TESCO METERING

# Lessons Learned from AMI Deployments and Asset Management Readiness

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*Advanced*
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# TESCO Nighthawk

**TESCO and Nighthawk** are a perfect fit. The leader in all things metering now offers the world a leader in affordable AMI metering. Nighthawk is the exclusive home to Adaptiv™, your Solution for AMI Cellular Mesh! Adaptiv™ provides the lowest ownership cost of any AMI provider.

## About Nighthawk

30-years of utility experience

100+ utilities served

Nighthawk

Adaptiv

## About Adaptiv™

Unique zero-infrastructure network

Cellular + Mesh Communications

verizon AT&T 1NCE

**Ideal for either incremental or rapid deployment**

**Lowest total cost of ownership in the industry**

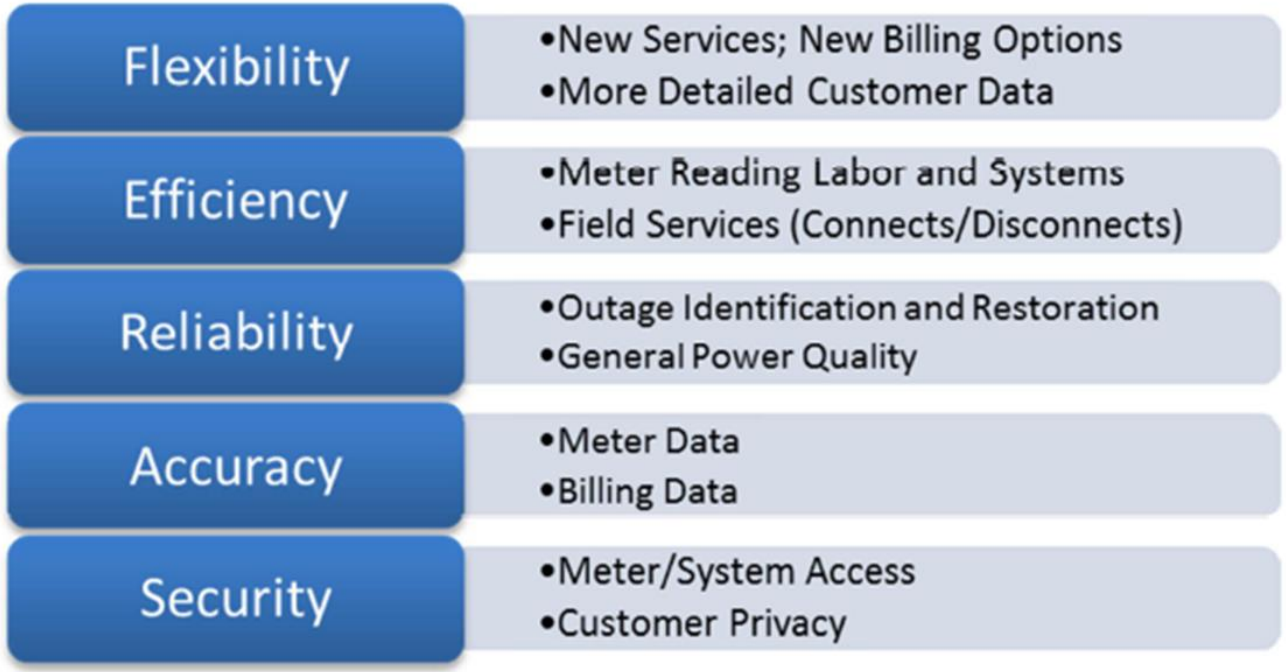
# The Path Forward – Successful AMI Deployment

- Asset management is one of the most complex elements of the utility business and one that is getting the least amount of attention.
- Many utilities' current practices are plagued by rudimentary technologies and outdated strategies.
- One of the biggest risk utilities face on the journey to AMI is the inability to unify applications and data; utilities must address the silo approach to asset management and workforce management
- The following material will hopefully give you insights in what to avoid and expect during your AMI Deployment

