

# Financial Benefits of Rectifying Energy Loss Situations

SARPA 2010

Gallagher Estates, Johannesburg

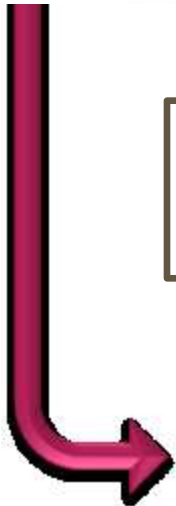
July 30, 2010



# ENERGY LOSSES BACKGROUND



**Energy that cannot be accounted for**



**Technical Loss:**

Network Characteristics  
Nature of Load Flow



**Non - Technical Loss:**

Internal Process Issues  
Faulty Meters  
Electricity Theft

# Why Energy Loss Minimization is Important

## Bottom Line Impact

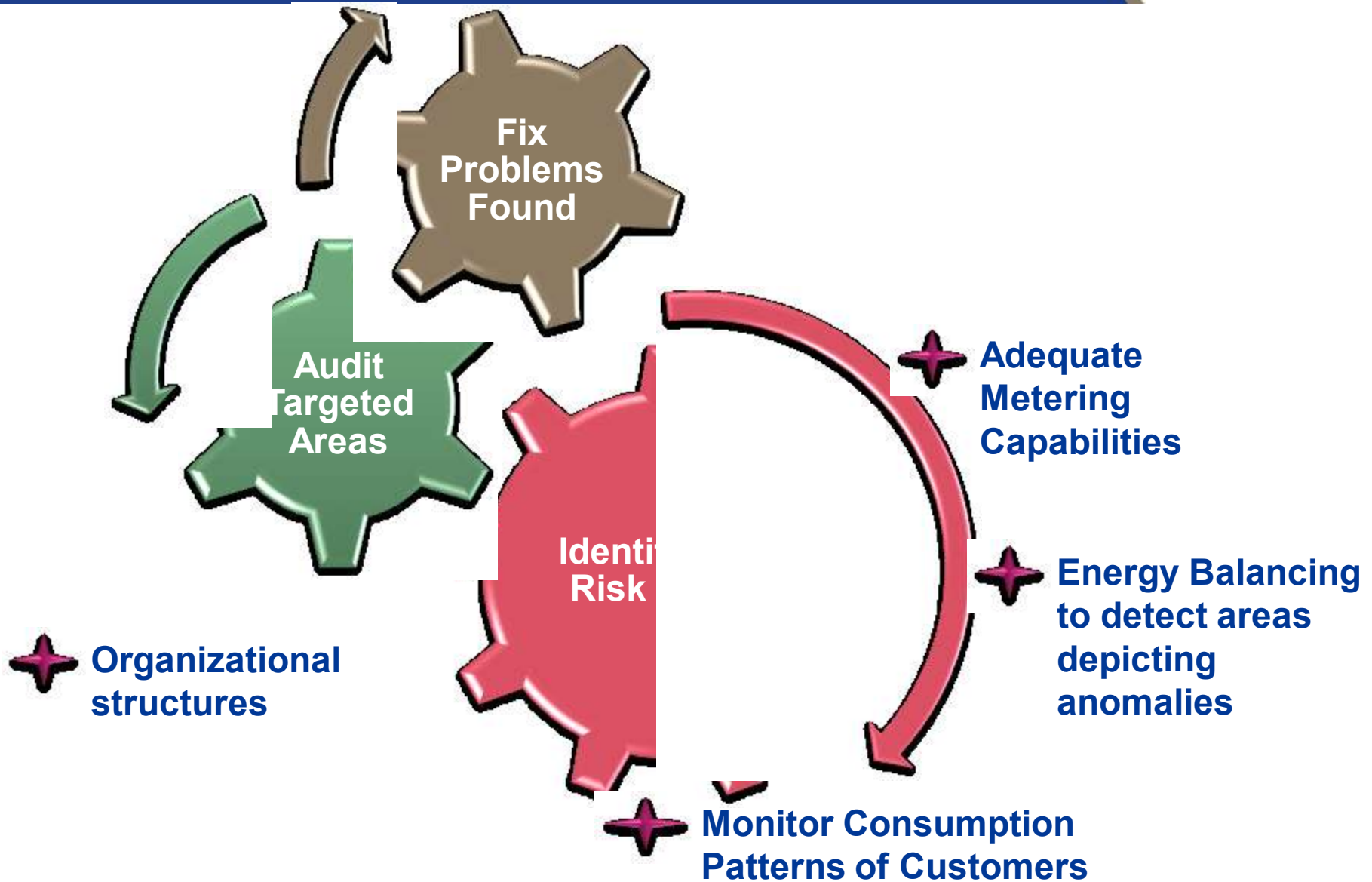
- Loss of Revenue
- Effective Increase in Purchase Price

