Gas and Electricity Meters Seminar

Future Arrangements for In-Service Testing

23 June 2005

ofgem

ELEXON

Representation

- Present today – representatives from
- The Customer, Manufacturers, Suppliers, Electricity Meter Operators, Gas Meter Asset Managers, Distribution Network Operators, the Regulator and ELEXON

Purpose of Today

- To explain - for gas and electricity meters
  - Current arrangements for in-service accuracy
  - The impact of MID on these arrangements
  - The European experience
  - New proposals for the maintenance of accuracy
  - How new arrangements will be developed and governed

Need for New Arrangements

- **Good asset management**
  - **Risk reduction – a clear understanding of asset condition**
  - **No costly surprises – *protect your business!***
  - **Failing meters are quickly identified**
  - **Statutory and stakeholder obligations are met**

Expectations

- **Key outputs for the day**
  - ***Industry recognition*** **of the need for change**
  - ***Industry consensus*** **on the way forward**

Gas and Electricity Meters Seminar – Future Arrangements for In-Service Testing

23rd June 2005
Elexon

John Stevens
Technical Adviser - Ofgem

Measuring Instruments Directive (MID)

Presentation

Gas & Electricity Meters Seminar

23 June 2005

Peter Edwards

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NATIONAL WEIGHTS AND MEASURES LABORATORY

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MID
(Main provisions)

- Single market Directive
- 10 Instrument categories
- Optionality
- Placing on the market/Putting into use
- Essential requirements
- Conformity assessment

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Instrument categories

- Water meters
- **Gas meters**
- **Electricity meters**
- Heat meters
- Liquids other than water

- Automatic weighing instruments
- Taximeters
- Material measures
- Dimensional measuring instruments
- Exhaust gas analysers

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Optionality of scope
Article 2

Member States **may** prescribe the use of measuring instruments … for measuring tasks for reasons of [legal metrological control] where they consider it justified

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Extent of MID Control

- Placing on to the market and putting into use
- No MID in-service control*

* Note: National provisions apply

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Essential requirements
(General & Instrument Specific)

- Basis: OIML recommendations
- Environment: climatic, mechanical, EMC
- Characteristics: reproducibility, repeatability, discrimination, durability, reliability, suitability, protection against corruption
- Accuracy classes and MPEs
- Conformity Assessment

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Presumption of Conformity

- Direct to essential requirements
- Compliance: harmonised standards
- Compliance: OIML Recommendations

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Conformity assessment

- Classes A to H1
- Manufacturer’s declaration to full QA
- Third party to self-verification through QA
- Type or design examination
- Specified in MI-Annexes
- Manufacturer’s choice

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What needs to be done?

- Transpose Directive
  - Draft implementing regulations
  - Provide guidance
  - Run awareness campaigns
- Develop Harmonised Standards
- Approve Normative Documents
- Designate Notified Bodies
- Set up market surveillance programmes

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Transposition

- Implementation Plan
  - Consultation plan issued 30 November 2004
    (Plan to regulate on the basis of 'status quo')
  - Government response issued 31May 2005
- Individual regulators responsible
  - NWML, Ofgem, DfT
  - NWML/Ofgem drafting of regulations through DTI
- Consult on draft regulations
  - Single consultation end of Summer 2005 (not taximeters)
- Make regulations
  - To be made by 30 April 2006

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Harmonised Standards

- Presumption of Conformity
- Programme mandate
  - Responses by November 2004
- Standardisation mandate
  - Expected Summer 2005
- NWML to liaise with BSi

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Normative Documents

- Presumption of Conformity
- Role of the MIC (Article 15/16)
- OIML Recommendations
- WELMEC WGs

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Market surveillance

- Member state
  - Responsibility of the Regulator
- Check against essential requirements and conformity assessment procedures
- Liaison between member States
- Safeguard clause
- Proactive rather than reactive
  - WELMEC guidance being developed in WG5

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Notified Bodies

- Conformity assessment tasks
- Designation by the member States
  - Responsibility of the Regulator
- Compliance criteria
- Procedures
  - NWML Ministerial approval awaited
- Not dependent on regulatory control

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Summary

- Formal consultation on draft regulations
  - August 2005.
- Designation process for appointment of Notified Bodies*
  - Autumn 2005

* Note: Responsibility of the Regulator

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Measuring Instruments Directive

Adrian Rudd
Ofgem Technical Adviser - Metering

Overview

- Ofgem's current role
- Scope of MID – meters
- MID exclusions
- changes for industry
- role of the Member State
- risks/issues
- next steps

Ofgem's Current Role

- type approvals
  - laboratory testing of a single instrument, often a prototype, to ensure it conforms to requirements, operating accurately in all working conditions
- verification
  - checking of instruments (either singularly or in batches), often on site or at the premises of the manufacturer, to ensure they are the same as the type approved and are accurate
- in-service
  - meter accuracy disputes
  - monitoring – sample survey of electricity meters/analysis of reports from meter owners
- Gas Quality
  - monitoring calorific value measurement

Scope of MID – Meters

- type approval
- verification
- routes to conformity
- placing on the market /putting into use
- any technological solution that demonstrates conformity

MID Exclusions

- not retrospective
  - Gas and Electricity Act approvals continue for ten years
  - GA & EA approved meters can be manufactured and sold until 11/2016
  - meters in service can continue to be used for useful life of meter
- heavy industrial metering
  - MID only covers residential, commercial and light industrial
- repaired meters
- accuracy disputes
  - national provisions maintained or enhanced

MID Exclusions

- pre-payment systems
  - base meter regulated and any interface
- export measurement from distributed generation
  - import measurement only regulated under MID within integrated import/export meters
- communications and added functions
- in-service provisions

Changes for Industry

- Ofgem steps back – choice of 'Notified Body'
- allows EU MID approval of electronic gas and electricity meters
- concept of manufacturer 'self approval' of meters
- market surveillance

Changes for Industry

- classes of meter accuracy
- European standards pivotal
- exploring capture of all meters used for billing purposes
- Gas – acceptance of volume conversion devices for all applications
- Electricity – removal of certification lives

Role of Member State

- designating and monitoring Notified Bodies

Role of Member State

- determine some technical requirements
- market surveillance
- act to withdraw non- conforming instruments
- active liaison and communication with other Member States

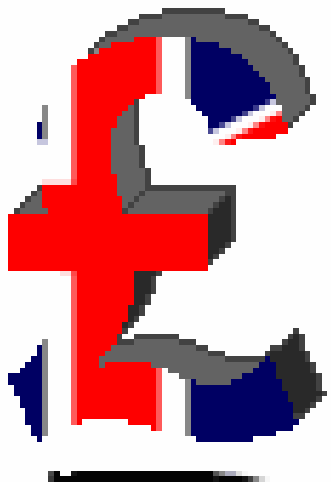
European Commission

Role of Member State

- in-service provisions

Risks/Issues

- variable interpretation across Europe
- consistency of approach
- commercial drivers – classes of Notified Body?



