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Deployment of Smart Metering across the Electricity, Water and Gas Sectors in Australia

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Agenda

Current Electricity smart metering initiatives in Australia

Opportunities for smart metering to provide value to the Water and Gas sectors

Evolving smart metering into smart grids

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Electricity smart metering initiatives

Victorian AMI Program
National Smart Meter Program
Electricity Smart Metering Initiatives

Victorian AMI Program

Objective

- Establish the technical, business and regulatory infrastructure for deployment of AMI and operation of AMI Services

Achievements

- Functionality and AMI Services Specifications
- Derogation for DNSP as RP for AMI MRIMs until 2014
- Victorian AMI Process Model for new, changed or impacted cross industry processes
- New transactions including efficient meter exchange and OneWayNotification
- Standardised communications to consumers and stakeholders
- Comprehensive testing approach

Victorian AMI Program (2)

Status

- Meter deployment to commence in September 2009
- Industry Testing to commence in September 2009
- First meter deployment communications to Consumers sent

Challenges for Industry

- Flexible deployment approach
  - DNSPs able to deploy meters and commence AMI Services progressively in period up to January 2012
  - AEMO and Retailers need to be ready when market allows activity
- No impact on NEM activities in other jurisdictions
  - National Retailers need to be able to operate inconsistent processes across multiple jurisdictions
  - Changes to data delivery impact on network billing and validation

National Smart Meter Program

Work Stream	Key Objective
Business Requirements	Define and document the Smart Metering Infrastructure (SMI) Functional Specification
Business Process and Procedures	Identify and prepare change requests for NEM Procedures (B2B, Metrology, and MSATS) required to support smart meter services
Regulation	Review regulatory requirements to modify existing regulatory arrangements including changes to the national Electricity Rules and enforceable regulations in the non-NEM jurisdictions to support the rollout of smart meters
Pilots and Trials	Assess the pilots and trials work already undertaken and identify key findings and gaps Coordinate pilots and trials, share results, optimise learning and assess if all aspects of Smart Meters and associated systems, and their impact on network and market operation and customer responses are tested
Testing Framework	Define testing principles, establish testing procedures and processes, develop test cases and test scripts and establish testing tools related to deployment of smart metering

National Smart Meter Program (2)

Key Dates

- December 2010 - Establish the rules and regulations to support the provision of smart metering services
  - National Electricity Rules
  - NEM Procedures (B2B, Metrology, and MSATS)
  - National Energy Consumer Framework (supporting service standards for smart metering services)
- June 2012 - MCE to consider further deployment timelines in all jurisdictions, based on finding of pilots and business cases at that time

Victorian AMI Program outcomes are at risk of being different to the national approach

Electricity Smart Metering Initiatives

EnergyAustralia

- PowerSmart and LoadSmart Programs: installing smart meters to residential and business customers and introducing new pricing with peak, shoulder and off-peak components that is based on ½ hourly data

Country Energy

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Intelligent Network: investment in technology, operations and policy to combat the impact of carbon on Country Energy and its customers. Smart metering will play an important role in driving energy efficiency outcomes where control of smart appliances is enabled by communications delivered through the smart meter

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Opportunities in Water & Gas

