

# Idaho Power Company

- **AMR Business Case**
- **Automated Meter Reading**
- **Advanced Meter Reading**
- **Mass Deployment Challenges**

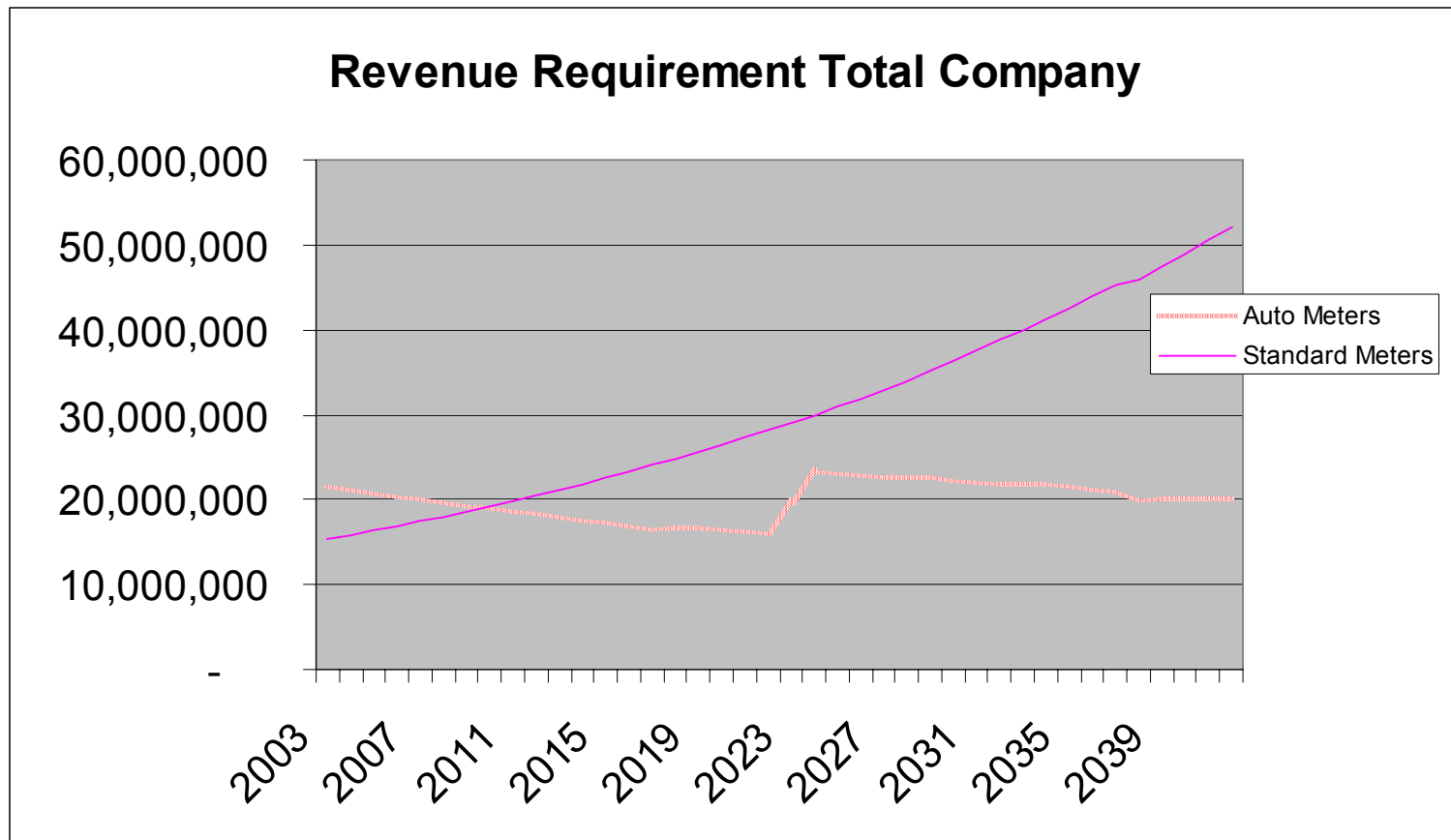
# Business Case Assumptions

- **Not** TOU ready
- Monthly and on demand meter reading
- 40 year analysis – year one implementation
- 4 year implementation analyzed
- Rate case year 1 and every 10 years
- Meter counts increased by current load forecast
- O&M escalated by CPI forecast
- Equipment replaced at the end of useful life
- Old Meters treated as retired