Risks/Issues

- diminished supplier/consumer protection
- impact to other industry requirements – billing systems, network, settlements

Timescales

Event	Date
MID published in Official Journal of European Community (OJEC)	May 2004
Consult on draft MID implementing regulations	August – September 2005
Member States transpose MID provisions into national law	By April 2006
MID comes into force	November 2006
*Meters, approved by Ofgem before MID (pre November 2006) can continue to be manufactured and verified under previous provisions (Gas and Electricity Acts)	Until November 2016

Next Steps

- Ofgem working closely with DTI to implement MID sensibly
- facilitating industry input through Ofgem MID Focus Group
- draft regulations
- no surprises – open door policy
- industry led solution to approach to in-service performance

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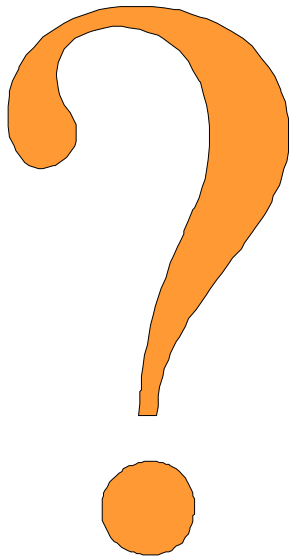
Promoting choice and value for all gas and electricity customers

Questions



Break

Transco

Monitoring Meter Performance

June 23rd 2005

Content

Transco

- Introduction
- Sampling
  - Sampling Plan
  - Process
- Testing
- Data Utilisation

Introduction

Transco

- Presentation provides an overview of the process undertaken by Transco Metering to
  - Monitor the performance of all domestic meter models on an annual basis
  - Provide a mechanism to base effective and informed decisions on the management of the meter population

Transco

Sampling and Testing Process

Overview

Aim

Transco

- Aim of sampling plan is to provide a measure of the performance of the domestic meter population
  - Sampling undertaken on individual meter populations to provide measures for all population definitions
  - Measure is used to provide the understanding required to manage meter asset base

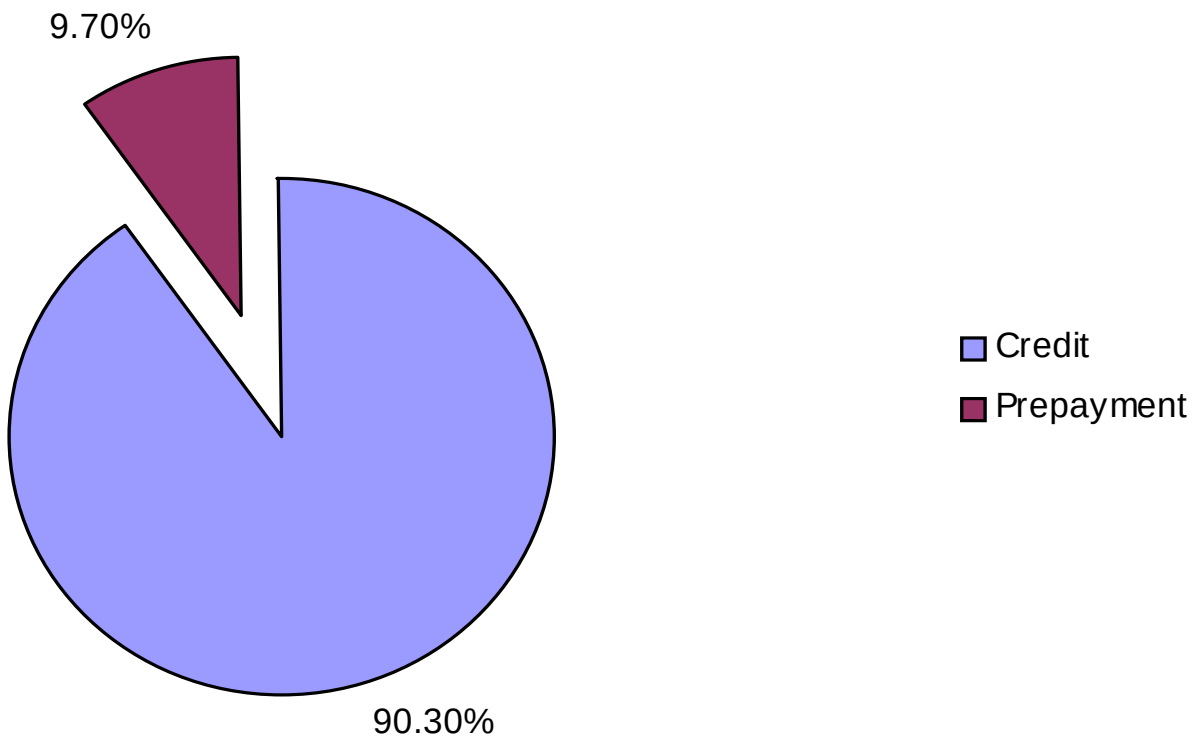
Population Definitions

Transco

- Diaphragm credit population defined by:
  - Manufacturer, Diaphragm/Version Identifier, Production Year
- Diaphragm Prepayment population defined by:
  - Manufacturer, Diaphragm/Version Identifier
- Ultrasonic population defined by:
  - Manufacturer, Version

Population Composition

Transco



Sampling Plan

Transco

- Sample size level generated based on a combination of:
  - Population Size
  - Historical performance
  - Expected performance in future years
- Combination of three factors provides a weighting
  - Weighting provides a level of risk, with the higher the risk, the greater the sample size required
  - Risk banded into 3 levels with sample sizes associated with each level

Sampling Plan

Transco

	Credit Meters						Prepayment Meters	
	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 1	Type 2
Production Years	1045	1300	175	495	200	200	200	300

Selection of meters

Transco

- Meters selected for testing from meters returned as part of the natural churn cycle
  - Cost effective solution
  - Greater sample size tested than through random selection and extraction program
- Survey undertaken on defined populations if required to supplement knowledge obtained through sampling process

Sampling

Transco

- Process put in place to ensure that sampling mechanism is effective
  - Meters selected as per sampling plan at meter sorting hub
  - Meters issued to the Meter Test House (MTH) for testing on regular basis throughout the year
  - Testing undertaken by the MTH on receipt of meters
  - Test results issued to Transco Metering (TM) / Advantica on regular basis

