Roadmap



Technology Initiative	Description	Strategic Choices
<b>High Performance Team</b>		
14. Business Intelligence	Part of City Light’s Corporate Performance program that will implement key performance indicators and provide timely and accurate information for management decision-making.	Integrated utility solution. Smart grid planning to determine integration.
15. Utility Customer Care System	Replace existing Consolidated Customer Service System and complex billing system with comprehensive utility customer care solution.	Replace existing Consolidated Customer Service System and complex billing system with comprehensive utility customer care solution.
16. Complex Billing/Meter Data Management	Automated system used to produce bills for commercial and industrial customers. Anticipate new CIS/CRM to replace existing solution.	Integrated, real-time utility solution. Smart grid planning to determine integration.
17. Content Management System (web & document)	Implement a department solution that enables storage, revision control, archiving, disposing, retrieving, distribution, and sharing web page content and documents	Pan/InWeb compatibility.
18. Citywide GroupWise to Exchange Migration - GEM	Citywide replacement of GroupWise with Microsoft Outlook/Exchange eMail.	Implementation that complies with NERC regulatory requirements.
19. Citywide Talent Management System	An integrated solution to assist HR in managing data associated with recruiting, hiring, selection, electronic employee files, performance management, succession planning, employee development and training.	Work proactively with HRIS Team to ensure City Light’s business needs are met through an enterprise Talent Management solution. Pursue City Light software solution to address gaps, if necessary.
20. Citywide Knowledge Management System	An integrated solution to enable HR to drive the documentation and organized retention of City Light’s business knowledge from key resources.	Work proactively with HRIS Team to ensure City Light’s business needs are met through an enterprise Knowledge Management solution. Pursue City Light software solution to address gaps, if necessary
21. Citywide HRIS Replacement	Enhance or replace the Citywide Human Resource Information System.	Work proactively with HRIS Team to ensure City Light’s business needs are met through an enterprise HRIS replacement project. Pursue City Light software solution to address gaps, if necessary.
<b>Environmental Stewardship</b>		
22. Conservation Virtual Power Plant	Integrated IT solution for planning, managing, reporting and verifying energy savings programs at different levels.	Work proactively with the Conservation Resource division to identify the short and long term information management needs and technology strategies.
23. Green IT	Implement a program that reduces the power used by City Light PCs, monitors, printers, servers, and other office equipment.	Identify procurement and behavioral strategies to reduce environmental footprint of City Light’s information technology.

## Implementation

The primary purpose of the plan is to guide information technology investment decision-making. At City Light, major technology investments are prioritized and approved by the City Light IT Strategy Council. This governance body ensures that new technology acquisitions are made from an enterprise perspective, reflect a strategic viewpoint, and reinforce City Light business priorities. Specifically, the IT Strategy Council is chartered to:

*“...direct and advise staff in the development of a prioritized and effective plan for ensuring that effective information technology systems and tools are acquired or developed to meet the needs of Seattle City Light. This Council will provide oversight of philosophy, strategy, and direction for budgeting and management of technology solutions.”*

The IT Strategic Plan describes a set of transforming strategies and specific technology initiatives intended to enable the achievement of City Light’s long-term business objectives. The plan addresses the next five years and will be updated every two years to reflect changing business circumstances.

In accordance with their charter, implementation of the plan will be steered by the IT Strategy Council. Their oversight ensures that technology initiatives outlined in this plan are staged and implemented to yield the greatest business value to City Light. The City of Seattle’s Municipal Information Technology Investment Evaluation (MITIE) process will provide additional oversight to ensure that City Light technology acquisitions remain compatible with the long-term strategies of the City. Finally, the Information Technology Services Division (ITSD) is well positioned to support the implementation of this plan through its Project Management Office (PMO) and Enterprise Architecture program. The ITSD PMO drives software solution implementation and delivery through a set of IT project management best practices. Enterprise Architecture ensures that new technology acquisitions reinforce strategic intent through targeted compatibility with IT principles, policies and standards.

### Integrating IT & OT

promises innovation and improved performance.

**Gartner, Inc.**

# Detailed Gap Analysis APPENDIX

The Gap Analysis separates four subject areas for evaluating City Light's technology Future Vision for the next 5 years. The Gap Analysis enumerates the deficiencies in the Current State that are to be mitigated through initiatives as we work toward building a modern, real-time, mobile, secure, and integrated future technology vision.

## Architectural Domains

The **Business** domain describes Seattle City Light's fundamental processes required to perform in the energy marketplace.