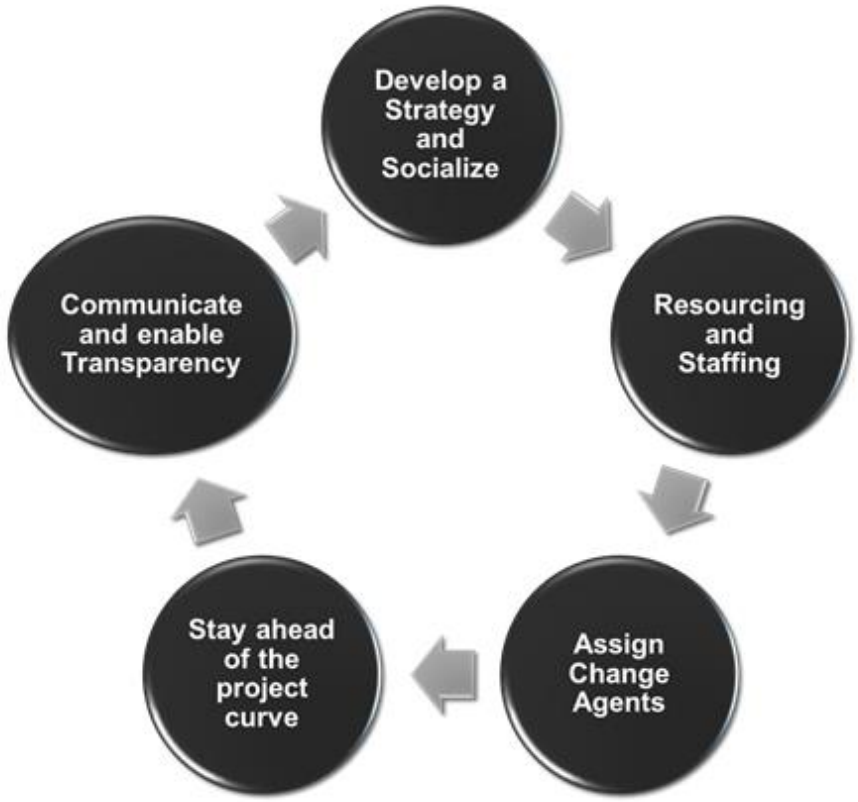
# Business Case Drivers: Quantifiable Targets

Over the last 10 years advanced metering has evolved from an optional technology to one that is widely deployed across the industry.

There are many reasons for this trend, but the basic motivator aims to perform existing operations more reliably and efficiently and provide enhanced customer services and products that are not possible without AMI technology.



# Key Enablers: Customer & Internal Engagement




- Start change management early in the project lifecycle
- Develop a clear strategy up front and implement with focus, including fundamental decisions.
- Provide adequate change management resources
- Link change management efforts to the master project schedule.
- Keep change management efforts ahead of the project curve Provide information using multiple mediums (traditional, electronic, social, etc.) and build in interactive outreach methods.
- Align customer outreach efforts with other utility initiatives to provide cross marketing impact and opportunities for increasing returns.
- Practice timely and transparent communications principles, both internally and externally.

# Cost Reduction Benefits (example)

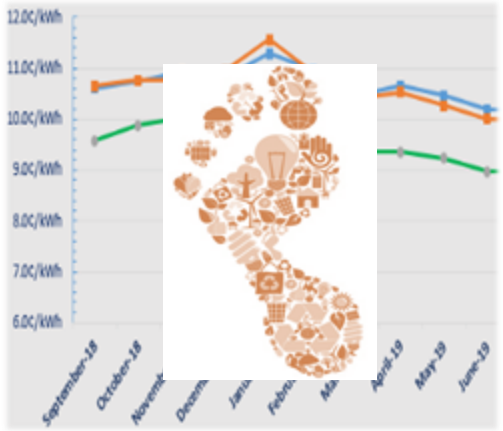
**The following operational activities will benefit from AMI and lead to cost reductions:**