## Recession Budget Constraint

- Inability to initiate new projects
- Ineffective utilisation of available resources

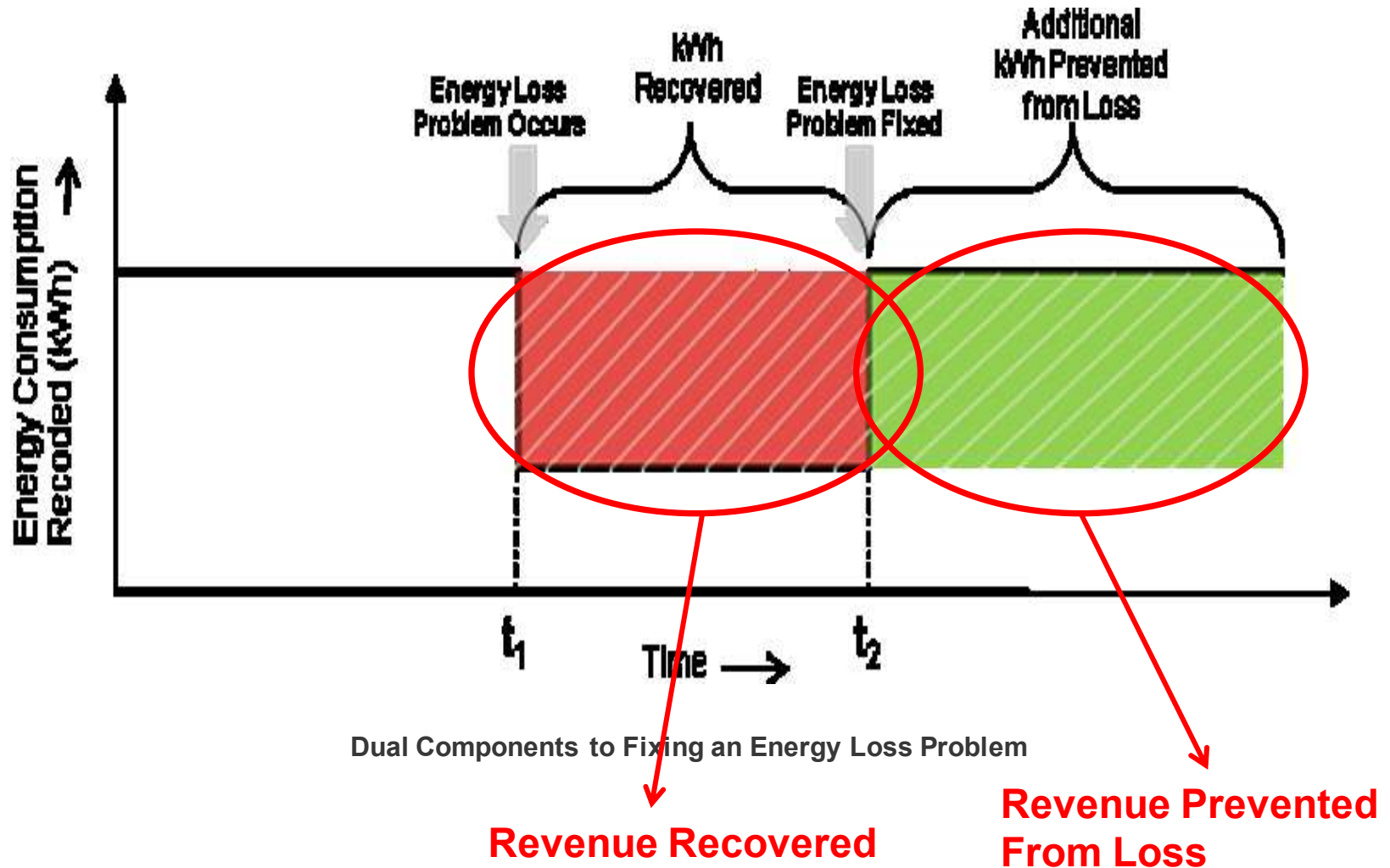
## Environment

- Electricity demand increases to account for energy lost
