Intelligent Data Capture as an Onramp for Energy Management

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Today’s Agenda

- Building a Case for Automation
  - Why Energy Business Intelligence is Important
  - Energy Information Capture Challenges

- Interest in Automation - Industry Analysis

- Case Study: Region of Peel
  - Corporate Energy Management Program
  - Problem Background & Business Case
  - Intelligent Capture System for Energy Management Project
Building a Case for Automation
Energy Information Capture

Challenges

• Most organizations here are large users of energy and have significant energy costs associated with your facilities and operations

• Deregulation of both electricity and natural gas markets have increased the need for reliable and cost effective energy supply and management to procure energy in an effective and economical manner
Why Is Energy Business Intelligence Important?

• Businesses typically **spends 30%+ more** than needed on energy (EPA).

• **Peak demand fees/penalties are 25%+ of a total** energy bill for many companies.

• Most companies don’t **know why or when the penalties** are occurring.
A penny saved is a penny earned

Driving energy consumption/costs down is easier for property intensive corporations than driving revenue up to compensate for increasing operation costs.

If you can’t measure it, you can’t improve it
The Green Energy Act

- Anticipated regulatory requirement to report energy consumption of every site in asset portfolios
- Majority of organizations have no record of their consumption
Energy Information Capture

Challenges

- With increasing complexity and choice in utility purchasing and energy management, energy information becomes more important.
- Most organizations are currently only relying on digital reads without any qualified review of consumption matches usage period.
- Metering can only direct the Commodity which is today only 30 percent of the bill or one section of a 5 section bill.
- Accurate and well-maintained data helps
  - make strategic purchase decisions and to negotiate the best value for the energy required.
  - assists to better understand energy usage and to more effectively implement energy efficiency goals.
  - model energy consumption in terms of each firm’s unique key performance indicators (KPI).
Why is Energy Business Intelligence Important

• Tracking actual **real energy usage** from energy data extracted from bills provides useful information to act on
  – verifying utility bills and troubleshooting **billing errors**
  – energy **rate analysis**
  – measure **performance** of energy efficiency projects

• **Billing data provides true energy management data** as it is where the dollars stop

Who has automated the front-end capture of this data?
The A/P Invoices vs Utility Bills

• Typical A/P data collection is only a few standard fields however energy collects many (15 average) non-standard fields.

• Huge variation in bill layout - line labels are not standardized in presentation or terminology

• May receive fewer Utility bills but data entry effort is 4-6 times more
Increasing Interest in Automation
Invoice Processing Costs

Source: PayStream AP Automation Survey 2010

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $1</td>
<td>7%</td>
</tr>
<tr>
<td>$1 - $5</td>
<td>25%</td>
</tr>
<tr>
<td>$6 - $10</td>
<td>12%</td>
</tr>
<tr>
<td>$11 - $15</td>
<td>7%</td>
</tr>
<tr>
<td>Over $15</td>
<td>8%</td>
</tr>
<tr>
<td>We do not measure processing costs</td>
<td>41%</td>
</tr>
</tbody>
</table>
Invoice Processing Cost
Components

A/P payroll: 98%
Operating expenses: 70%
Depreciation/amortization on Investments: 49%
Document handling/storage costs: 44%
Other Payroll: 42%

Source: Aberdeen Group, February 2009
Challenges Inherent to Manual Processes

Breakdown of Invoices via Receipt Method

- eInv: 4%
- EDI: 6%
- Email: 9%
- Paper: 77%

Source: PayStream AP Automation Survey 2010
Challenges Inherent to Manual Processes

Challenges in the Invoice Management Process

- Decentralized invoice receipt: 17%
- High number of discrepancies and exceptions: 17%
- Lost or missing invoices: 21%
- Manual routing of invoices for approval: 50%
- Manual data entry and inefficient processes: 51%
- Majority of invoices received in paper format: 60%

Source: PayStream AP Automation Survey 2010
• Many organizations using scanning systems believe they have an automated system

• But are still spending large amounts of time and money
  – Pre-sorting documents prior to scanning (by department),
  – Adding document separator sheets (patch codes),
  – Manually classifying documents to send them to the correct business process
  – Manually hand-keying data

• High number of discrepancies and errors
Regional Municipality of Peel
Corporate Energy Management (CEM)
Regional Municipality of Peel
Corporate Energy Management

- Second largest municipality in Ontario comprised of two major cities, (Mississauga and Brampton) and one town (Caledon) with a population of 1.3+ million

- Energy Management, formed in 2003, is a section within the Real Property Asset Management division of the Region of Peel manages an annual energy budget in excess of $40 million dollars

- Mandate: To manage the Region's energy portfolio in an economical and sustainable manner, while promoting the wise use of energy to maintain a healthy environment.

- Provides bill validation and bill verification services
  - Keep a complete database of Regional energy accounts that contain all historical and current energy bills.
  - Ensure Peel Region and its taxpayers that they have been charged correctly for their energy consumption.
• In 2002, Ontario moved from a monopoly-based electricity system to a deregulated, competitive electricity market.

• The Region’s billing system was unable to take advantage of the cost breaks afforded by bulk energy purchases in a deregulated market.

