

# Win in the flat world

## Plugging Revenue Leakage in the Utility Industry

– Pradeep Roy

### ***Executive Summary***

*Utilities are continuously under intense pressure from stakeholders to show improved corporate performance despite increasing costs, regulatory pressures and enhanced customer expectations. The need to supplement the existing cash flows by plugging revenue leakage as a low risk, low investment and high impact option has never been more critical. The need of the hour is to make improvements using technology across the utility revenue chain to plug revenue leakage.*



## Challenges for Utilities

As energy prices are hovering at all time historical highs, utilities are under increasing pressure to pass on their increase in fuel and other input costs to their consumers through an increase in rates. Stakeholders also expect utilities to improve service quality and enhance security of supply, which are likely to require increased investment. Also, due to the increasing risks in the business environment, utilities across the world have been facing downgrades from credit rating agencies in recent years. The ratings have stabilized now but they are not moving back towards their earlier levels. As a result, the cost of raising capital for any new expenditure is on the rise, which would further add to the financial woes of the utilities.

From historical rate case regulatory orders, one has observed that regulators typically don't pass down all the cost increases requested by utilities that operate in a regulated market. As numerous stakeholders (e.g. customers, utilities, regulators, media, other interest groups, etc.) participate in any rate case proceedings the regulated utility is under the full glare of intense public scrutiny and the regulator tends to take a balanced view of things which may not always be favorable from the point of view of the utility. While the regulator may allow pass through of some of the increases in utility costs to consumers, the remaining increases in utility costs will have to be recovered by the utility through efficiency improvements or by taking a hit on its profitability.

According to economic theory, competition drives prices to marginal costs if there are several producers and consumers. For utilities that operate in a competitive market, increasing customer expectation and competitive pressures prevent the utility from increasing rates. In response to competitive pressures, such utilities will be always be under pressure to reduce costs and improve operating efficiencies.

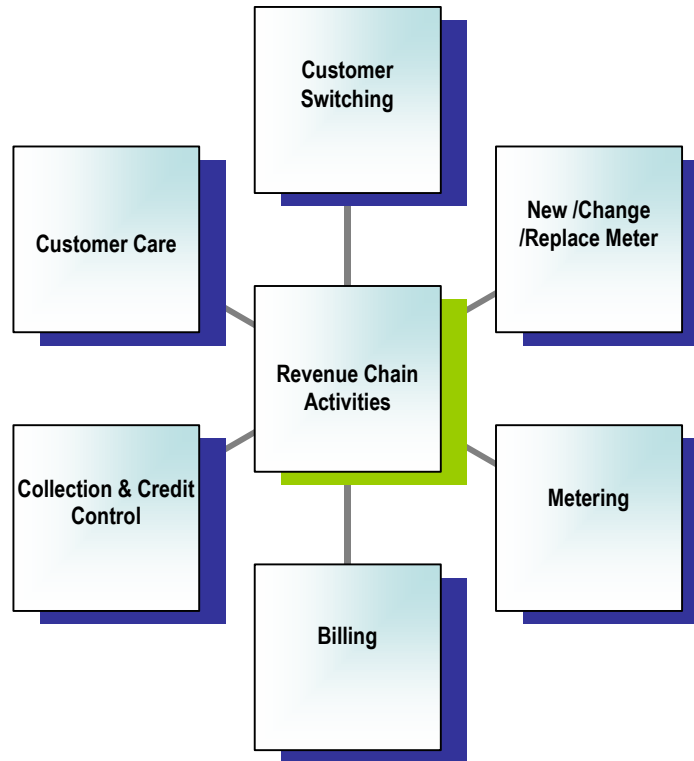
### ***Need to Plug Revenue Leakage***

Given the present scenario, many utilities are under tremendous pressure to manage their finances and need to use all possible avenues to harness capital from alternative channels. Hence it is imperative for utilities to identify activities in their operations where improvements can bring about additional revenues without having to undertake substantial expenditure. There are two activity areas on which the utility needs to focus, one being the network management related activities and the other being commercial activities

In this article we are specifically looking into the commercial activities only and will be discussing how to go about detecting leakage in the utility revenue chain, which could be plugged or reduced without substantial expenditure. Various areas of the utility's commercial activities may be contributing to loss of revenue, apart from theft, such as deficiencies in the internal commercial processes e.g. faulty metering, inadequate billing processes, etc. Studies reveal that revenue leakage in utilities in developed countries accounts for 1 to 5% of their revenue whereas in some developing countries it can be as high as 20%.