- Global warming, climate change, South Africa's carbon footprint



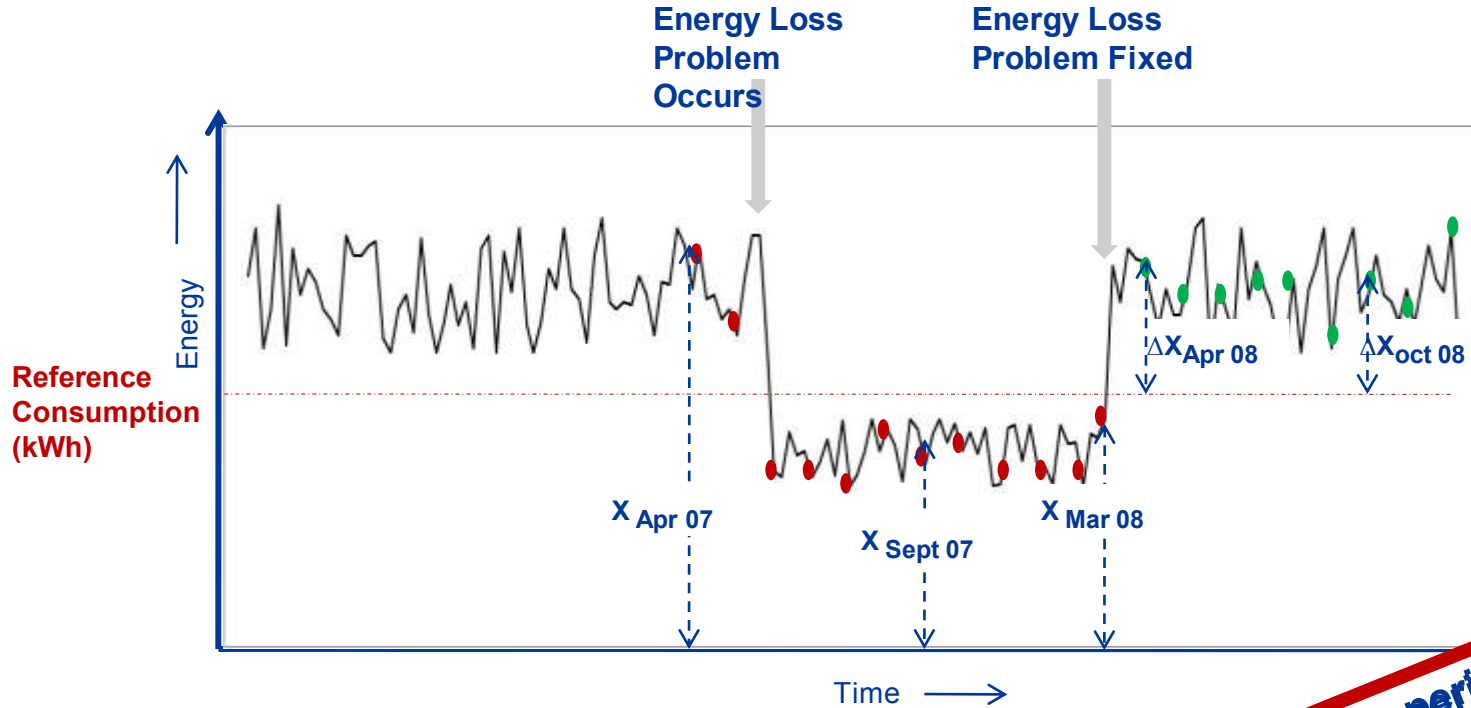
# **How do you measure the effectiveness of Loss Reduction Initiatives?**