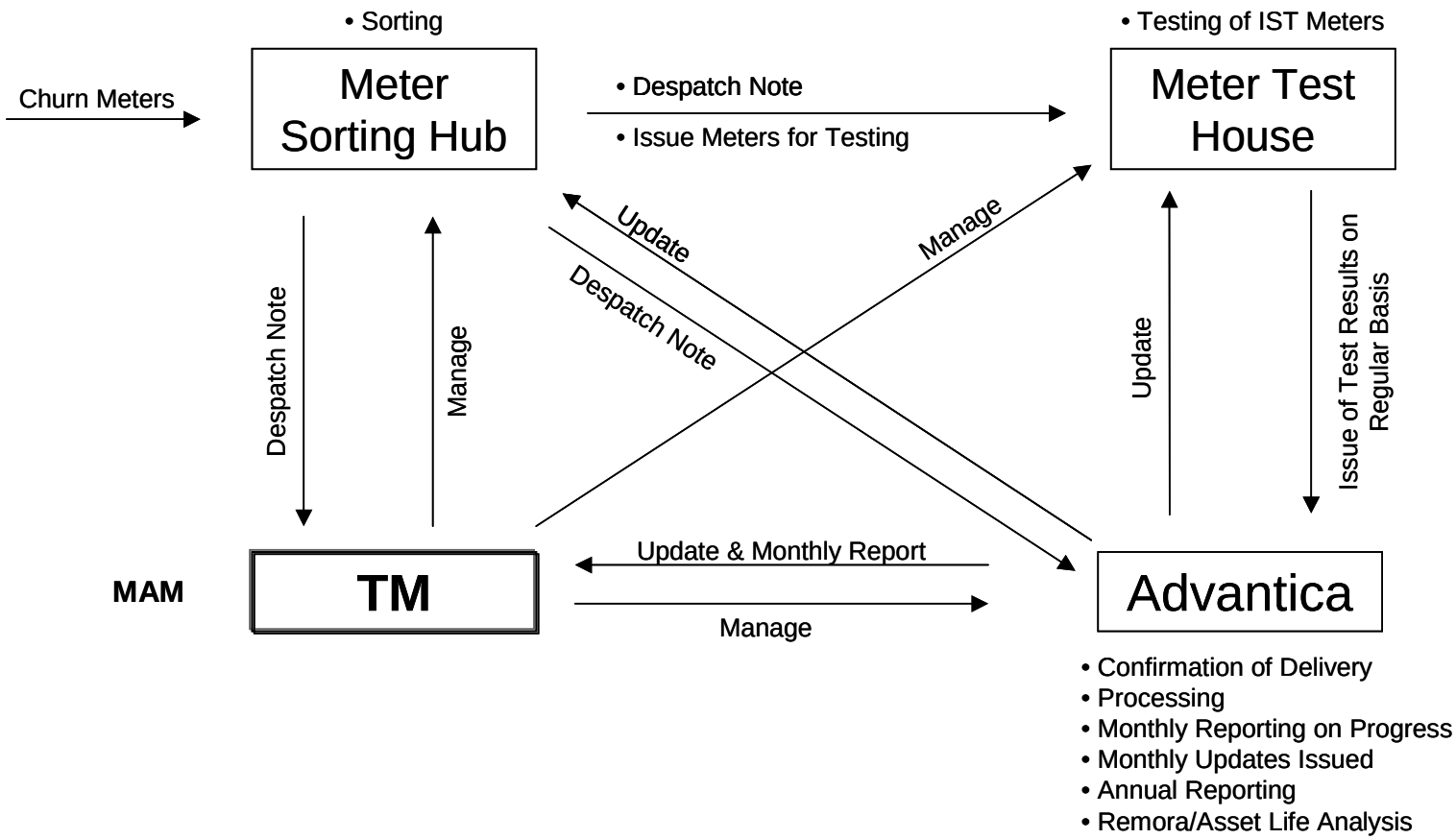
Sampling

Transco

- Progress monitored by TM and Advantica to determine if sufficient meters are being tested
- Process in place to capture further meters to increase confidence levels

Overview of Process

Transco



Testing

Transco

- Meters tested at accredited test facility
  - Quality control process in place
  - Ensures testing undertaken in an appropriate manner

Processing

Transco

- Data Processing of test data undertaken on receipt of data
- Progress reports issued
- Process continually reviewed

Summary

Transco

- Sampling plan developed
  - Robust and flexible
- Meters taken from natural churn
- Testing carried out by accredited testing facility
- Validation and processing carried out at Advantica

Transco

Data Utilisation

Summary

Analysis

Transco

- Processed data analysed to provide performance measures:
  - Sample size
  - Mean
  - Median
  - Standard Deviation
  - Percentage outside ±2%
  - Percentage outside ±3%
- For each defined population a sample estimate of the level outside tolerance is provided

Reporting

Transco

- Measures reported on annual basis to provide indication of current performance levels

Forecasting

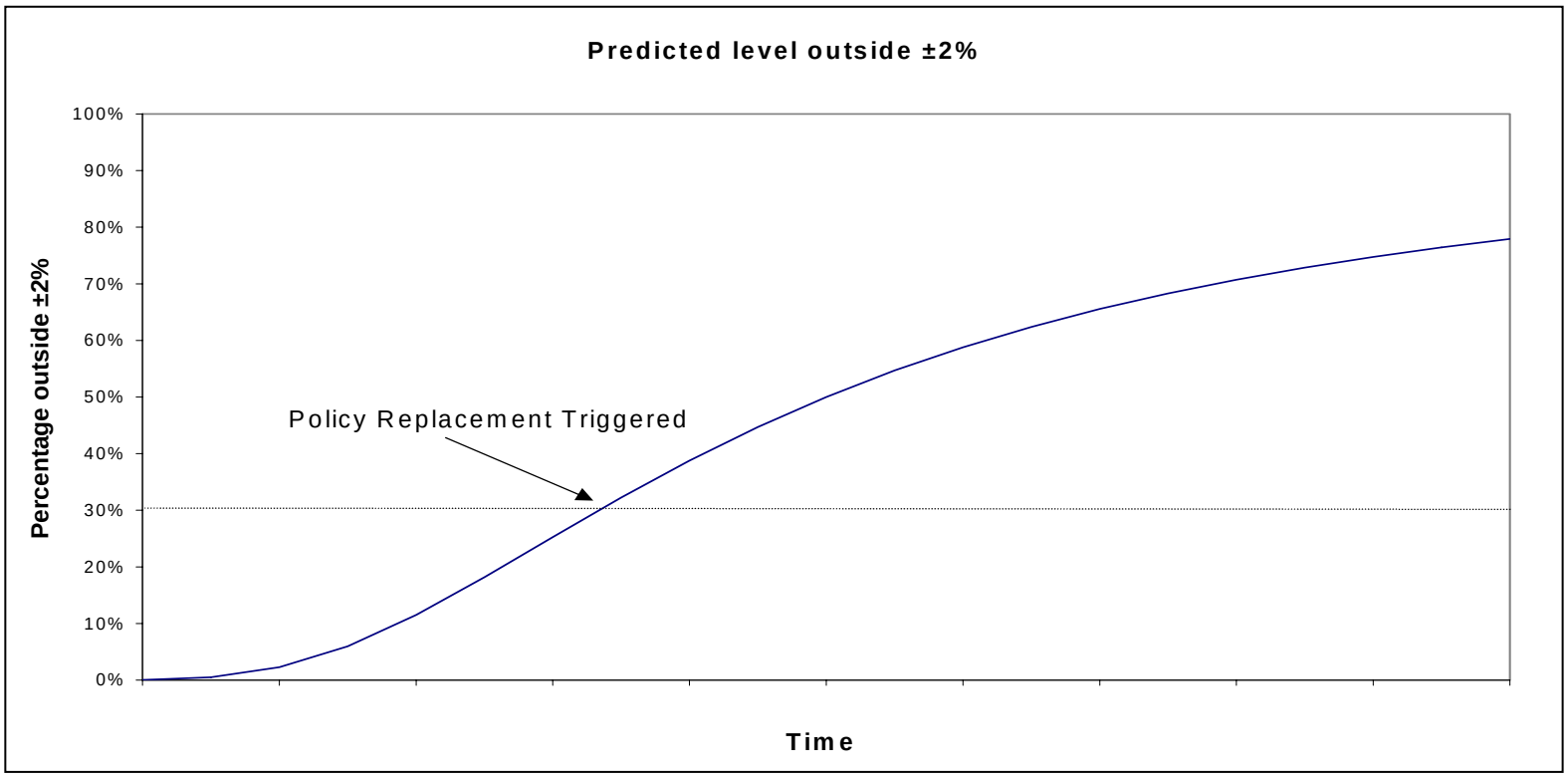
Transco

- Performance data collected over a number of test years
- Trends identified within the data
  - Predict future performance levels
- Provides knowledge and information
- Forecasting analysis accomplished through modelling and simulation analysis

Modelling

Transco

- Performance measures modelled to predict when population is highlighted for replacement (for illustration only)



Asset Life Assessment

Transco

- Asset Life assessment to predict the end of the technical life
  - Simulation analysis including all failure modes:
    - Meter accuracy
    - Passing unregistered gas
    - Soundness
    - Mechanical failure
    - Battery Life
    - Electronics reliability

Asset Life Assessment

Transco

- Failure curves generated for each defined failure mode
- Simulation analysis utilised to generate overall failure distribution
- Overall failure distribution used to estimate time to failure of the population

Summary

Transco

- Modelling of underlying trends provides a mechanism to forecast future performance
- Provides a significant tool in the effective management of the meter population

Transco

Summary

Summary

Transco

- Controlled, robust process in place to monitor the performance of the meter population
  - Generation of Sampling Plan
  - Process to select meters returned from the field through natural churn
  - Meter test results provided and processed
  - Analytical process to report on performance and provide forecasts of expected future trends

Summary

Transco

The process provides a robust and quantifiable mechanism that delivers a significant and appropriate level of information that is utilised in the development of business decisions for the effective management of the meter population.