The **Information** domain contains and manages all data used within Seattle City Light to perform its functions.

The **Solution** domain encompasses the software systems used to manage information and support business processes.

The **Technology** domain constitutes the underlying IT infrastructure required to deliver software solutions and information.



## Future Vision

The Future Vision describes, at a high level, the end state of Information Technology development from the perspective of each architectural area. The future vision provides insights into business capabilities, information accessibility, functional solutions, and technology advances that should be realized within the planning period.

## Objectives

The Objectives define the specific action-oriented goals required to move Seattle City Light toward the future vision. The objectives lead to specific initiatives laid out in a road map that will help direct the planning, design, development, and delivery of new information technologies to support the fundamental business activities of the Utility.

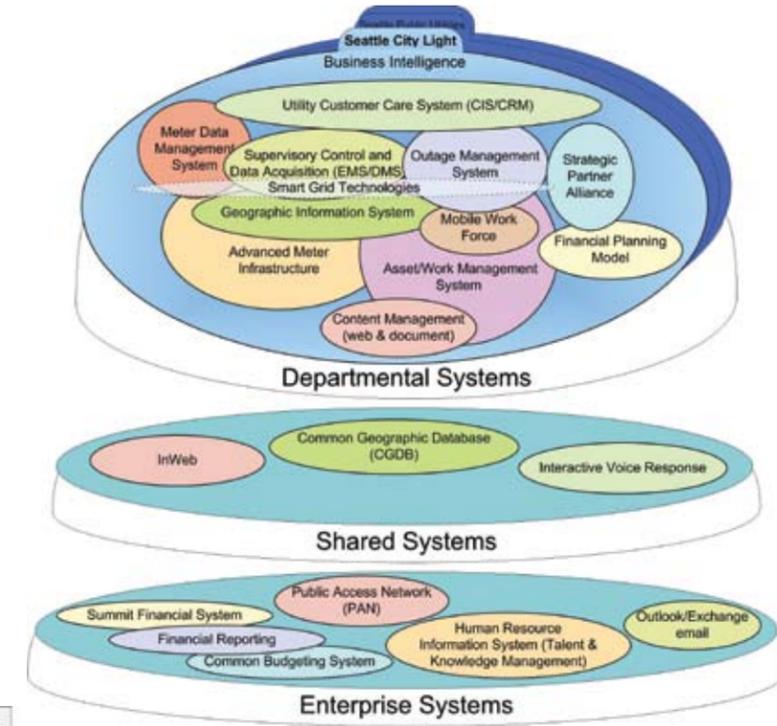
## Current State

The Current State describes the condition of existing Seattle City Light business processes, information, solutions, and technology. The purpose is to realistically characterize the position from which improvements can be made.

Strategic Fit		Modern	Real-Time	Mobile	Secure	Integrated
		Business Driven	●	●	●	●
Service Oriented Architecture	●	●	●	●	●	●

## Future Vision

The Technology Future Vision is an architected portfolio of enterprise oriented applications that enables the Utility to meet its vision and mission through delivery of **business driven solutions** in an information rich and collaborative environment.



