

The Settlement Process

Distribution Losses

'A Settlements Eye View'

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The information in this presentation has been collated by ELEXON and while all due care has been taken to ensure the accuracy of this information, ELEXON accepts no responsibility for errors.



Presentation Objectives



- **Distribution Losses**

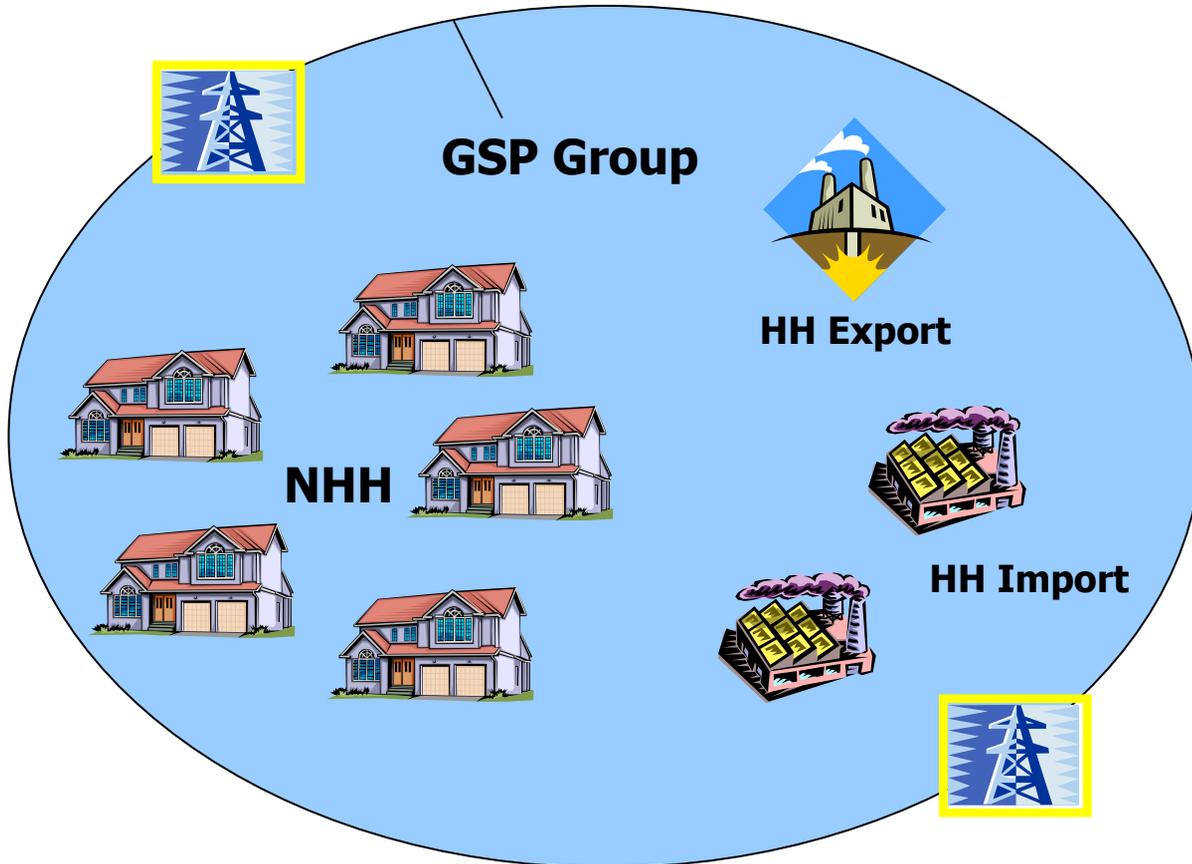
Perspective from Settlements

- **Root Causes**