UK SAMPLING SURVEYS

Alan Dick and Rae Jackson

27 June, 2005

TOPICS COVERED

- Brief History
- Current Organisational Arrangements
  - Role of UKMF
  - Role of SGS
- Technical criteria
- Legal aspects
- Results 2000-2004

HISTORY

ELECTRICITY COUNCIL PRE-1990

- Context
  - Statutory Body
  - ‘Directed’ the Electricity Industry
- Sampling activity
  - Formal National Sampling Surveys
  - Published results presented to D. En.

ELECTRICITY ASSOCIATION 1990 - 1997

- Context
  - Limited Company owned by members
  - Services to members
- Sampling Activity
  - Little or none

EA METERING FORUM 1997 - 2003

- Context
  - Unincorporated Association within EA
  - Pursue members interests
- Sampling activity
  - Restarted (sporadic until 2000)
  - SGS outsourcing 2002/3
  - New Agreed Procedures 2003

UK METERING FORUM 2003 -

- Context
  - Independent Unincorporated Association
  - Pursue members interests
- Sampling activity
  - Ongoing as per Agreement

CURRENT ORGANISTIONAL ARRANGEMENTS

ROLE OF UKMF

- Agree meters to be sampled
  - Ofgem requirements
  - UKMF member requirements
- Determine availability of samples
  - Ferraris meters
  - Static meters
- Allocate samples to be tested
- Chase progress
- Receive and agree results

ROLE OF SGS

- We are the service provider to Ofgem
- Oversee the Sample Survey process as part of the Ofgem due diligence
- Conduct on site audits of the process
- Collate regional and national results
- Report findings back to Ofgem

TECHNICAL REQUIREMENTS

- Samples are selected at random on a national basis preferable at 3 locations
- Usually tested as they come off circuit after their nominal certification life
- Tests are conducted by the MTS staff on approved apparatus traceable to national standards

SAMPLES

- Discarded – damaged, missing seals, signs of tampering. Unsafe for testing.
- Excluded – misaligned pointers/rollers, missing segments (used in variable data). Errors greater than 10%.
- All other samples are tested in accordance with Schedule 3 of SI1566

SAMPLE SIZE

- Meters certified prior to 1990, a maximum of 200 and a minimum of 120

- Meters certified after 1990, are selected in accordance with BS6001-1 Table1 General inspection level 2. therefore is dependant upon population size.

HANDLING DATA

- All data is entered onto spreadsheets by SGS
- All statistical analysis is automatic
- Spreadsheet provides recommendation based upon statistical analysis

- Ofgem make final decision

LEGAL ASPECTS

- Meters are require to be:-
- Approved
- Certified
- Operate in service with errors of +2.5% to -3.5%
- Ofgem required to set the certified life to ensure meters operate inside the limits

SCHEDULE 4

- Lists all meters currently approved
- Gives current certification period of each meter.
- Updated each January using data from sample survey
- This is now on the Ofgem web site

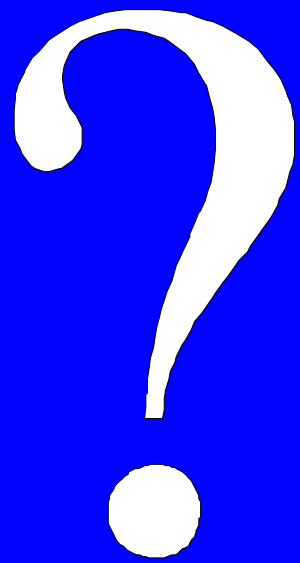
RESULTS 2001- 2004

Year	Nos sampled	Extended	No change	Reduced
2001	6	4	2	0
2002	13	5	2	6
2003	13	7	2	4
2004	10	7	0	3
	42	**23**	**6**	**13**

CONCLUSIONS

- Voluntary process – costs shared
- Has worked well – more extensions than reductions to date
- Costs minimum as meters only removed at end of certification period
- Potential conflict between MAP and MAM activity?

Questions



Lunch

Gas and Electricity Meters Seminar
Future Arrangements for In-Service Testing

at Elexon / London - June 23rd, 2005

European Experience (Gas)

Dipl.-Ing. Heinrich Bertke, Kromschröder

Contents

- Overview of the requirements and procedures in European countries
- Other recommendations
- Experiences with sampling procedures in Germany
- Manufacturers` perspective

Countries with sampling procedures

Country	Initial error limits [1]	In service error limits [1]	Re-verification Period in years	Re-verification procedure	Allowed failure rate
Germany	± 2 % ± 3,5 %	± 4 % ± 3,5 %	8 + 8 + ... 8 + 4 + ...	100 % test sampling, unlimited	LQ 8, e.g. 5 of 125 = 4 %
Netherlands	± 2 %	± 4 %	5 + 5 + ...	Sampling, unlimited	16 of 125 ≈ 13 %
Belgium Manufactured until 1988 Manufactured since 1989	± 2 % ± 2 %	± 4 % ± 2 %	10 + 5 + ... 10 + 5 + ...	Sampling, limited to 30 years	21 of 125 ≈ 17 %
Denmark	± 2 %	± 3 %	5 + 5 + ...	Sampling inspection by variables	LQ 12,5 (3 of 50 for each test point) ≈ 6 % - 12%
Czechia	± 2 %	± 4 %	10 10 + 2 (10 + 4 + ...) [2]	100 % test sampling one time (sampling unlimited)	LQ 8, e.g. 5 of 125 = 4 %

1 For legal values in the range of > 2 Qmin or Qt to Qmax

2 Planned for the future

Countries with re-verification requirements

Country	Initial error limits [1]	In-Service error limits [1]	Re-verification period (in years)	Re-verification procedure	Allowed failure rate
Austria	± 2 %	± 4 %	12	100 %	
Hungary	± 2 %	± 4 %	10	100 %	
Slovakia	± 2 %	± 4 %	10	100 %	
Poland	± 2 %	± 4 %	15	100 %	
France	± 2 %	± 4 %	20	100 %	

1 Legal values in the range of > 2 Qmin or Qt to Qmax

Countries without re-verification requirements

Country	Initial error limits [1]	In-Service error limits [1]	Re-verification period (in years)	Re-verification procedure	Allowed failure rate
Italy	± 2 %	± 4 %	Under investigation		
Spain	± 2 %	?	Under investigation		
Great Britain	± 2 %	± 2 %	Under investigation		

1 Legal values in the range of > 2 Qmin or Qt to Qmax

Other recommendations

	Initial error limits [1]	In-Service error limits [1]	Re-verification period (in years)	Re-verification procedure	Allowed failure rate
OIML R31, 1989	± 1,5 %	± 2 %	10 (proposal)	100 % or sampling	
OIML R 31, 1995	± 1,5 %	± 3 %	10 (proposal)	100 % or sampling	
EN 1359	± 1,5 %	± 3 % [3]	_____	_____	
MID	± 1,5 %	± 3 % [3]	_____	_____	
OIML TC3/SC4 CD1 (CD2)	MPE	MPE + [4]	x [4] + ½ x + ...	sampling inspection	LQ 8, e.g. 5 of 125 = 4 %

1 Values in the range of > 2 Qmin or Qt to Qmax
3 After durability test
4 Decided by national regulatory authorities

Experiences with sampling procedures in Germany

- Since 01.01.1993 the fixed re-verification period of 12 years has been reduced to 8 years added by the possibility for sampling procedure of domestic gas meters [1]
- Acceptance and training for sampling tests still need some years
- About 50 % of the meters with leather diaphragm and far more than 80 % with synthetic diaphragms passed [2]