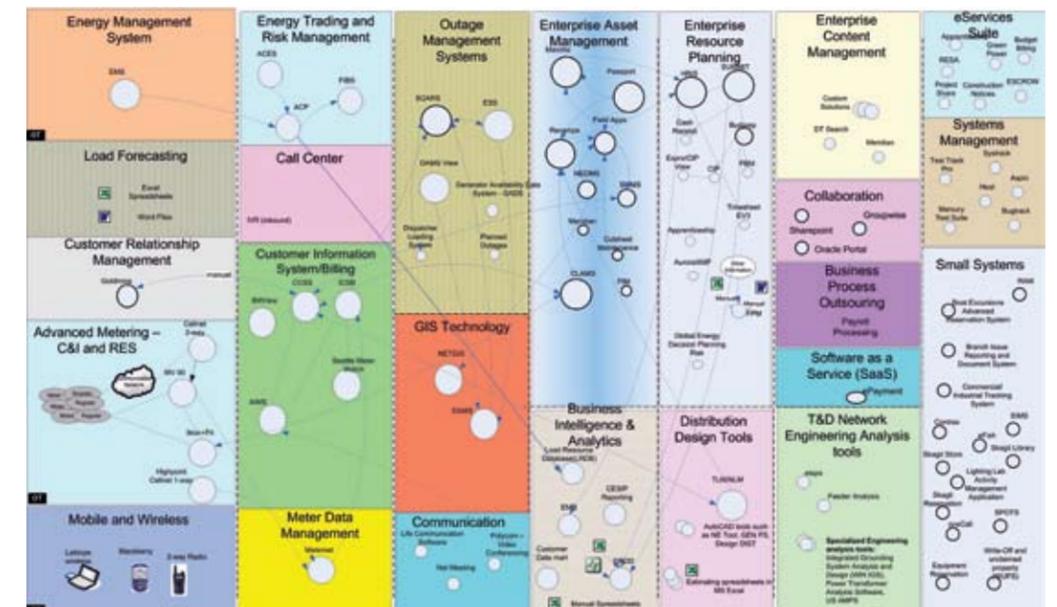
## Objectives

Consolidate systems and maximize interoperability with a **Service Oriented Architecture**.



## Current State

The current business, information, solution, and technology landscape has evolved into a collection of **disparate systems** and data that communicate over many point-to-point interfaces.



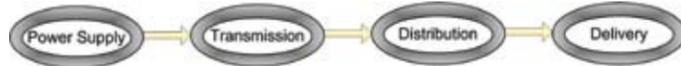
# Business Domain APPENDIX

The **Business** domain describes Seattle City Light's fundamental processes required to perform in the energy marketplace.

## Future Vision

### Business Processes

- Customer focus
- End-to-end business value chain
- Business processes engineered and captured in process models
- Utility managed with consistent processes from field to back office
- Collaborative environment enables more efficient operations

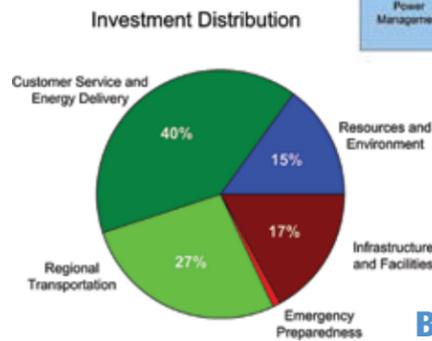
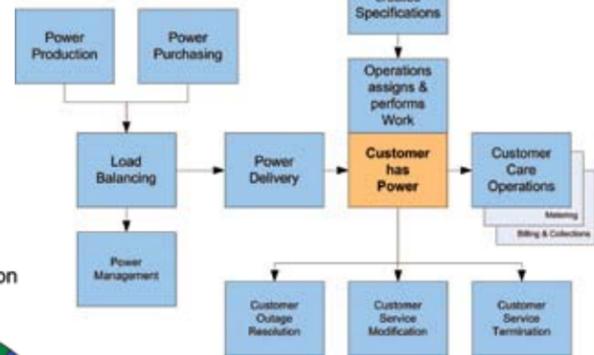
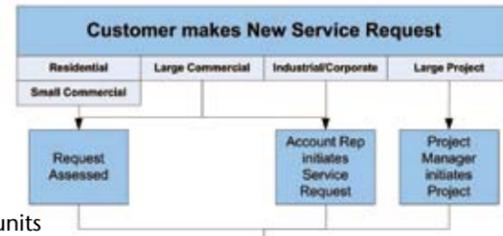


### People

- Workforce enabled with information, training, and skills
- Knowledge management helping to capture critical knowledge assets

### Organization

- Functional collaboration across business units



## Major Investments

Customer Service and Energy Delivery

- North Downtown Substation
- North Downtown Network

Infrastructure and Facilities

- Asset Management Program
- Streetlight Infrastructure Improvements
- Mobile Equipment Upgrades

Emergency Preparedness

- Emergency Response Center
- Outage Management System
- Backup System Control Center

Regional Transportation

- Alaskan Way Viaduct
- Sound Transit North Link

Resources and Environment

- Boundary Mitigation
- Gorge Tunnel

## Business

	Modern	Real-Time	Mobile	Secure	Integrated
Business Processes	●	●			
People	●				
Organization					●