- **ELEXON initiatives**



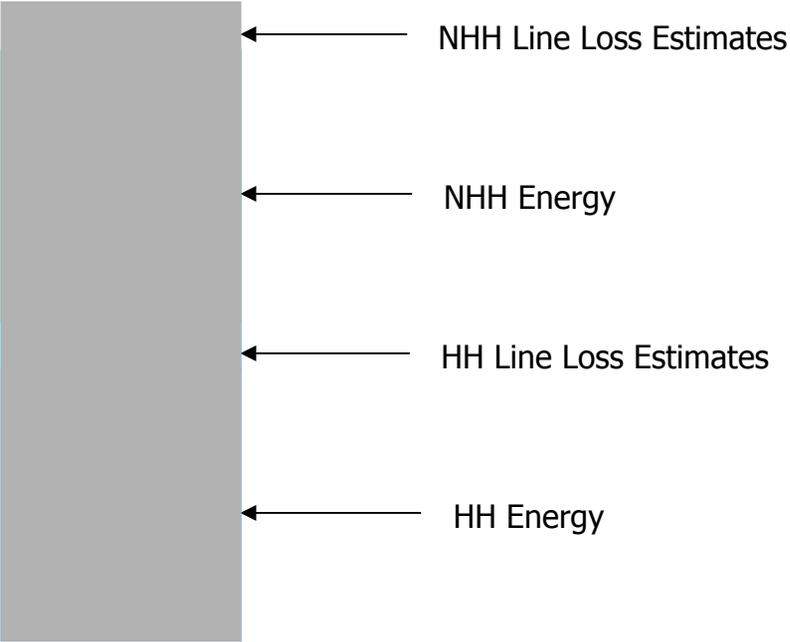
Settlements



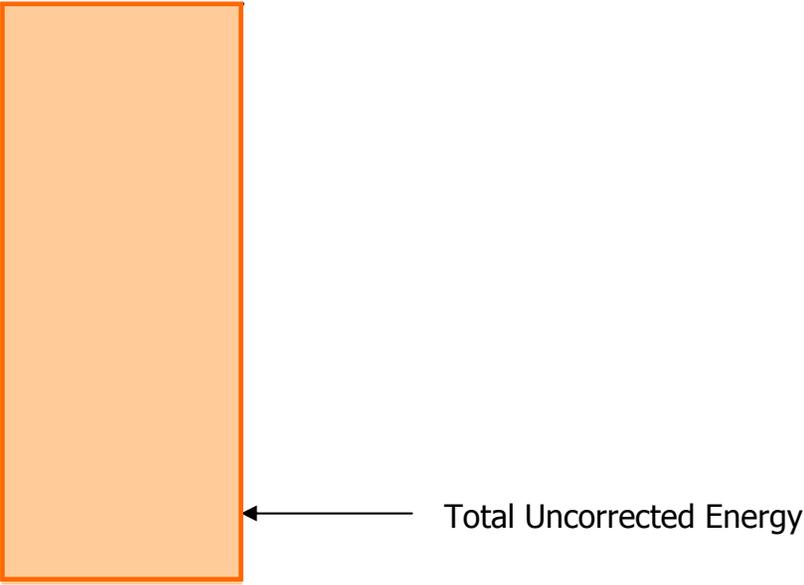
Distributions Losses



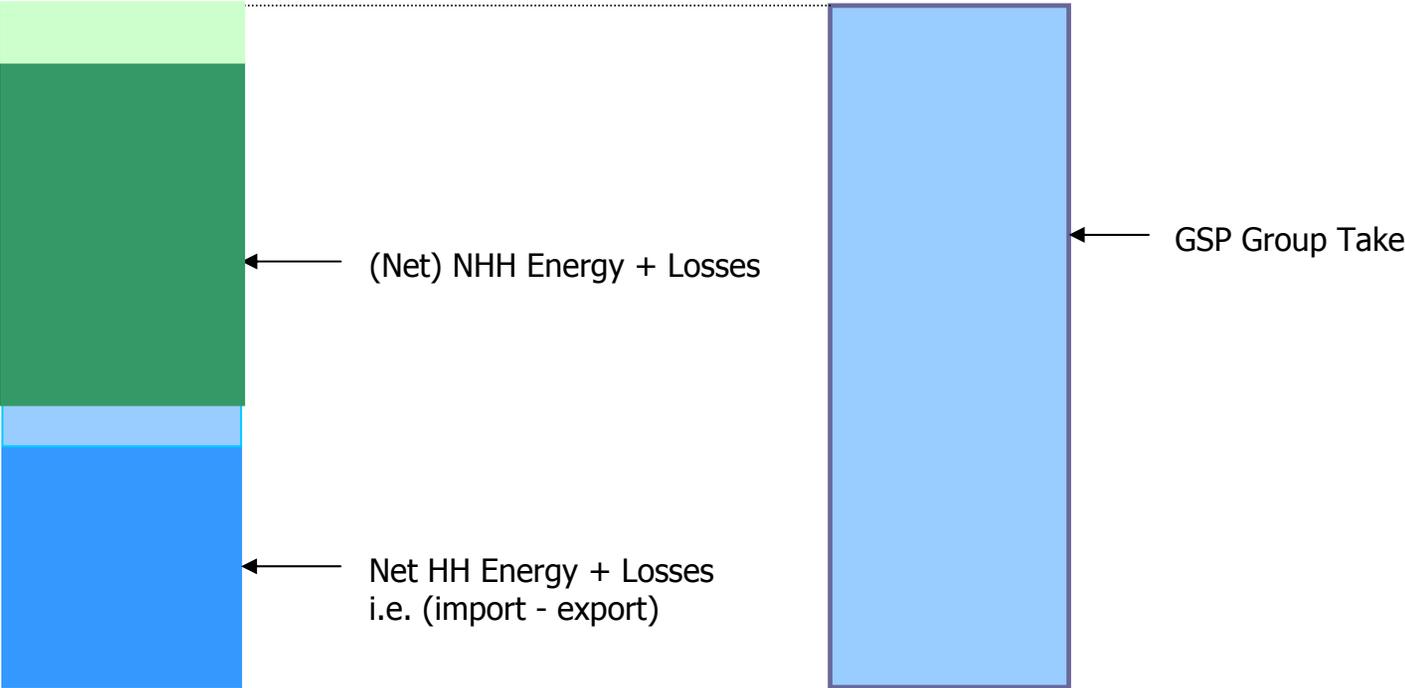
Import



Export



Uncorrected Energy Vs GSP Group Take



GSP Group Correction Factors

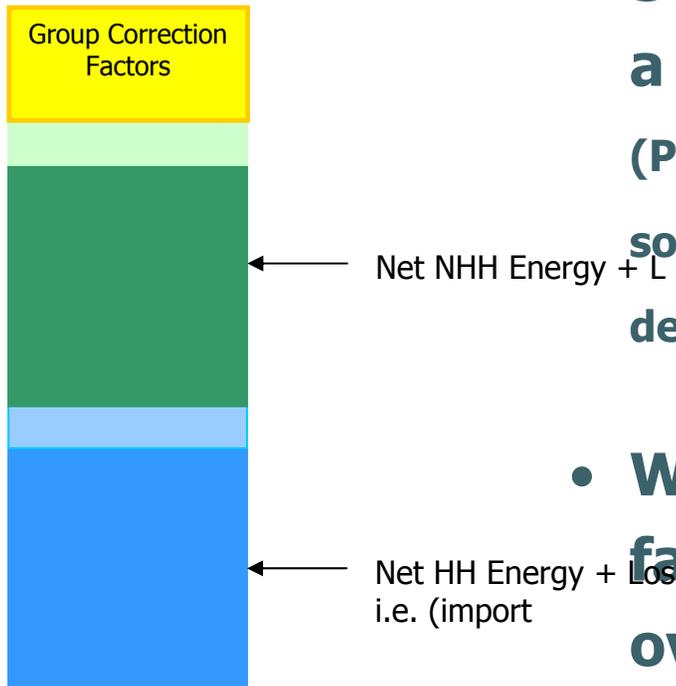


$$\Sigma \text{ (Transmission Tower Icon) } - \left(\Sigma \text{ (Solar Panels Icon) } - \Sigma \text{ (Nuclear Reactor Icon) } \right)$$

$$\Sigma \text{ (House Icon) }$$

Where Σ is the sum of energy within a half hour, this equation produces the GSP Group Correction Factor for that half hour settlement period.

Long-term average correction



- **Settlement Error within a half hour is expected**
(Profiles are estimated values and so are expected to exhibit small deviations from actual data)
- **When group correction factors are averaged over a year this 'shape' error should cancel out.**

Annual Demand Ratio (ADR)