Smart Water Metering Drivers Challenge for Gas Sector

Smart Water Metering Drivers

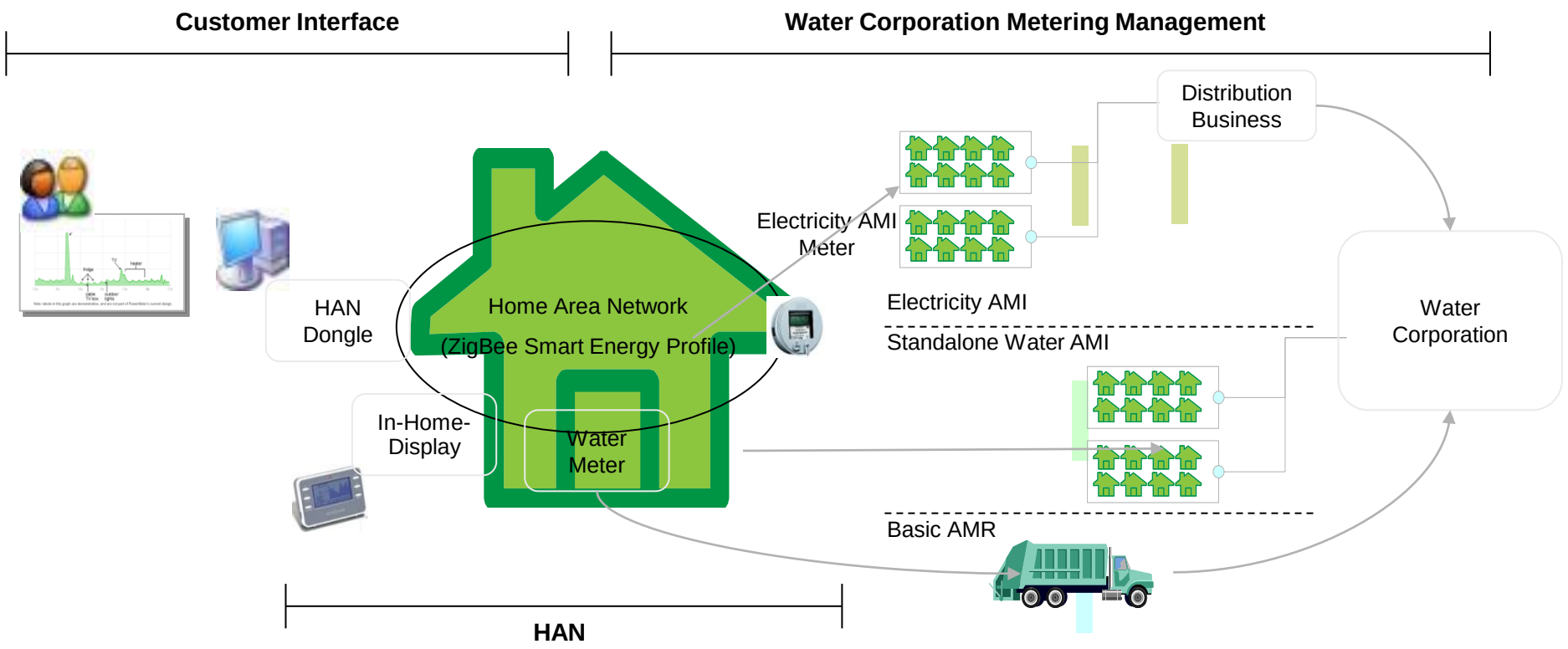
Victorian DSE Smart Water Metering Cost Benefit Study

- Prolonged use of water restrictions due to water shortages across the State is driving consideration of market based solutions to stimulate more efficient water usage
- Market based solutions require more granular data than is provided by accumulation metering
- Awareness of Victorian (electricity) AMI Program and potential to leverage capability

Will water scarcity be a long term issue outside Victoria? If so, what is the appropriate response?