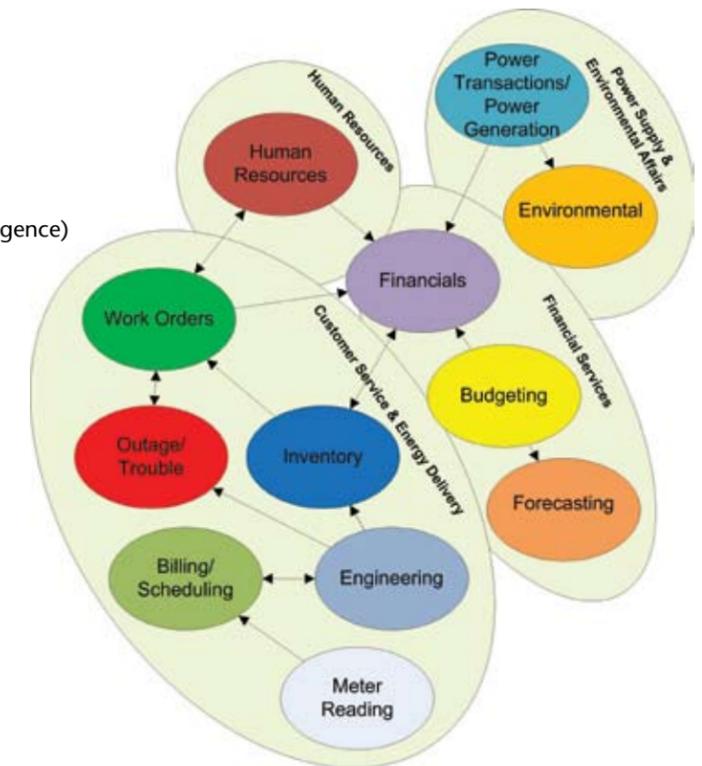
## Objectives

### Implement Business Process Modeling to

- Define and maintain business roles and responsibilities
- Describe functional processes
- Associate information needs with process steps

### Focus on Developing Process Models Through Major Business Projects

- asset improvements and management (Enterprise Asset and Work Management, Business Intelligence)
- customer service enhancements (Customer Relationship, Information, and Billing)
- employee recruitment, training, and retention (Enterprise Resource Planning)
- risk management and strategic partnership (Energy Trading and Risk Management)
- vegetation management (Field Service Management)
- security and emergency operations (Compliance Solutions)



## Current State

### Business Processes

- Multiple processes for accomplishing similar functions
- Field workforce coordinated using dissimilar procedures
- Redundant information capture
- Processes dependent upon organically developed systems (paved cow-path)

### People

- Training and apprenticeship needs recognized
- Workforce aging and business knowledge drain

### Organization

- Transformation of business units
- Work managed differently between units



# Solution Domain APPENDIX

The **Solution** domain encompasses the software systems applied through the business processes to manage information.

## Future Vision

### Energy Industry Solutions

- Integrated applications deliver enterprise business process support
- Solution components reused in cross-functional business applications

### Balanced Application Portfolio

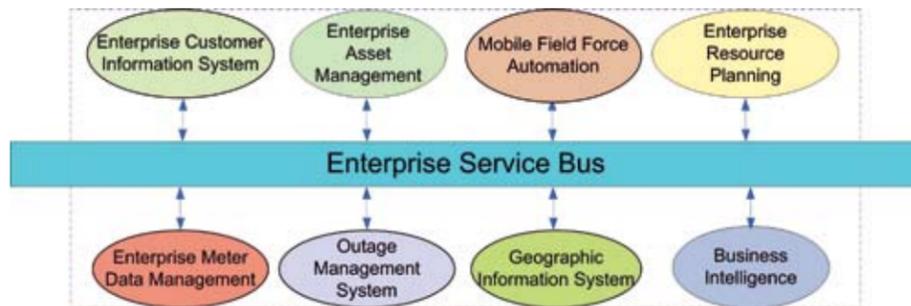
- Primary business requirements met with near real-time capabilities
- Annual assessments of application technology with respect to business strategies

### Service Oriented Architecture/Enterprise Service Bus

- Separation of presentation, business logic, and data within a service consumer/provider model
- Re-engineering of isolated systems to access the enterprise service bus
- Consistency in application delivery, usability, and architecture (e.g. SOA, MVC)

### Mission Critical Solutions

- Disaster recovery systems in place for high availability and fail-over



## Solution

	Modern	Real-Time	Mobile	Secure	Integrated
Energy Industry Solutions	●	●	●	●	●
Balance Application Portfolio	●	●			
Service Oriented Architecture				●	●
Mission Critical Solutions				●	●

## Objectives

### Develop Solution Footprint

- Build vision of solution footprint
- Consolidate overlapping application and engineer shared services
- Introduce application suites to cover broad areas of solution

### Migrate in High Priority Solution Areas

- Outage Management System  
Integrate GIS Technology, PI Server (SCADA), and CIS IVR enhancements, SOARS replacement, ESS repackaging, Mobile Dispatch
- Enterprise Asset Management  
Integrate Work Mgmt, Maintenance, GIS, BI, Finance Business process modeling, EAM system acquisition, Field Service Management
- Corporate Performance Management  
Interoperate with CIS, Work Mgmt, Financial Planning Business Intelligence acquisition, Financial Planning Model, Business process modeling
- Advanced Metering Infrastructure  
Integrate Meter Management, CIS, and OMS Meter Inventory, data collection, validation, editing, and estimation (VEE), load profiling, forecasting, outage detection
- Distribution Management System  
Interoperate with GIS, OMS, AMI Anticipate real-time monitoring of distribution system as an extension of EMS/SCADA.