$$\Sigma \text{  - \left(\Sigma \text{  - \Sigma \text{  \right)$$

$$\Sigma \text{ $$

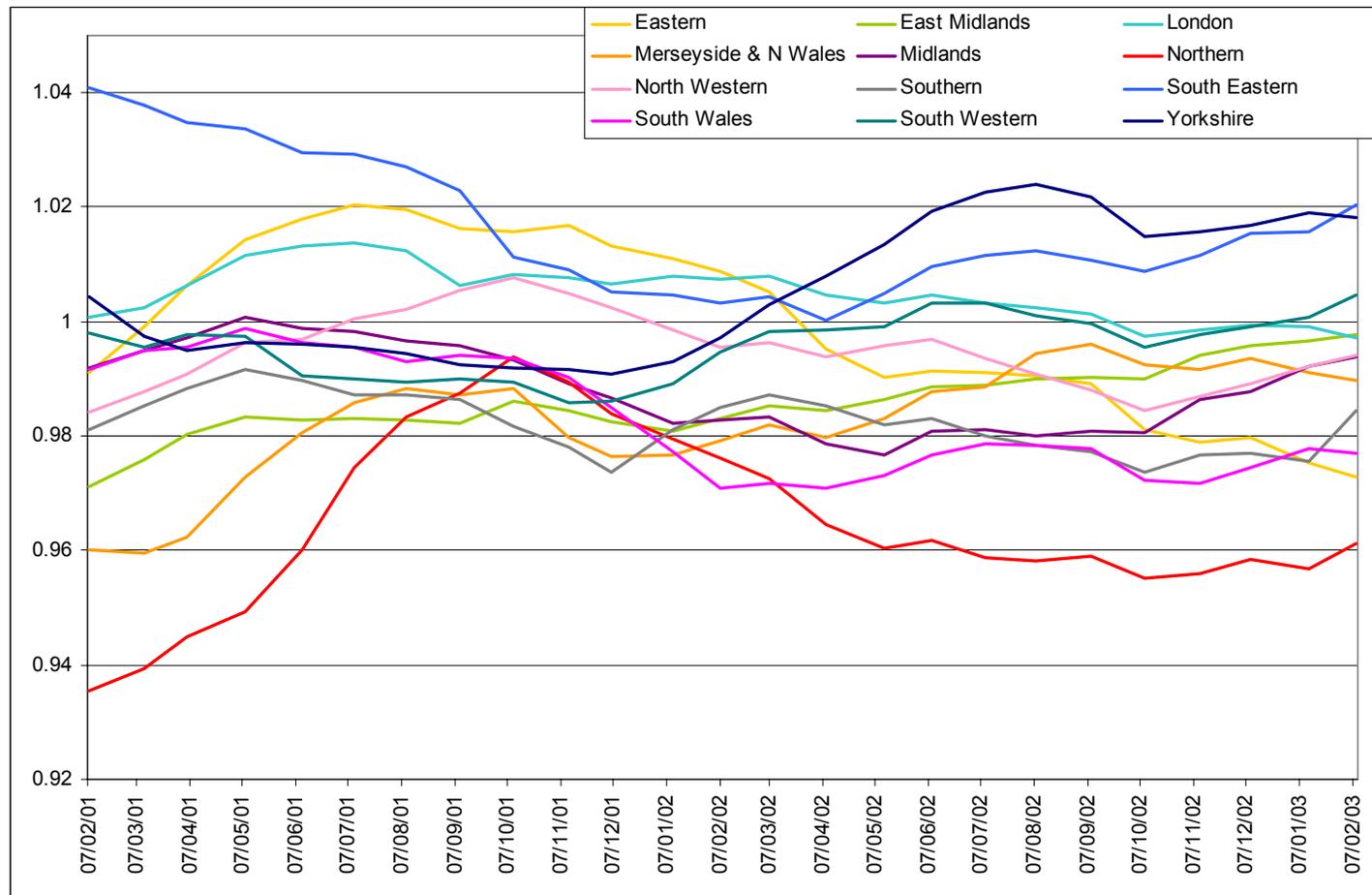
Where Σ is the sum of energy within a year, this equation produces the GSP Annual Demand Ratio (ADR), which is used to measure market performance.

Average CF v ADR



- **time-weighted average CF over a year measures 'shape' and 'volume' error**
- **ADR measures 'volume' error only**