Rejected lots are caused today

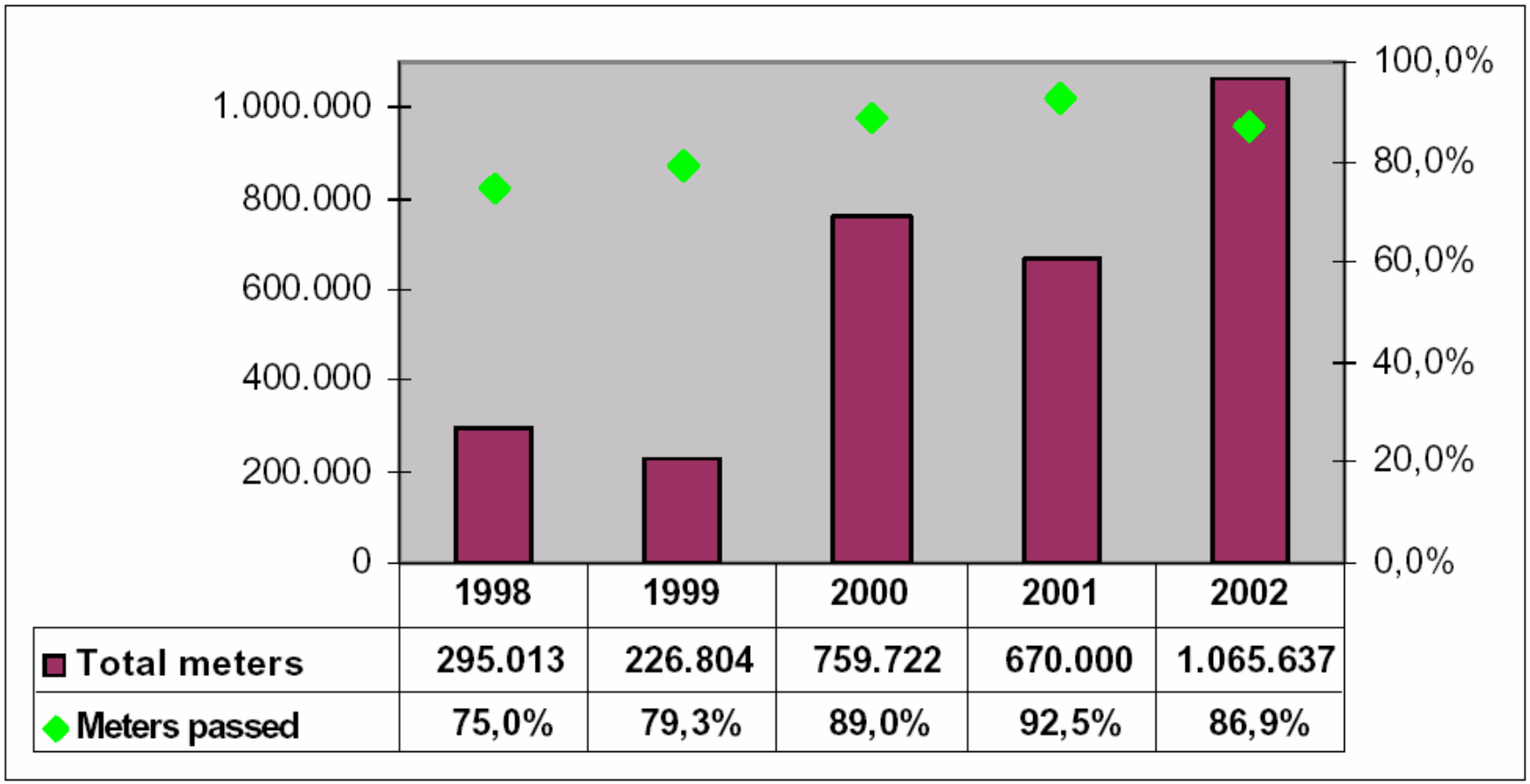
- by 30 % of organisational problems
- by 60 % of metrological problems

- Today, especially big utilities are saving a lot of money by using good meters

  Sampling procedures are being used as part of their quality system

- For more detailed information please see the attached references [2], [3], [4], [5]

Number of meters within statistical procedure, pass rate

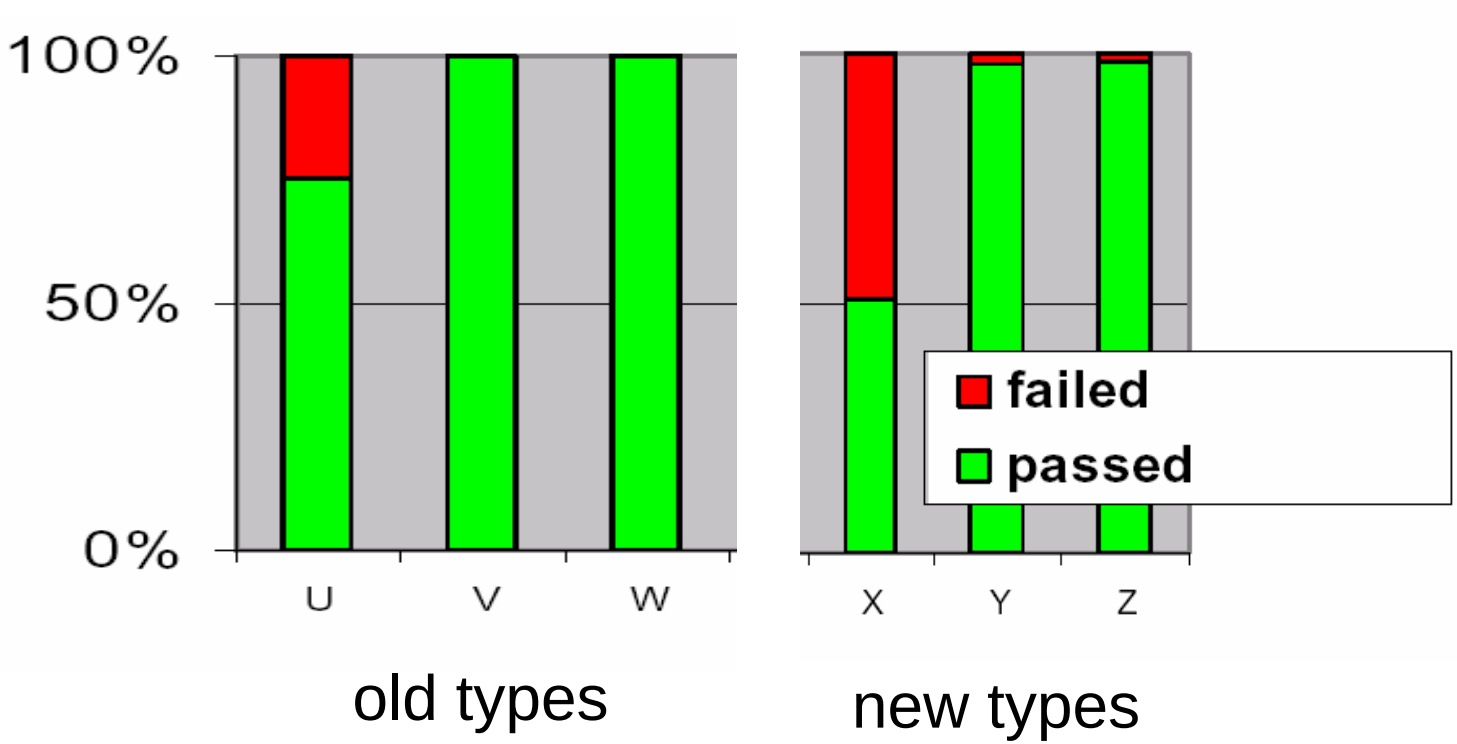


	1998	1999	2000	2001	2002
Total meters	295.013	226.804	759.722	670.000	1.065.637
Meters passed	75,0%	79,3%	89,0%	92,5%	86,9%

Statistic 2001

Reference: [4]

Different meter types with synthetic diaphragms at RWE



Reference: [5]

Manufacturers´perspective

- Utilities are more and more driven by commercial aspects
- MID will allow to place meters on the market without direct legal control
- The sampling procedure is an approved and economical method to support and control the quality for proctection of consumers and gas suppliers
- However, realistic requirements are necessary
  (In-Service error limits, sampling plan, allowed failure rate, etc.)