## Current State

### Mix of vendor and custom solutions

- Integrated product suites integrate business processes
- Enhancement and upgrade path supported industry wide

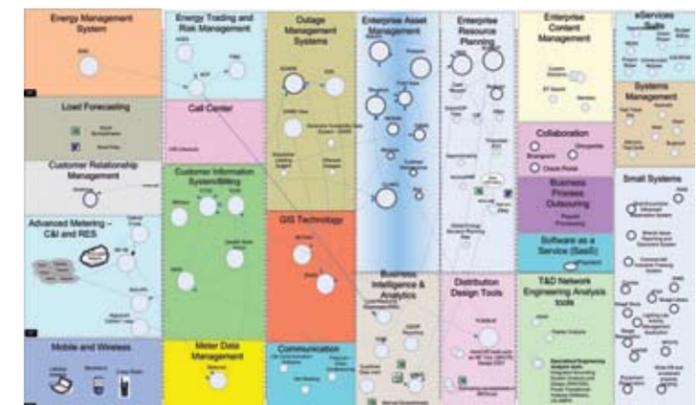
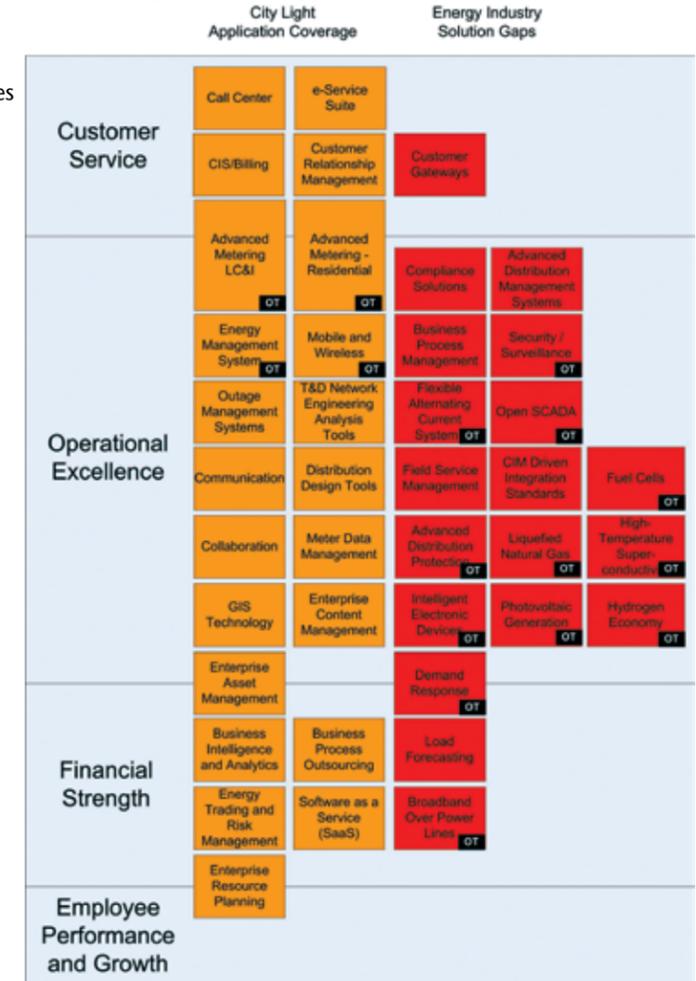
### Application Portfolio

- Project Management Office tracking large projects
- Application governance process in planning phase

### Architecture

- Monolithic applications supporting single process area
- Tight integration between application and database
- Point-to-point system interfaces
- Limited disaster recovery

## City Light – Energy Industry Solution Gaps



# Technology Domain APPENDIX

The **Technology** domain constitutes the enabling information system structures to deliver solutions and information for the business.