ADR values



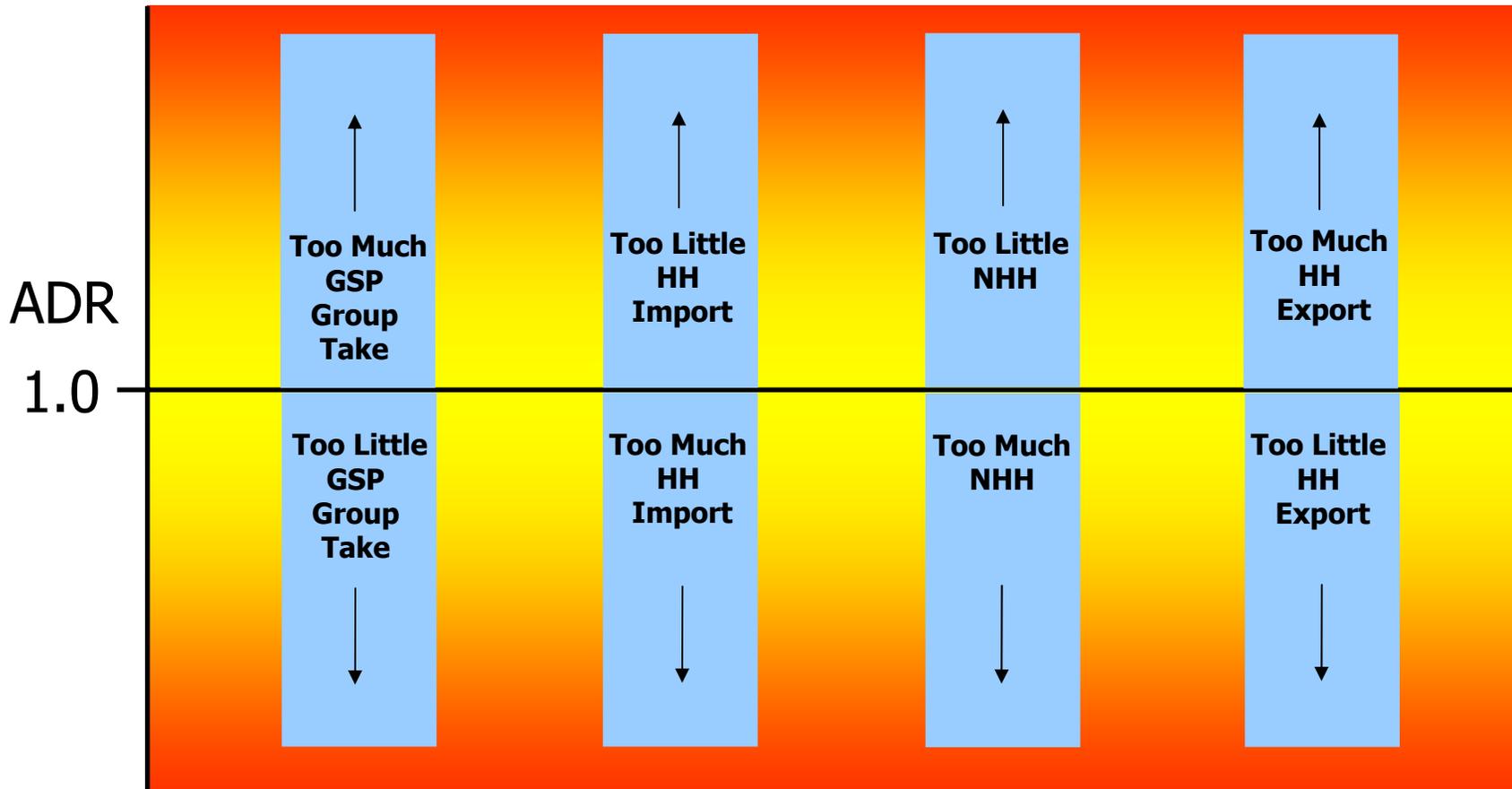
Net Magnitude of Settlement Error



From	To	as at	above unity	below unity	total error
08/02/99	07/02/00	NHH Review	221	6,764	6,985
08/02/99	07/02/00	Final Rec	276	3,559	3,835
11/01/01	10/01/02	latest RF	222	1,610	1,832
17/03/02	16/03/03	latest data	509	1,710	2,219

error in GWh

Potential Causes of ADR deviation from 1.0?



GSP Metering



- **High Volumes / Low Numbers**
- **Strict Controls and Monitoring**
- **Long Established Systems**
- **CDCS / CDCA teething troubles**
- **CDCA Improvement**

GSP Metered Volumes



- **PDSOs registrants of GSP metering**
- **Monitoring of Transmission Losses**
- **CVA registered embedded generation**
- **PDSOs review Aggregation Rules and submit LLFs for embedded generation**



- **D00235 Exception**
 - **Half Hourly Aggregation Exception Report**
 - **ELEXON monitor missing half hourly data**
- **RF 27/03/2001 275**
- **RF 18/02/2002 61**
- **Over 1 year, this equates to 0-321 GWh improvement**
- **Access Issues: e.g. MOD, railways**