## Approach to tackle Revenue Leakage

A typical utility revenue chain is comprised of various processes. Figure 1 provides a snapshot of the key revenue chain processes.

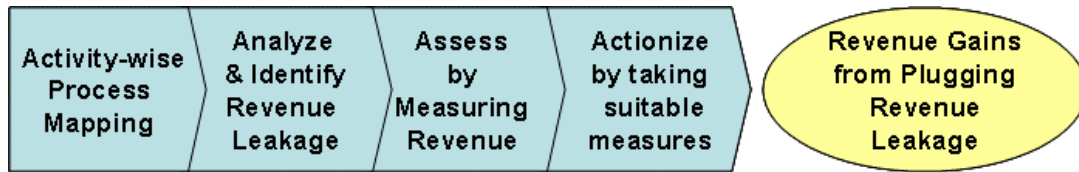


**Figure 1: Revenue Chain**

As there is a possibility of revenue leakage all through the revenue chain, savings from plugging leakage can be realized for all revenue chain processes. The approach towards addressing the revenue leakage problem should begin with the formation of a dedicated cross-functional Revenue Assurance team at the corporate level whose mandate would be to detect and plug revenue leakage in the utility revenue chain in a consistent and systematic manner.

I believe that a utility should adopt a four-stage approach, which I call the **A4 approach** (Figure 2), to attack the problem of revenue leakage. The stages are:

- **Activity-wise** process mapping of the revenue chain activities suspected for revenue leakage
- **Analyze** the processes in the revenue chain and identify the revenue leakage points and ascertain the reasons for it
- **Assess** by measuring the amount of revenue utility may be losing in the said activity and the cost of solving the same
- **Actionize** by prioritizing the measures after finding an implementable solution, keeping in view the cost and benefits to plug the revenue leakage



**Figure 2: Approach to Plug Revenue Leakage**

A generic list of the leakage areas in a typical utility for each of the revenue chain activities is provided in Table 1.

**Table 1: Revenue Leakage Areas**

Key Processes	Key Activities in the Process	Probable Reasons for Leakage
<b>Customer Switching</b>	<ul style="list-style-type: none"> <li>Verifying Credit Score of Customer</li> <li>Preparation of Customer Contract</li> </ul>	<ul style="list-style-type: none"> <li>Delay in entering new customers on billing records/ CIS system</li> <li>Error in customer contract</li> </ul>
<b>New/ Change/ Replace Meter</b>	<ul style="list-style-type: none"> <li>Customer connected load assessment</li> <li>Meter Details Update</li> <li>Meter Calibration</li> </ul>	<ul style="list-style-type: none"> <li>Delay in entering new customer details on billing/ CIS records</li> </ul>
<b>Metering</b>	<ul style="list-style-type: none"> <li>Meter Reading</li> <li>Consumption estimation in case of defective metering</li> <li>Energy Audit</li> </ul>	<ul style="list-style-type: none"> <li>Faulty metering</li> <li>Inadequate metering</li> <li>Non-metering (estimate billing)</li> <li>Tampering / Bypassing of meters</li> <li>Meter reading inadequacies (Non reading of meters, Wrong meter reading)</li> <li>Inaccurate transfer of meter reading data to the billing system (CIS)</li> <li>Errors in estimation approach due to insufficient usage data</li> </ul>
<b>Billing</b>	<ul style="list-style-type: none"> <li>Revised Billing</li> <li>Usage calculation</li> <li>Invoice preparation</li> <li>Delivery of Invoice</li> <li>Exception Reporting</li> </ul>	<ul style="list-style-type: none"> <li>Data entry error (Non-entry/Incorrect data entry)</li> <li>Not being able to raise invoices for all customers</li> <li>Fewer billing cycles in a year</li> <li>Application of wrong rate</li> <li>Billing system errors</li> <li>Bugs in CIS system</li> <li>Delay in delivery of bills/invoice</li> <li>Non-delivery of bills of bills/invoice</li> </ul>
<b>Collection &amp; Credit Control</b>	<ul style="list-style-type: none"> <li>Integrating multi-modal payment options</li> <li>Reconciliation</li> <li>Deposit Management</li> <li>Payment Extension/Arrangement</li> <li>Disconnections</li> <li>Customer Analytics</li> </ul>	<ul style="list-style-type: none"> <li>Flaws in collection/recovery systems</li> <li>Reconciliation problems</li> <li>Delays in processing remittances</li> <li>Prioritization of disconnection</li> <li>Idle consumption</li> <li>Proper tracking of payment</li> <li>Issues in terms of inactive accounts</li> <li>Inadequate customer rating systems</li> <li>Customer payment defaults</li> <li>Inadequate enforcement mechanism</li> </ul>

The Revenue Assurance team of the utility would thus need to map the processes, detect the leakage points and measure the leakage. The performance metrics of this team should be measurable in terms of savings to the utility.