• The Region selected and implemented the McKinstry (formerly Itron) Enterprise Energy Management (EEM) Suite to process and manage thousands of utility bills from multiple utility providers.

• Region also required a method to streamline the process of capturing the data off its vendors bills for input to the EEM System.
1. Bills received in A/P are sorted and sent to CEP

2. CEP Staff manually enters data from bills into various XLS files (one per bill format).

3. Data is then copied from the XLS file into a BIF file.

4. All headers are removed and then the BIF file is “saved as” a CSV file and renamed with a “BIF” extension.

5. This file is imported into McKinstry (formerly ITRON), the energy management system.

6. The bills are filed
• 2005 – staff handled 63 active sites
• 2006 - 190 additional locations will become active
  – Additional staff will be required to maintain current data for all 253 locations as well as the historical data.
  – The 253 locations represent approximately 430 electricity and gas bills per month.
• 2007 - residential group accounts with approximately 700 locations will become active in McKinstry

Total of approximately 1190 accounts will need to be processed….19 times current volume.
Regional Municipality of Peel
Business Case - ROI

- Automate manual billing data inputting process and the filing of the bills which will be kept electronically
- 14 month pay back based on next years projected bill volumes without any historical billing data input

<table>
<thead>
<tr>
<th>Manual Steps</th>
<th>Time (min)</th>
<th>OCR Steps</th>
<th>Time (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Find Bills</td>
<td>0.5</td>
<td>Scan Bills (@50 PPM)</td>
<td>0.2</td>
</tr>
<tr>
<td>Determine Bill type</td>
<td>0.2</td>
<td>Validate OCR’d Data</td>
<td>1.0</td>
</tr>
<tr>
<td>Input Data</td>
<td>10.0</td>
<td>Input Data</td>
<td>0.2</td>
</tr>
<tr>
<td>Upload to Itron</td>
<td>5.0</td>
<td>Upload to Itron</td>
<td>0.0</td>
</tr>
<tr>
<td>File Bills</td>
<td>5.0</td>
<td>File Bills</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>Total</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>20.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Min/Month (430 Bills)</td>
<td>8901</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cost ($75.00 per hour)</td>
<td>$11,126.25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$752.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>138.32 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$10,374 per month</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
• Business case - supported within the Utility Bill (natural gas and electricity) Verification and Validation program.

• Original RFP
  – Focused on hardware not software
  – Began looking for a simple image capture, little knowledge of OCR technology

• CEM submitted second RFP - realized that OCR software solution would be best
  – Bills in scope – electricity, natural gas, water
  – Conversion of paper-based invoice/utility bills to electronic document
  – Define pre-set templates for various bill formats (4 major utility companies) with the capability to build 50+
  – OCR predefined sections of bills as per template
  – Ability to flag and correct data capture errors
  – Release of data to a text-based file (CSV, BIF) for upload to external system
  – Release of associated image files for upload to existing DM system

• Only response that met all of the specifications was CDIT
Streamline and automate current manual data entry process of the Region’s incoming energy bills to save time on data entry and focusing on bill verification and validation

Integrating data off the bills into an Energy Management System through OCR deliver outputs (data and documents) in required format

Meeting time sensitive requirements for the delivery of data from utility bills to the Itron Energy Management system for analysis, etc.

Integrating with key systems at the Region, including OpenText Livelink system.

Delivering the solution on time and within budget
Region of Peel’s
Intelligent Capture System for Energy Management
• CDIT was awarded the RFP and proposed a revised approach:
  
  – Dynamic OCR (automatically adjusts positioning based on business rules rather than templates)
    • Ability to capture index fields regardless of format
  
  – Ability to automatically separate and classify documents based on automated detection/recognition of form type
    • Reduce need for manual insertion of ‘separators’
    • Eliminate manual document type selection
• **ANY INPUT FORMAT**
  – Bills arriving via mail, fax or email processed through a single automated interface.

• **ANY BILL FORMAT**
  – The solution can be configured to process any type of energy bill or vendor invoice without fixed templates. All data on these bills can be automatically extracted and validated for accuracy against your EMS, ERP or Accounting System.

• **ANY EMS, ERP**
  – Extracted and Validated data can be exported to any EMS, ERP, Accounting, Document Management and/or Workflow System simultaneously.

ANY INDUSTRY
Utility Bill Energy Services Receives Bills from Accounts Payable

1. Bills are validated and verified

2. Accounts Payable

3. Bill Images & metadata exported to OpenText DM

4. Invoice Images & Metadata

5. Bill Images & metadata exported to OpenText DM

6. Comparison & Analysis Evaluation & Trending

7. LDC / Supplier Coordination

Energy Billing Data Management

Client Reporting

Forecasting

Procurement

Budgeting

Benchmarking

Regional Municipality of Peel

Current System
Invoices & Bills are validated and verified

Invoice Images & Metadata exported to OpenText DM

Invoice & Bill Images & metadata uploaded to EMS Database

Utility Bill uploaded to EMS Database

Discrepancies identified

Rebilling

LDC / Supplier Coordination

Extracted Invoice Data Uploaded to Accounting System

Invoice Images & Metadata

Accounting Data

Accounting System

Client Reporting

Forecasting

Procurement

Budgeting

Benchmarking

Real Time Metering Data

Comparison & Analysis Evaluation & Trending

OpenText Document Management

Regional Municipality of Peel
Energy Billing Data Management

Regional Municipality of Peel
Next Upgrade - 2011
CDIT’s Intelligent Capture for Energy Management

Onramp to Efficient Energy Management

How is your organization collecting Energy bill information today?