Smart Water Metering Approaches

Smart Water Metering Elements



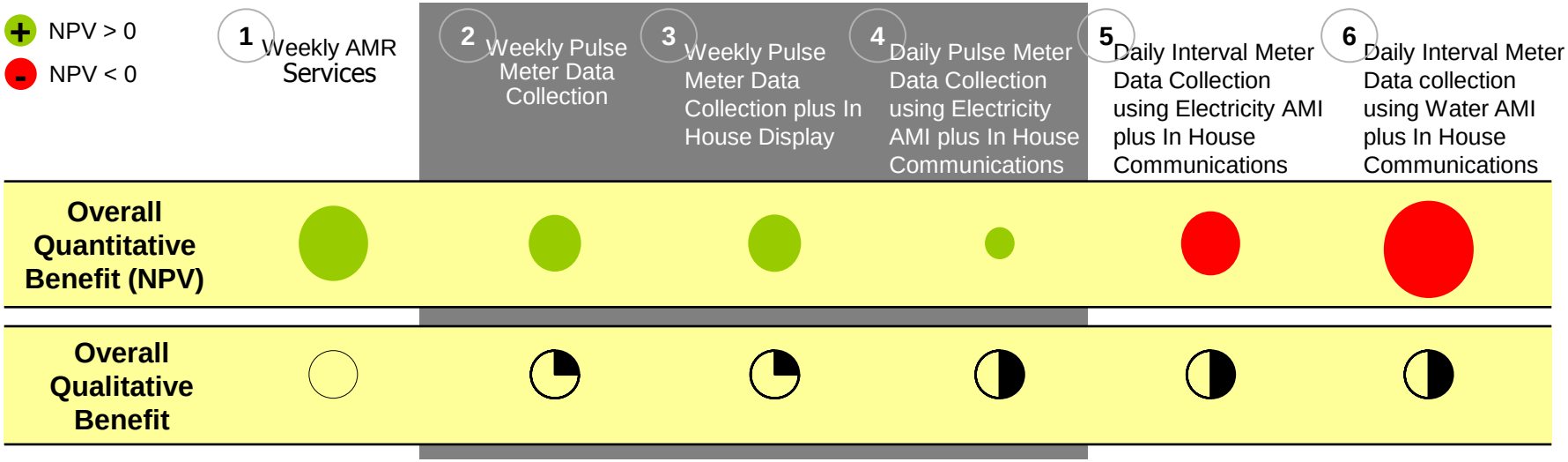
Smart Water Metering Costs and Benefits

Category	Smart Water Metering Costs and Benefits	
Asset management	Benefits	• Improved customer leaks management • Improved network leaks management • Increased capital efficiency for growth infrastructure
Meter reading and communications	Benefits	• Reduction in manual reads and special reads • Increased efficiency of water consumption (by 'involved' consumers)
	Costs	• Cost of communications associated with automated meter reading • For Piggyback AMI, the cost of Electricity AMI access
Customer service	Benefits	• Reduction in high bill enquires • Possible remittance benefits • Less write off for credit management
	Costs	• Increased Customer Contact and Queries
Meter procurement, installation and maintenance	Costs	• Procurement of meters with increasing capability for each implementation approach • Remote communications to the Water Corporation (via 'drive-by' or AMI technologies) • Communications to the household (via ZigBee or similar technology) • For standalone AMI solution, the cost of installing and maintaining a communications network
IT system integration	Costs	• Provision of metering data to the retailer and retailer meter data management costs • The upfront costs of integration of IT systems with new meter data • For Piggyback AMI, the cost of electricity DB interfaces • Process redesign and staff training

SWM Qualitative Assessment

Category	Smart Water Metering Qualitative Assessment
Customer Benefits	Customer Empowerment
	Frequency and accuracy of water bills
	Household Leakage / excessive water use
	Water Pricing
	Customer Relationship Management
Societal Benefits	Health Benefits
	Social Benefits
	Social Stress
Policy Benefits	Policy Development and Investor Decision Support
	Customer Hardship Policies
	Customer Research
	Non-Potable Water Supply
Environmental Benefits	Carbon Footprint
	Urban Landscape

SWM Combined Analysis



Interest in SWM was triggered by market based concerns and awareness of opportunity to leverage electricity AMI deployment

The study demonstrated undeniable operational efficiency (quantitative) benefits are available from SWM

The value of the less tangible benefits needs to be better understood to ensure the most appropriate investment decisions are made

Challenge for Gas Sector

Electricity sector is progressing smart metering as a national initiative.

- NEM NSMP, including Victorian AMI Program
- WA investigation into smart metering as part of meter replacement program

Water sector is showing interest in smart metering

- Victoria: DSE Smart Water Metering Cost Benefit Study
- NSW: Sydney Water working with electricity industry players to consider SWM application and leverage of electricity investments

Will the gas sector be the 'last man standing' for manual meter reading and if so, will this be affordable? How can the gas sector derive value from smart metering beyond avoided meter reading costs?

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Evolving into Smart Grids

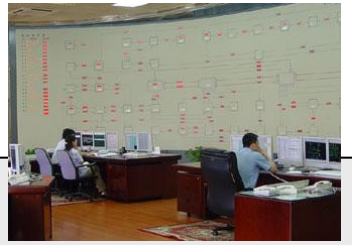
What is a Smart Grid?
Where does Smart Metering fit?
Smart Grid Investment Path

What is a Smart Grid?

The application of data, communications and control systems that enables remote and distributed management of supply and consumption of energy and water by consumers, energy and water retailers and distribution system operators.