References:

[1] Verfahren zur Stichprobenprüfung von Balgengaszählern / PTB-announcement 102 4/92

[2] Ergebnisse bei Stichprobenprüfungen von Haushalts-Balgengaszählern, Jürgen Pilz ESWE Versorgungs AG,
DVGW Prüfstellenleiterkolloqium, Bad Dürkheim, 06/99

[3] Stichprobenprüfungen / Eich- und Beglaubigungskosten – VO / Jürgen Pilz,
ESWE Versorgungs AG,
DVGW Prüfstellenleiterkolloqium, Kassel 05/01

[4] Ergebnisse von Stichprobenprüfungen bei Haushaltsgaszählern /
Ernst Kaiser, RWE Gas AG,
DVGW Prüfstellenleiterkolloqium 2003, Bochum

[5] Ergebnisse von Stichprobenprüfungen bei Haushaltsgaszählern /
Ernst Kaiser, RWE Gas AG,
GWF journal 01/04

ELECTRICITY METROLOGY PRACTICES ACROSS EUROPE

Alan Dick
Eurelectric

27 June, 2005

HISTORY

- Electricity Council pre 1990
  - UNIPEDE
    - Union of Producers and Distributors of Electricity (Paris)
  - EURELECTRIC
    - European Grouping of Electricity Undertakings (Brussels)
- 1999 – merged to form one body – EURELECTRIC (Brussels)

WHAT IS EURELECTRIC?

- Trade association/lobbying body
- Membership via national trade associations/representative bodies
  - EA → ENA/ERA/AEP
- Based in Brussels
  - Offices and meeting facilities
- About 30 full time staff

AREAS COVERED

- 3 ‘Domains’
  - Energy Policy and Market Regulation
  - Environmental and Sustainable Development
  - Management Practices
- 4 Business areas
  - Generation, Transmission, Distribution/Supply and Trading

METERING

- 1988 UNIPEDE ‘NORMETER’ group
  - METRO
  - Position Paper/survey 1993
- Now EURELECTRIC ‘Group Of Experts on Metering’

  (under Standardisation’ group of the Management Practices Domain)
  - MID Consultation
  - Transcription into MS’s law
  - Survey

MEMBERS

- Members
  - Austria, Belgium, France, Germany, Ireland, Italy, Spain, Sweden, UK
- Survey
  - All above less Italy plus Denmark (9)

SURVEY SECTIONS

- General background
- Approval
- Initial verification
- In service requirements
- Use of standards
- Impact of deregulation

BACKGROUND

- Survey indicated 136 million meters total (200+ all MSs)
- Most new domestic meters electromechanical
- Integration period 15 minutes
  - (10 France, 30 UK)
- Domestic reading annually
  - Sweden to be monthly

TYPE APPROVAL

- All countries require Approval
- To IEC/CLC product standards or National requirements based upon them
- Done mostly by Test Houses under National controls, paid for by manufacturer
  - One Utility does it (Irl)
- Validity mostly indefinite, some 10 years

STANDARDS

- All use IEC/CLC
- National requirements
  - Metering Codes where competition
  - Cold weather (- 40) Sweden
  - Terminals etc France, Germany, UK
  - Spain has communications standard

DEREGULATION

- Most meters supplied/owned/maintained by Grid Operator, Network Owner or ‘Utility’
- Supplier responsible in UK and Spain
- Little or no competition in the provision of meter services outside the UK (full) or Spain (partial)

INITIAL VERIFICATION

- All countries require
- To national criteria based on IEC
- Validity period
  - Only France with no limits
  - Others initial period extensible by sampling
    - Varies 16/8, 10, 18
  - Some fixed period UK, Ireland
- Extension steps
  - Mostly 5 years, some 4 years

IN-SERVICE REQUIREMENTS

- Confusion over what was meant by ‘In-service checking’
  - Need for follow up clarification on total process for establishing meter ‘life’

IN-SERVICE ACCURACY LIMITS

	UK	GE	BE	IR	FR	AU	DE	SW	SP
%	+ 2.5 - 3.5	+ 6 - 6	+ 4 - 6	+ 2.5 - 2.5	+3 - 3	+ 4 - 4	None	Not stated	Not stated

“POLARITIES”

- Philosophy
  - Fixed period with extension by sampling
  - No fixed period – stay in service until tests indicate otherwise
- Rules
  - National, compulsory (eg Germany, Austria)
  - National activity, voluntary (eg Denmark, Italy)
  - Company specific (Oregon)
- Who does it/who pays?

HOW LONG TO REMOVE DEFECTIVE METERS?

- UK 2 years
- Belgium, Oregon 4 years
- Germany, Austria - done in time to remove at end of last agreed period (?)

SPECIFIC CASE - GERMANY

- Compulsory – Verification Act
- Requires testing every 4 (5?) years to confirm continued service
- Network Operators' responsibility – arranged through trade body (VDN)
- Very formal – results published annually
- Predominantly e/m meters

SPECIFIC CASE - BELGIUM

- Initial fixed period 10 (5) years ?
- Seems to be ignored until 20-25 years (e/m meters) then testing
- Extension period 5 years
- Network Operator does it
- In theory, no limit if tests OK
- 4 years to remove unsuitable meters

SPECIFIC CASE - OREGON

- Utility ‘demonstrates’ compliance to PUC
- Utility writes rules/procedures
- Agreed with PUC – revised annually
- Annual report on results
- 4 years to remove any found defective

CONCLUSIONS

- How mandated?
- Who is responsible for doing it?
  - Does this include paying?
- Should it be nationally organised?
  - Alternative could be national exchange of results

Break

Settlement Governance

Keith Campion, Change Delivery

Balancing and Settlement Code (BSC)

- Provides the Framework for balancing and settlement arrangements in Great Britain
  - includes metering requirements
- Administered by ELEXON on behalf of signatories to the BSC

Who Signs it?

- **Parties to the BSC**
  - **Suppliers**
  - **Generators**
  - **Distributors**
  - **Power Exchanges**
  - **Non Physical Traders**

Code Subsidiary Documents (CSDs)

- Codes of Practice
- Balancing and Settlement Code Procedures
- Service Lines
- Requirement Specification