- Meter Reading
  - Manual meter reading function
  - Meter reading support staff functions
- Field Services (e.g. turn-ons & turn-offs)
  - Scheduled turn-on activity
  - Subsequent reattempt trips for disconnect due to access issues
  - All Special Forces trips
  - Disconnects not due to non-payment
- Call Center
- Outage Management (e.g. mutual assistance expenses)
- Interval Metering
- Gas and Electric Meter Capital Replacement Avoided Costs
- Solar Site Metering
- System Retirement and Discontinued AMR Installation Program

# Market the Right Message


**Knowledge is Power**

**Educate the Consumer**




**Compare & Measure Usage**

- ✓ Enabling customers to better manage and reduce their energy costs
- ✓ Improved disputes & settlements
- ✓ Improving system efficiency and resiliency
- ✓ Improve Outage Detection and Restoration
- ✓ Improve Industry Standards Compliance
- ✓ Reduce Carbon Emissions
- ✓ Increased flexibility in rate design

# Preparing for the Work Ahead


Minimum stock levels and the logistics of storing and handling devices

Determine lead times for all required equipment and stock levels to ensure uninterrupted installations

Be able to efficiently handle and process rejected devices and entire shipments (RMAs)

Ability to efficiently process and record functional testing as well as accuracy

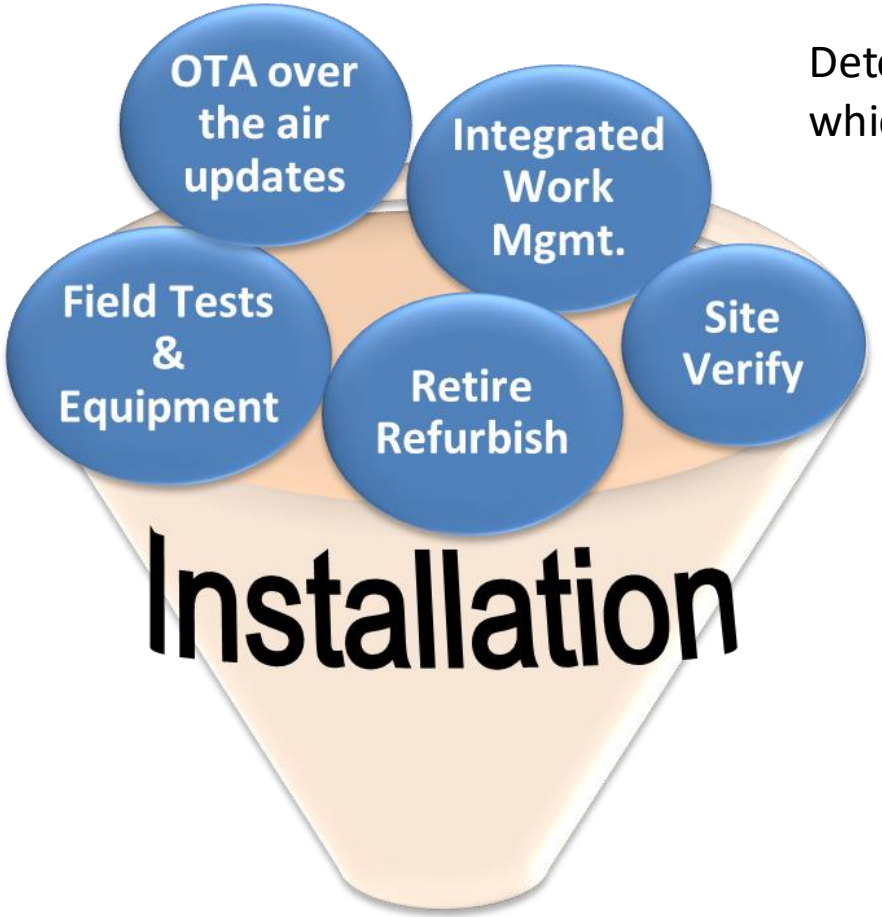
Determine which existing systems will need to updated or replaced and the sequence of work.