- Eliminate the time and cost associated with manual entry of bills into your current PMIS, ERP and/or Accounting system
- Automate the capture and validation of required information from scanned bills/invoices for report transmission formats.
- Cost avoidance and revenue through energy efficiency, enabling your organization to be more sustainable on time, resulting in avoidance of late fees.
- Guaranteed and rapid Return on Investment (ROI).

The accurate and timely tracking of energy information from energy bills is the key to monitoring and managing energy consumption; this function is becoming increasingly strategic to the overall enterprise. The data is required to better understand energy usage and to more effectively implement energy efficiency goals.

Moreover, as legislation has evolved in:
- grid variance in bill formats
- multiple Rate classes
- constantly changing Regulations
- the reliance on paper-based bills
- manual processing methods

For many organizations, particularly large multi-site organizations, collecting accurate data to effectively manage utility costs, and paying utility bills on time sets the stage for payment and related challenges.

The risk of utility billing errors grows with the complexity of an organization and traditional oil capture méthode true cost and opportunity transparency impossible.

Accelerating the capture of information from energy bills and other invoices allows organizations to make strategic procurement decisions and to negotiate the best value for energy products/services.

Intelligent Capture for Energy Management powered by Notable Capable minimizes the manual steps involved with receiving, reviewing, consolidating, data editing, and validating, resulting in a minimum of 50% reduction in the overall front-end processing effort of bills.
Region of Peel – Benefits Achieved
Bill verification and validation is simple

Concentrate efforts on Analysis rather than Data Entry ensuring that:

- the bills are the Regions’,
- each account is in the right rate class,
- billing is correct
- have the pertinent data of the bill in the EMS (McInstry) within 24 hours of receiving the bill

Cost avoidance (late charges/fees)

To date the energy program has successfully realized savings of approximately $32 million dollars through a combination of identified billing errors, cost avoidance (late charges/fees related to bills being paid delayed), and realizing savings through energy procurement strategies
Regional Municipality of Peel
Billing Error Detection Example

• Find errors and take action immediately
  1. received a set of bills from the same utility billing cycle on a Tuesday, by Wednesday morning the bills had been scanned, the data extracted, and imported into the energy management software => 37 element check point.
  2. found that 15 bills had incorrect demand meter readings

• We were then able to contact the utility with account numbers, billing cycle and amount $$$ of over charges to the region.

This lead to finding and recovering $1.5 million dollars in metering and billing errors faster within the first month of implementation of the system.
Solution
Features

**Front-end Scanning, Fax Automation & E-mail**
- Invoices/Bills and Supporting documents (i.e. P/O, Goods Receipt) scanned upon receipt
- Electronic faxes/emails imported automatically – no need to print
- Leverage existing scanners/MFD devices

**Preparation & Q/C**
- Elimination of Date Stamping & Sorting
- No need to rotate, re-order or split pages

**Automated Separation, Classification & Extraction**
- Invoice/Bill Header/Footer information extracted and validated
- Validation against Accounting/EMS/ERP systems – verify Vendor info
- Extracted data made available to Accounting/EMS/ERP systems
- Automate naming of files & saving of documents
- Reporting and audit trails for controls & process management
CDIT Inc. Corporate Overview

Who is CDIT?

A leading architect of **Enterprise Content Management (ECM)** Solutions:
- Business Process Focus
- Leading-edge Technology
- Project Management Expertise

Highly successful ECM implementations in virtually all verticals:
- Financial Services
- Government
- Education
- Healthcare
- Insurance
- Manufacturing...

Extremely well regarded in the industry:
- Credible client references
- Solid partnerships
- Industry Awards
- Vendor Support

Quick Facts

- Founded in 1994, Privately-owned
- Headquartered in Toronto, ON
- Served hundreds of Customers
Some of our Clients

Transit
Region of Peel
The Economical Insurance Group
World Vision
DURA Automotive Systems, Inc.
Ontario College of Teachers
SNC-Lavalin
INCO
Resolve
adidas

SHoppers Drug Mart
Honeywell
OMERS
OSC Ontario Securities Commission
intact
B2B Trust
Home Trust Company
Ontario Power Generation
Ryerson University
ieso
AGF
Mondial Assistance
Bell

noranda
WHSCC
Toronto
LEO Pharma
Ontario

Union Gas
Maple Leaf Foods Inc.

Fisheries and Oceans Canada
Pêches et Océans Canada

Ministry of Consumer and Business Services
Western Forest Products Inc.
Corus Entertainment

What are you doing after work?
The Velocity of Information

- **Collect** – from multiple formats
- **Transform** – automation to reduce costs, increase speed
- **Deliver** – to multiple systems
Questions?