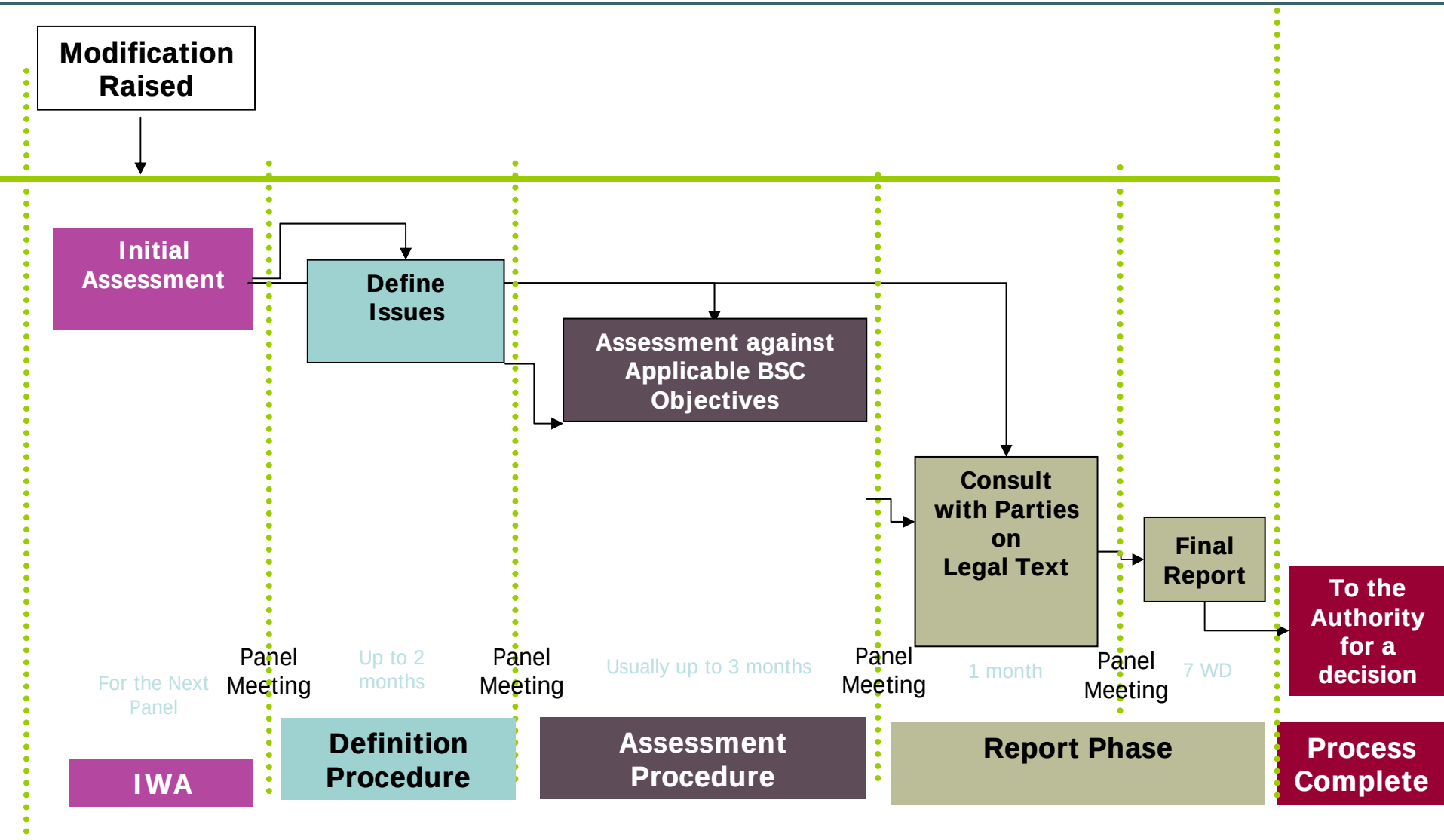
Change Process

- The BSC and CSDs can change
  - Changes to the BSC require a Party to submit a Modification Proposal
  - Changes to the CSDs are submitted by BSC Parties, ELEXON and the Panel Committees in the form of Change Proposals

Modification Proposals

- **Section F – Modification Procedures**
  - **Proposal Life Cycle**
    - Definition, Assessment and Report stages
    - BSC Panel Recommendation
    - Authority Determination

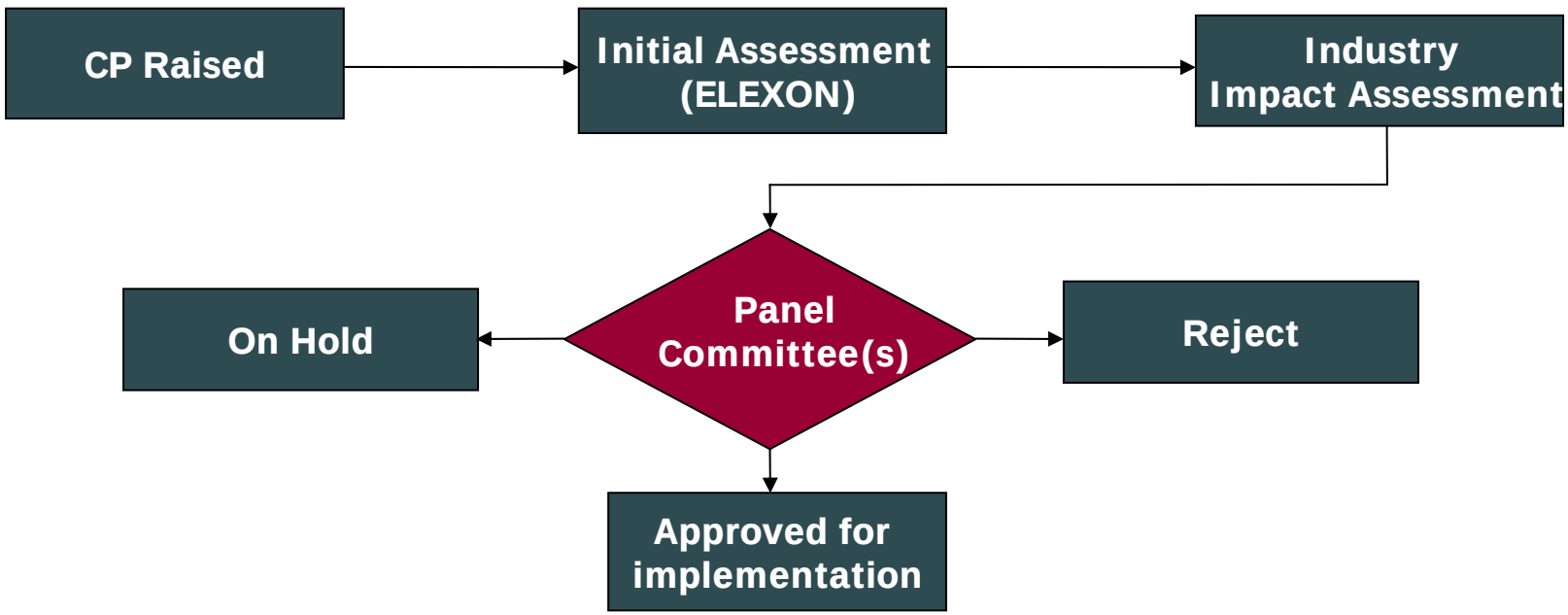
Modification Procedure



Change Proposals

- **Determined by Panel Committee**
  - **Proposal Life Cycle**
    - Initial Assessment, Industry Impact Assessment
    - Panel Committee Determination

Change Proposal Lifecycle



Types of Change Summary

Modification Proposals

- BSC
- BSC Systems
- Code Subsidiary Documents
- Associated Documentation

BSC Section F/BSCP76

Change Proposals

- Code Subsidiary Documents
- BSC Systems
- Associated Documentation

BSC Section F/BSCP40

Role of BSC Parties

1. Suggesting change
   - raising Modification Proposals / Change Proposals
2. Assessing proposed changes
   - membership of Modification Groups
   - attendance of Modification Group meetings
3. Feedback on proposed changes
   - consultation / impact assessment

What needs to change ?