## **IT as an Enabler**

Today, application of appropriate technologies can help tackle revenue leakage much more efficiently than ever before. This new drive to plug leakage also overlaps with stringent regulatory compliance guidelines of federal, state and local regulatory agencies in the form of practice directions, standards, codes, rules and regulations, and also to enable compliance to the Sarbanes-Oxley Act. Utilities are now vigorously looking out for the right Information Technology (IT) based solutions which will offer them superior control, tracking, reporting, minimize human interface, automate manual processes, improve billing accuracy, reduce billing related disputes with customers and provide security to curb revenue leakage in the revenue chain. But before installing robust IT based systems it is essential for utilities to design, develop and implement robust processes. Let us examine some of the IT enabling issues more closely:

### ***Application Integration***

Billing, metering and customer care systems are the backbone of the revenue chain. Effective control over the utility operations comes from implementing “best of breed” billing, metering and customer care applications that are robust and reliable. There is also a need for seamless integration of the various IT platforms to allow communication between the metering systems, billing systems, and customer care systems so that all aspects of the revenue chain could be closely monitored thereby reducing the possibility of leakage.

### ***Analytics***

It is necessary for a customer analytics system to sit on a CIS / Billing System to undertake customer analytics as a tool to acquire new customers, retain existing customers, serve the customers better and to minimize revenue leakage. The consumption data of customers in the CIS / Billing System of the utility should be analyzed and exception reports should be generated based on certain predefined parameters such as sudden drop in consumption compared to past average consumption, default history of customer, history of irregularities pertaining to customer meter or connected load, etc. The CIS / Billing System data analytics should enable flagging suspect behavior by customers and subsequently checks should be carried out on such customer premises to determine if there is a possibility of revenue leakage or theft.

### ***Metering and Meter Data Management***

Accurate metering is a key ingredient for plugging revenue leakage. In the case of utilities, electronic metering is a significant enhancement over electromechanical meters, and it helps in reducing leakage, which in turn enhances cash flow. Increased usage of Meter Reading Instruments (MRI) and other handheld devices for the collection of electronic meter data has reduced the possibility of leakage, but still leaves some avenues open for leakage. It is therefore essential that the entire meter data chain starting from the meter to the Customer Information

System (CIS) / Billing System is insulated entirely against any change whether intentional or accidental.

With electronic metering merged with automatic meter reading (AMR) devices and Real Time Energy Meters (RTEM), there has been a quantum jump in terms of addressing the problem of leakage. RTEMs are designed to undertake remote meter reading making use of communication technology and also automatically detect meter tampering in real time. With the advent of remote meter reading, utilities have a potent tool to help ensure that customers are invoiced accurately for the energy delivered and theft is more easily detected and thereby discouraged.

### ***Dashboard for Performance Management***

Given the cost pressures, utilities are committed to continuous performance improvement and the critical enabler behind the successful performance improvement is a comprehensive reporting system that we call a Dashboard. This Dashboard will provide a view to the "Key Performance Indicators" (KPIs) of the commercial operations. The dashboard shall collate data in a consistent manner from many diverse sources across the various commercial functions of the utility and then present it across all parties, from the members of the field staff up to the senior management. From the dashboard, users can drill down to study the performance data in detail and take necessary corrective measures if necessary.

### **Conclusion**

At a time when fuel costs and cost of capital are on the rise, investors are expecting higher returns, and with lesser chances to recover revenue loss in the rate case, it is imperative for all utilities to maximize revenue through a well planned approach towards revenue assurance. We are well aware that the use and integration of a variety of IT based tools as an enabler to better manage the utilities processes, to improve operational efficiency as well as meet regulatory compliance requirements is increasing. Regulated utilities have to realize that they must adopt innovative strategies to prevent revenue leakage and implementing this change for them is no longer a choice but a necessity.

### **About the Author**

**Pradeep Roy** is a Senior Consultant with the Domain Consulting Group of Infosys Technologies Ltd. In his 10 years of service he has worked in the energy & utilities industry as a Management Consultant. He has expertise in business strategy, regulatory & commercial aspects, financial and organizational re-structuring, organizational change management, process improvement, trading and risk management.

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