Establish system(s) of record for business operations/workflows and know your integration touch points between systems

Thoroughly vet your software, hardware, and installation partners; get references

Efficient processing of retirement, disposal/recycle, and refurbishment of devices

# Delivering Value




Rollout communication network prior to installation

Determine what system records the billing determinants and which processes the data

Tablet/Mobile Capable w/Scanner & Photos to accurately record exchanges, removals & replacements with an AMI Meter

Be aware of network characteristics changes; seasonal &/or growth

Record the GPS Coordinates at the site exchange; Panel Wiring, Transformer Ratios, Turns etc… important for complex installations

Ability to process data from non-metering assets in the field like sensors (Street Light, Methane, Corrosion, Leak Detectors)

System's ability to handle device AMI Data (Firmware, Program ID)

Ability to execute and record exchanges, and tests performed in the field

# Logistics & Meeting Schedule

- ✓ The acceptance testing of meters by the meter shop may be constrained.
- ✓ Meters may not be released for deployment until after AQL (acceptance testing) so any delay may create issues for storage and for available meters for deployment
- ✓ One utility contracted the manufacturer to pull a sample just prior to shipment and perform AQL testing themselves. Saves time and manpower internally, but opens questions on conflict of interest for the manufacturer, real or not
- ✓ One utility had to run triple shifts in the meter shop to get the meters through

MIV (meter installation vendor) creates system challenges

- ✓ How will you inform MIV of meters that will be arriving via dropship or from the utility
- ✓ How will a sample be selected from each shipment for AQL
- ✓ Will the testing be done at the cross-dock of the MIV, or shipped to the meter shop
- ✓ How do you ensure meters are not released before AQL testing is complete

# Rejected, Retirements and RMAs

- ✓ Devices may come back with different communication modules, different attributes
- ✓ What will the status of the devices be in the enterprise systems once the devices are rejected? Many systems prohibit you re-using a serial # that was previously rejected.
- ✓ What needs to be communicated to accounting?

- ✓ Typically a third party tester is used
- ✓ Results must come back to utility
- ✓ Mechanical meters are susceptible to damage if not stored or transported correctly. Failures on retirement due to meter damage may be difficult to explain to your regulatory agency


- ✓ RMAs are always more challenging than expected
- ✓ Volume is higher than anything you have ever dealt with
- ✓ Not only rejected shipments, but meters that fail at installation or shortly thereafter

# Communication, Software and Inventory

Communication problems are often not a meter issue

- ✓ Many times the meters are working fine, but mesh is too weak for communication
- ✓ We see meters being replaced multiple times, with same results
- ✓ In shop testing of “failed” meter, less than half are actually failed
- ✓ Should test meters in house or via a third party before returning to manufacturer


Firmware changes during deployment create difficulty

- ✓ How do ensure new meters are the correct version.
- ✓ Sometimes old version is still shipped, as there is existing inventory
- ✓ Manufacturer may ship new version before acceptance testing is complete
- ✓ Do you update new meters in the shop, or let the update go over the air
- ✓ What about used meters that come back, should you upgrade before sending them out again

Good inventory control can reduce errors in crossed meters, other mistakes

- ✓ Every meter installed should have been consigned to the installer and every removed meter should have been returned by the installer
- ✓ Meters that were removed without a matching work order may be cases where the wrong meter was exchanged
- ✓ Barcode scanning is essential – not for speed, for accuracy
- ✓ Take pictures of the old and new meter

# Questions and Discussion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This presentation can also be found under Meter Conferences and Schools on the TESCO website:
www.tescometering.com

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