- **Logical choice for new requirements**
  - **Code of Practice Four**
    - Calibration, Testing and Commissioning
  - **BSCP 514 Meter Operations**
  - **BSCP 515 Licensed Distribution**

New Obligations

- Any change that introduces new obligations under the BSC requires a Modification Proposal
  - Section F 3.1.2. (b)
- Undefined at present but ELEXON is on standby for future developments

The Way Forward

Adrian Rudd
Ofgem Technical Adviser - Metering

Overview

- obligations and drivers
- principal objectives – *initial thoughts*
- how?
- conclusions

Obligations

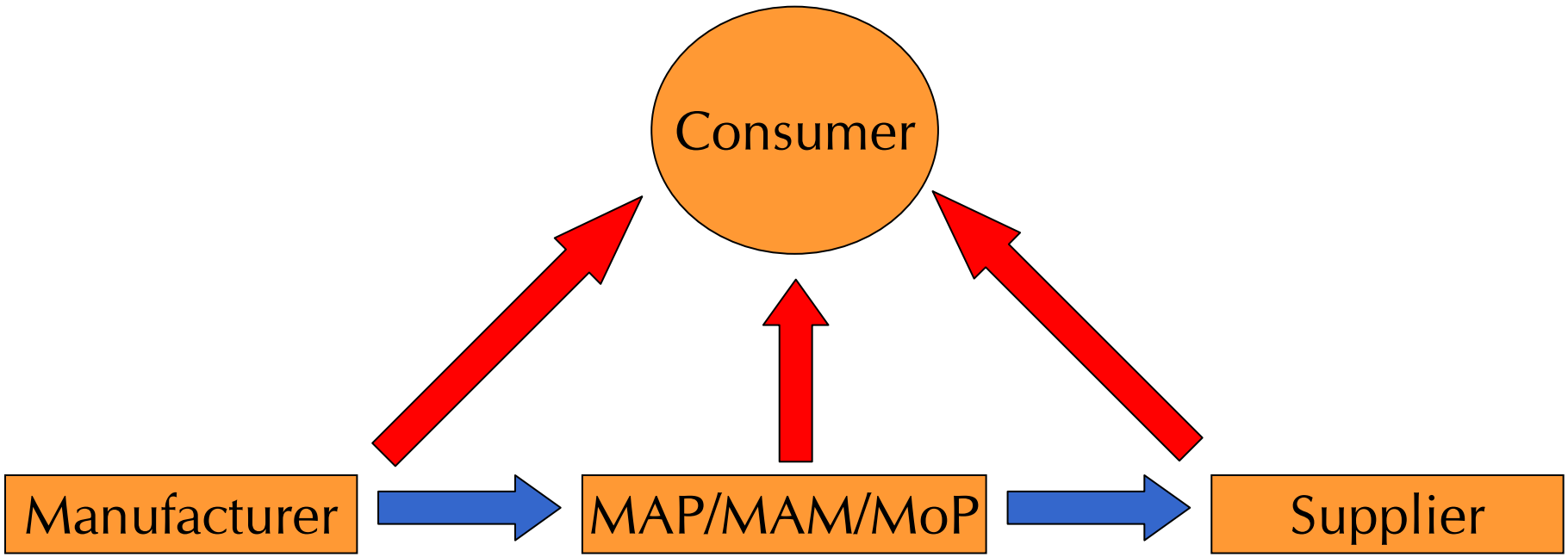
- Must Do's
  - Gas and Electricity Act
    - meter owner responsibilities
      - *'keeping meters in proper order'*
  - Gas Meter Asset Managers
    - Code of Practice for Gas Meter Asset Managers (MAMCoP)
      - *Section 17.5.2 – 'Procedure for Sample Testing'*

Drivers

- Should Do's
  - asset risk management
    - *cradle to grave*
  - commercial framework
    - *supplier - MAM/MoP contracts*

Drivers

- duty of care to your customers
  - *complete supply chain*

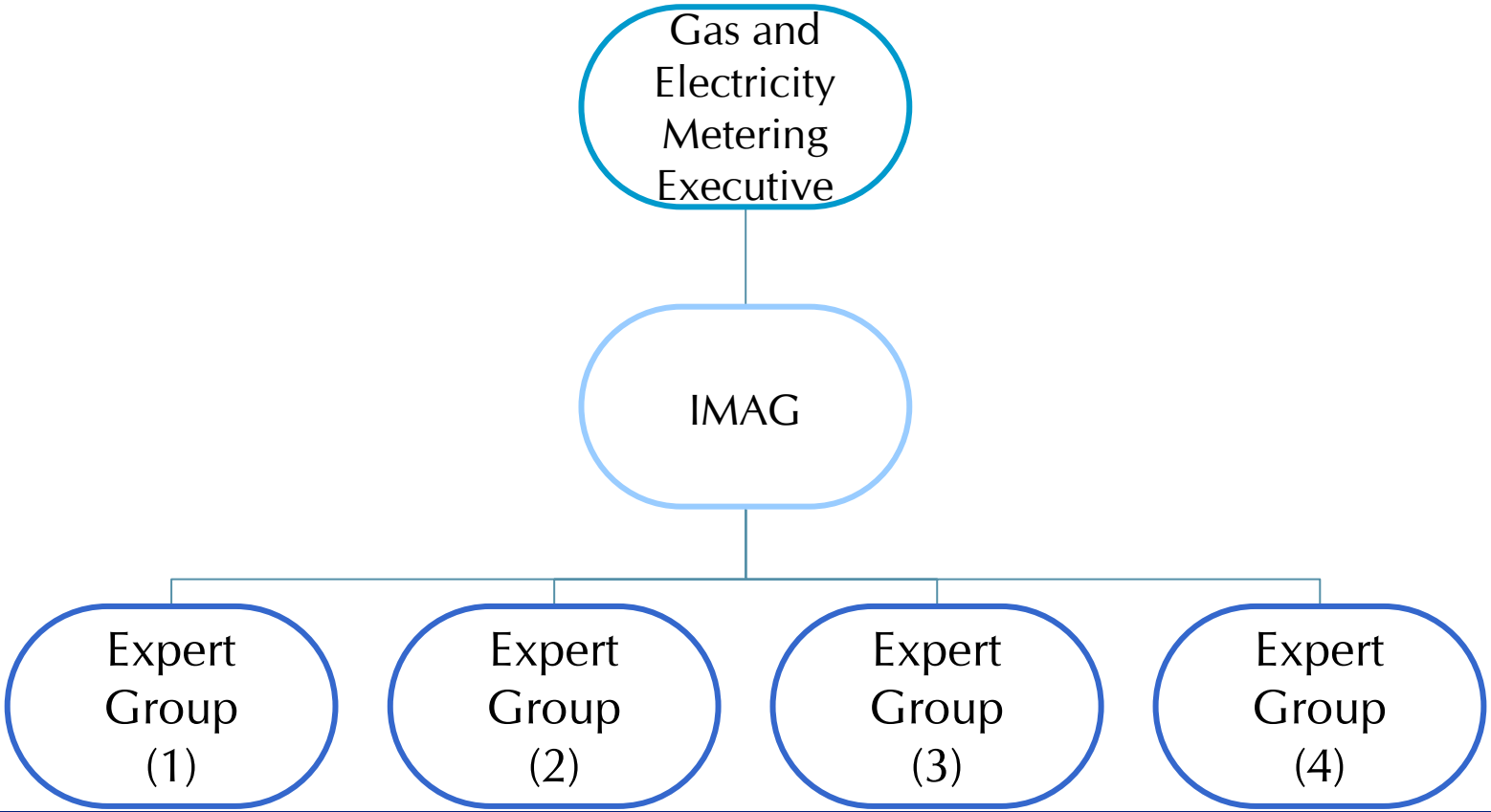


Principal Objectives – Initial Thoughts

- robust and representative
- cost effective – *whole life management*
- industry led, operated and maintained
- consistent approach to gas and electricity meters
- cooperation of all players – *open door for participation*
- dealing with problems – *when things go wrong*
- allow new approach to define pre-MID certification periods

How?

- Industry Metering Advisory Group (IMAG)



How?

- Industry Metering Advisory Group (IMAG)
- in-service expert sub-group to be formed
  - chaired by industry
  - representatives of all interested groups
  - Ofgem and Elexon to advise and facilitate
- proposals to be submitted to IMAG Executive for approval
  - Objective 1 – recommendations by 1 April 2006
  - Objective 2 – implementation by 1 November 2006
- output implemented into MAMCoP and Elexon BSC CoP 4
- if things go wrong?

Conclusions

- significant change in the industry
- major drivers
- much experience to draw upon
- status quo is not an option
- momentum for change must be harnessed

ofgem

Promoting choice and value for all gas and electricity customers

Questions