- **EAC / AA**
- **D0095 aggregation exception report**
- **Reading Frequency**
- **Unmetered Supplies**

NHH: EAC / AAs



- **EAC / AA**
 - **Large EACs and AAs send ADR below 1.0.**
 - **Negative EACs send ADR above 1.0**
- **ELEXON: large EAC / AA monitoring**
- **Poor Performance = Escalation to the Performance Assurance Board (PAB)**

NHH: EAC / AAs Statistics



- **Erroneously Large EACs and AAs**
 - **Gross uncorrected energy error (Magnitude of issue) crystallised at RF or DF**
 - **Audit Year 2000/2001
625 GWh**
 - **Audit Year 2002/2003
354 GWh**
 - **Effect on ADR**



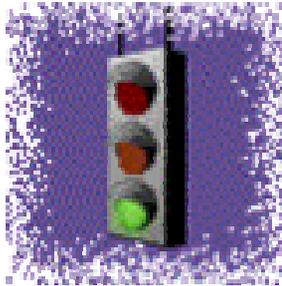
- **The D0095 Aggregation Exception Report is Produced by the Non Half Hourly Data Aggregator (NHHDA)**
- **Reports on inconsistencies between SMRS and DC and missing consumption Data**

Reading Frequency



- **Less Frequent Reads leads to seasonal profile error**
- **Only creates volume error if meters are not read by RF**
- **The Target for NHH is 97% of NHH energy on Annualised Advances (AAs)**
- **PAB escalation Process**
- **Vacant but energised premises will be settled on EACs until access is gained**

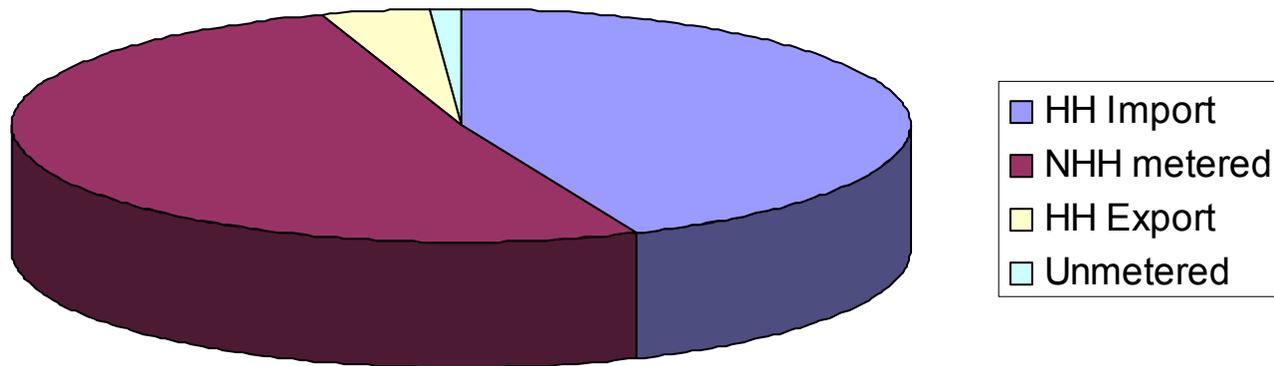
Unmetered Supplies



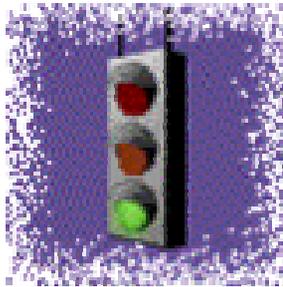
- **Load Research on Street Lights (Currently in Progress)**
- **EACs and inventories are then responsibility of the UMSO (Distribution)**
- **This represents 1% of the total energy in the market.**

Unmetered Supplies

Continued... (Market Share)



Unmetered Supplies

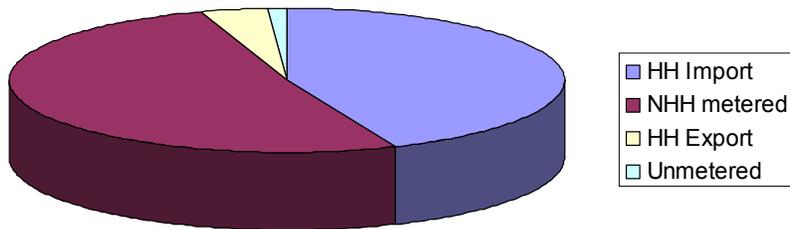


- **Suppliers have the option to choose equivalent metering (e.g. LAMP and FLARE) and trade Half Hourly**
- **This increases accuracy**