# Business Case Results

- Very Long-Term Strategy
- Revenue requirement higher in early years than manual reading – 40% higher year one
- Large Capital Investment - \$76 Million
  - \$68 M meters
  - \$9 M station equipment & back office
- Positive NPV over a long period
- Long Payback Period - 18 years

# Business Case Revenue Requirement AMR



# Business Case Revenue Requirement

## Total Company 10-Year Revenue Requirement

<u>Year</u>	<u>Auto Meters</u>	<u>Standard Meters</u>
2003	21,619,697	15,434,159
2004	21,121,050	15,848,156
2005	20,728,119	16,352,470
2006	20,354,914	16,862,894
2007	20,005,291	17,405,589
2008	19,662,813	17,971,668
2009	19,313,877	18,558,125
2010	18,975,359	19,174,841
2011	18,646,795	19,824,064
2012	18,300,354	20,487,553
2013	17,945,630	21,168,192

# Business Case Risk

- Regulatory Risk
  - Higher total cost on day one
  - Savings occurs over a long time period
- Breakeven & Payback period
  - Long Term Investment
- Financing & Capital allocation
- Technical Obsolescence
  - New Technologies
  - Vendor issues
- Employee Issues

# “Automated” Meter Reading IPCo

- OMR - Offsite Meter Reading
  - Itron MVRS
  - 2,500 hard to access – offered as option to customers for minimal fee (600)
  - ERT radio module read by hand held monthly on route
- TLP - Telephone Load Profile
  - Itron MV90
  - 350 utility interconnect, special contract, industrial and large commercial
  - Load profile recorder 15 and 30 minute, 45 to 90 days of data, telephone modem
  - TOU on 112 industrial in Idaho

# “Advanced” Meter Reading

- Distribution Control System Inc – Power Line Carrier PLC
  - Two Way Automated Communication System
  - Binary modulation – No amplification, filtering, distance or incremental growth limitations.
  - Voltage outbound signal – current inbound signal
  - All meters display kWh and Peak kW
  - All meters have hourly data in buffers
  - All meters have blink count accumulators
  - Commercial meters have 16 registers available for reading
    - » Error codes, voltage, per phase kW

# PLC Deployment

- Scope
  - 2 operating areas
  - 5 Substations
  - 24,000 meters
- Excluded
  - 4 Substations (single-phase and small)
  - 250 customers
- System - Operations
  - Monthly – billing read, demand reset - 72 hr window – Excellent 99.99%
  - Daily – frozen midnight read & blink count – 24 hrs to retrieve – Very good 99.85% (operational)
  - 8 hour – hourly data buffer retrieval 3 times daily – Challenging 90% (software & operational)

# Services To Be Implemented 2005

- Customer movement reads (automated)
- TOU - CPP
  - Itron EE, MDMS Meter Data Management System
    - » Estimate hourly data from history and daily read
    - » TOU binning
    - » Billing system interfaces
- Timely data feedback to customers (Nexus)
- Residential AC Cycling

# Value Added Services to Be Evaluated 2005

- Energy diversion detection (CFNP monitoring, use on inactive & reverse rotation)
- Outage Management (Century device behind line devices - notification)
  - Blink count (collected on daily read)
  - Scope & Restoration confirmation (polling groups - OMS integration)
- Voltage monitoring (profiling – PI integration)
- Commercial meter troubleshooting
  - Error messages (retrieval & integration)
  - Voltage & kW per phase
- Distribution automation
  - Equipment Monitoring & Control

# Mass Deployment Challenges

- Data collection Systems
  - Hourly data collection (flexible TOU CPP)
    - » AMR software and MDMS software limitations (require development & customization)
    - » AMR hourly data retrieval time – restricts value added implementations (software)
    - » MDMS validation run time – restricts data integration opportunities (software)
    - » Data integration (requires development and customization)

# Mass Deployment Challenges

- System integration
  - Customer information system
    - » Delays in system updates (requires automation of workforce management)
    - » Delays in system interface (require development and customization)
  - Automation & integration with OMS
    - » Failure to update & delay in updating (require development and customization)
  - Customer care system integration (require development and customization)
  - Operational system data integration (require development and customization)
    - » Load, voltage, alarms, control
  - Lack of AMR System and Industry standards make integration extremely difficult.