## Future Vision

### Service Oriented Architecture

#### Application Presentation, Middleware, and Development

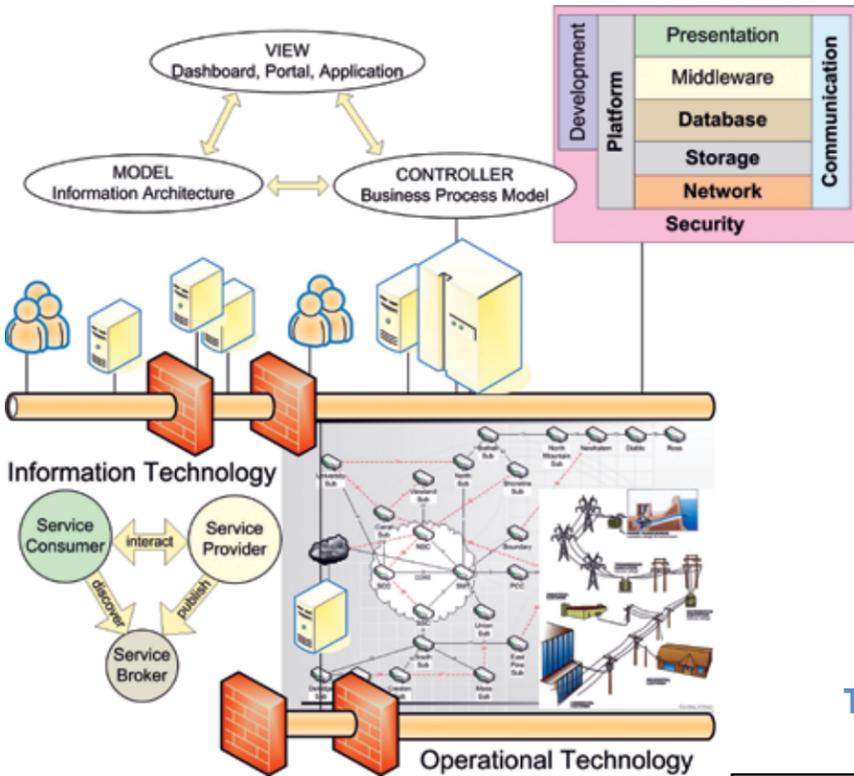
- Portal access to applications, personalized content, and consistent user experience
- Enterprise service bus, web-services, business process execution language
- Configuration management, load management, enterprise architecture

#### Platform, Storage, and Database

- Standard platform configurations: desktop/mobile devices, server virtualization, high availability/failover for mission critical systems
- Local and Metro-Area Storage Area Networks
- XML databases, separate OLTP/OLAP databases, mission critical database support

#### Security, Network, and Communication

- Complete mesh network monitored with analysis and performance reporting
- Virtual Private Network managed internally with redundant external access points
- Compliance with Federal, State, Regional, and other regulatory statutes (e.g. NERC)
- Real-time collaborative systems for text messaging, video conferencing, and team activities



	Modern	Real-Time	Mobile	Secure	Integrated
Service Oriented Architecture	●	●	●	●	●
Presentation, Middleware, Development	●			●	
Platform, Storage, Database	●	●	●	●	
Security, Network Communication			●	●	●

## Objectives

### Develop Standard Configurations

- Presentation templates, design patterns, development environment, and application frameworks
- Development, quality assurance, production, and disaster recovery frameworks
- Server, desktop, handset, and embedded device (OT) standards

### Consolidate Approaches

- Implement an enterprise service bus for SOA interoperability
- Migrate to open standards based middleware environments
- Establish core data stores in OLTP/OLAP/Warehouse paradigm

### Design for Business Continuity

- Ensure consistent security approach through security policy and governance
- Implement disaster recovery systems for business critical solutions
- Develop performance and security monitoring programs

### Service Delivery Governance

- Adhere to ITIL standards for service delivery
- Develop design and architectural guidelines
- Architectural Review Board oversight

## Current State

### Disparate Architecture

- Mostly monolithic applications with point-to-point interfaces on a variety of platforms

### Application Presentation, Middleware, and Development

- Multiple application presentation, middleware, and development environments

### Platform, Storage, and Database

- Server platforms include Linux, Solaris, and Windows
- Storage Area Networks for primary systems
- Database technology varies, some intermingling of OLTP/OLAP, application oriented

### Security, Network, and Communication

- Mesh network build-out in progress
- Multiple communication providers

Standard IT platforms,

application architectures

and communications

protocols are getting wider

acceptance by Operational

Technology vendors.

Gartner, Inc.

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