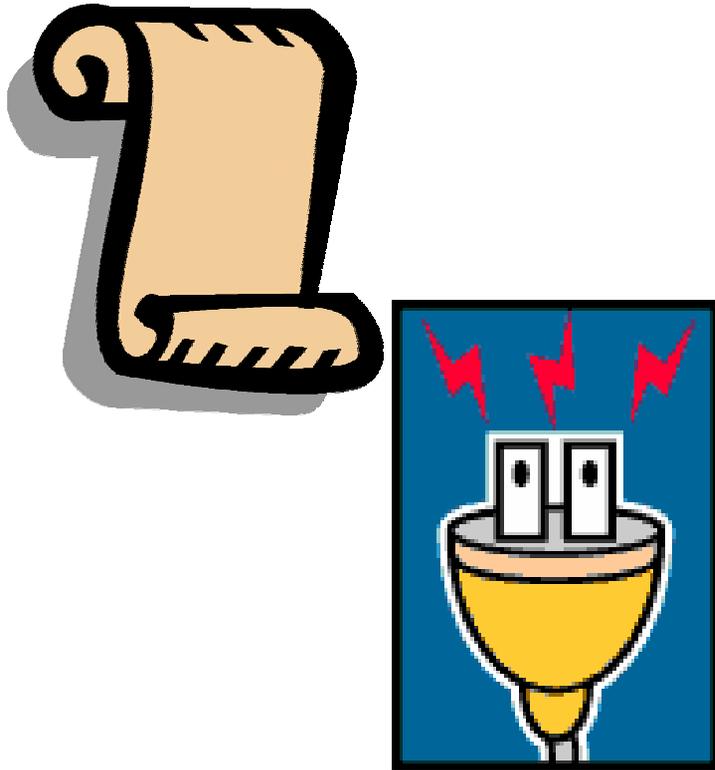
HH Export



- **Cannot be estimated without a Meter Advance Reconciliation (MAR)**
- **Suppliers incentivised to account for all export volumes**
- **Represents a small slice of the pie**



- **Registration, connections / disconnections not registered in SMRS**
- **Energisation Status**
- **Line Loss Factor Estimate Accuracy**
- **Illegal Abstraction**
- **Metering**



- **Unregistered metering systems**
- **Untraded MPANs in SMRS**
- **ELEXON has no visibility of magnitude of error**
- **Retrospective correction of (dis)connection in SMRS (review of MAP04)**

Energisation Status



- **Issue raised by PDSOs that DUoS revenue was being lost due to inaccurate data on energisation at SMRS**
- **ELEXON project concluded that areas of non-compliance that are impacting Settlements data**
- **SVG have approved a programme of quarterly monitoring, guidance to Suppliers, and improvements to the current process.**
- **Monitored by the PAB**

Line Loss Factor Estimate Accuracy

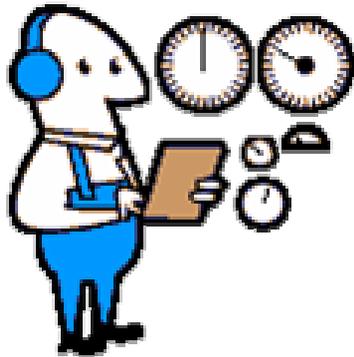


- **Seasonal Errors are inevitable.**
- **Shape Errors resulting from the application of LLFs to profile data (which itself contains shape errors)**
- **Established Distribution Business Processes for deriving Line Loss Factors (with long series of sales/purchase ratios) should mitigate risk of volume errors.**