Controllable industrial & commercial appliances

Utility SCADA Systems



Direct control by energy & water distribution businesses

WWW or proprietary

PSTN or dedicated networks

Direct control by energy & water retailers

Controllable domestic appliances

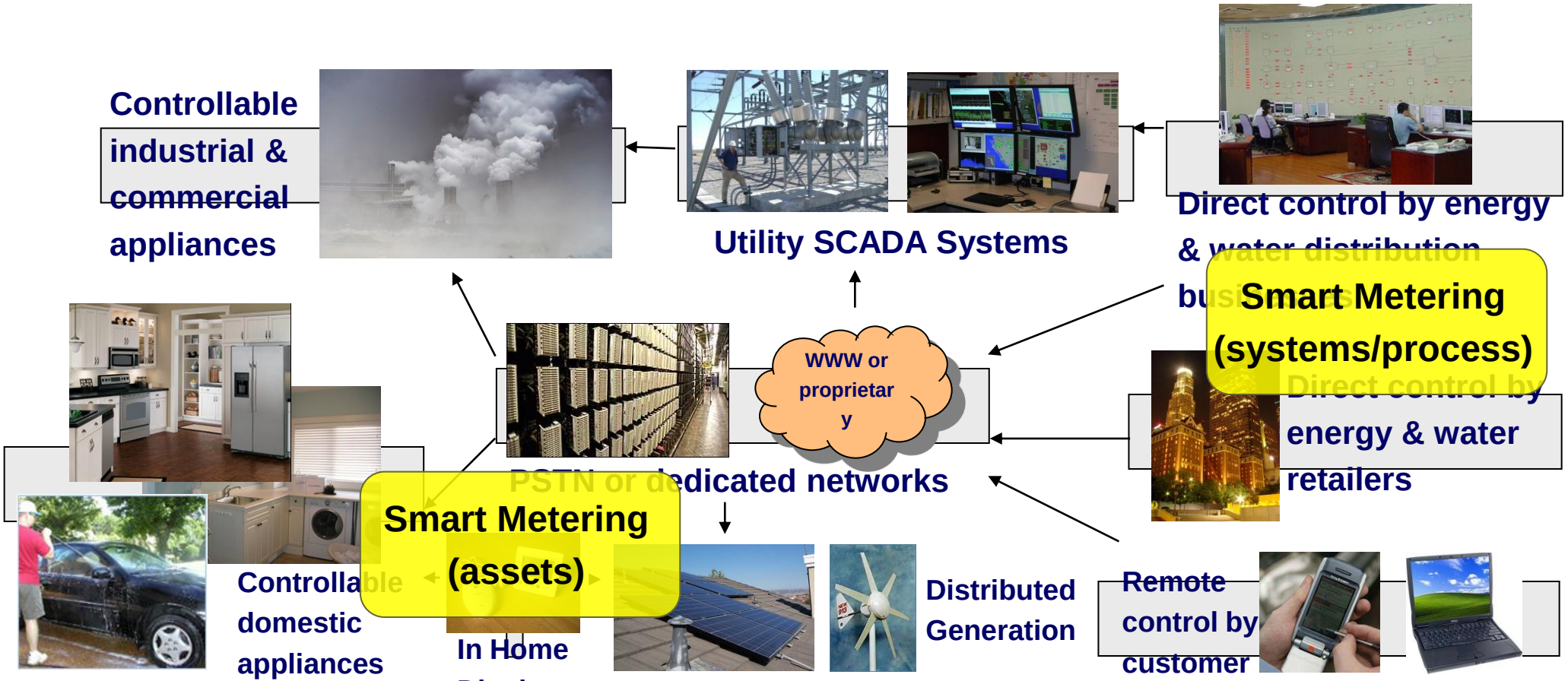
In Home Display

Distributed Generation

Remote control by customer

Where does Smart Metering fit?

Smart metering can provide the data to inform the decisions (manual or automated) that are then enacted by the smart grid as well as the HAN for local communication



Smart Grid Investment path

Investment in smart metering is not, in itself, the first step in the path to a smart grid

- The business drivers for Smart Metering are simpler than those for Smart Grids
- Smart Metering is predominantly concerned with measurement and control of customer load; whereas Smart Grids solutions (including process) reach significantly further back up the utility value chain and involve control of generation(1), transmission and distribution system assets

If a smart grid solution is the long term strategy, then the business case should be optimised for this outcome

(1) Subject to compatibility with system dispatch protocols.