Illegal Abstraction



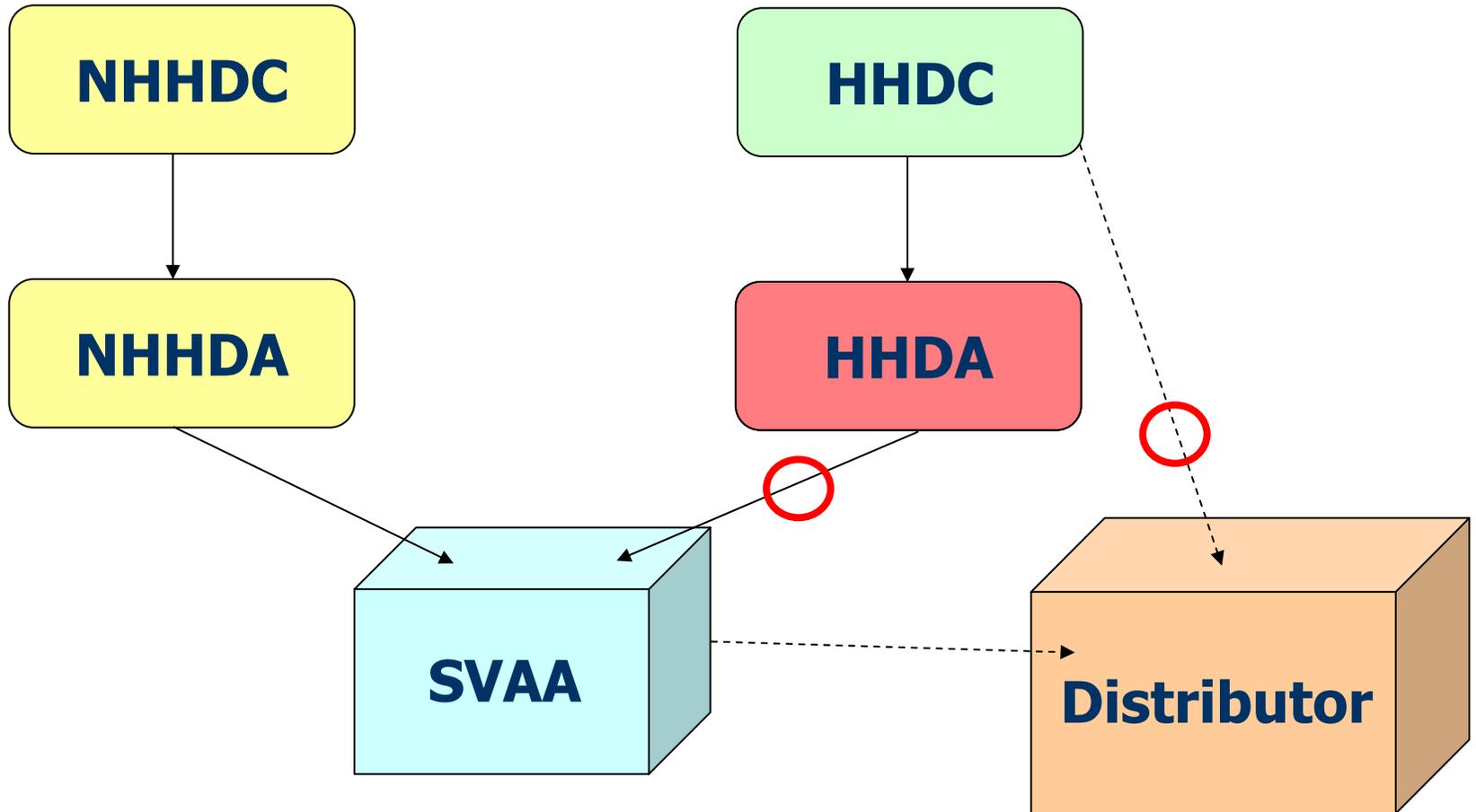
- **ELEXON has no visibility of this issue**
- **The responsibility for this falls under Revenue Protection**
- **Settlement supports Revenue Protection adjustments**
- **Low Volume?**



- **Codes of Practice**
- **Technical Assurance**
- **Certification of Meters**
- **Proving Tests**

and finally...

Settlement Vs DUoS Measurement



and finally...

Settlement Vs DUoS Measurement



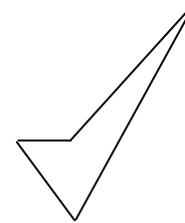
- **NOT a cause of Error**
- **Two different views**
- **This can decrease visibility**
- **SVG agreed regular comparisons of DUoS and Settlement in order to improve settlement data quality**
- **PDSO involvement in progressing Change Proposal**
- **Post Final Disputes agreed outside settlement**

Presentation Objectives

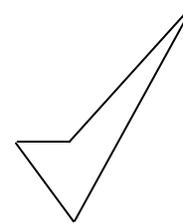


- **Distribution Losses**

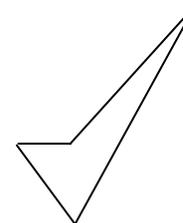
Perspective from Settlements



- **Root Causes**



- **What are we doing about Losses?**



Lunch

ELEXON