# **BENEFITS OF RECTIFYING LOSS SITUATIONS**





# Calculation – Average Consumption during Energy Loss Situation



**Average Monthly Loss Consumption (Reference Consumption)**

**= Average(12 months Consumption prior to Problem Fix)**

$$= \frac{X_{Apr\ 07} + X_{May\ 07} + \dots + X_{Mar\ 08}}{12}$$

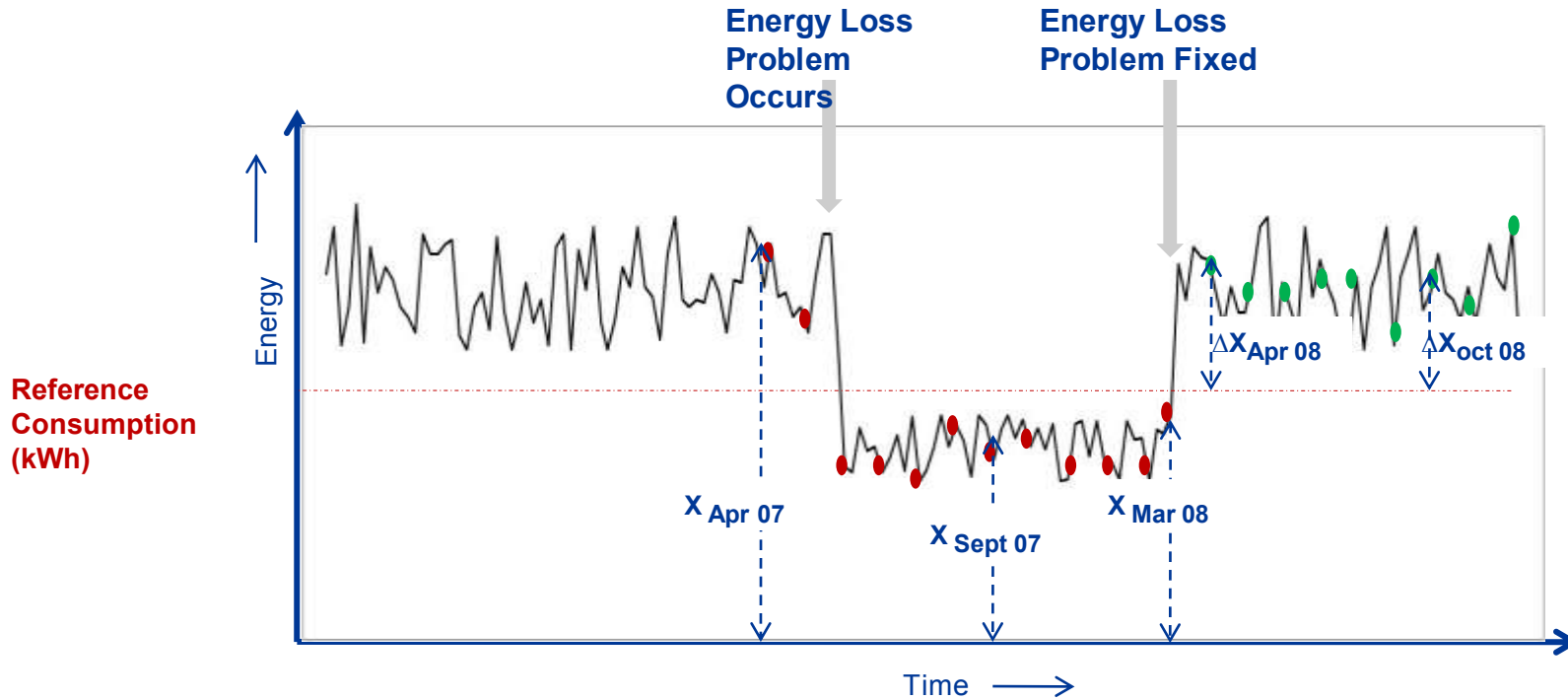
Where  $x_i$  = the kWh reading in month  $i$

**Scenario 2: Loss period ≈ 12 months**

**Scenario 3: Loss period = 12 months**

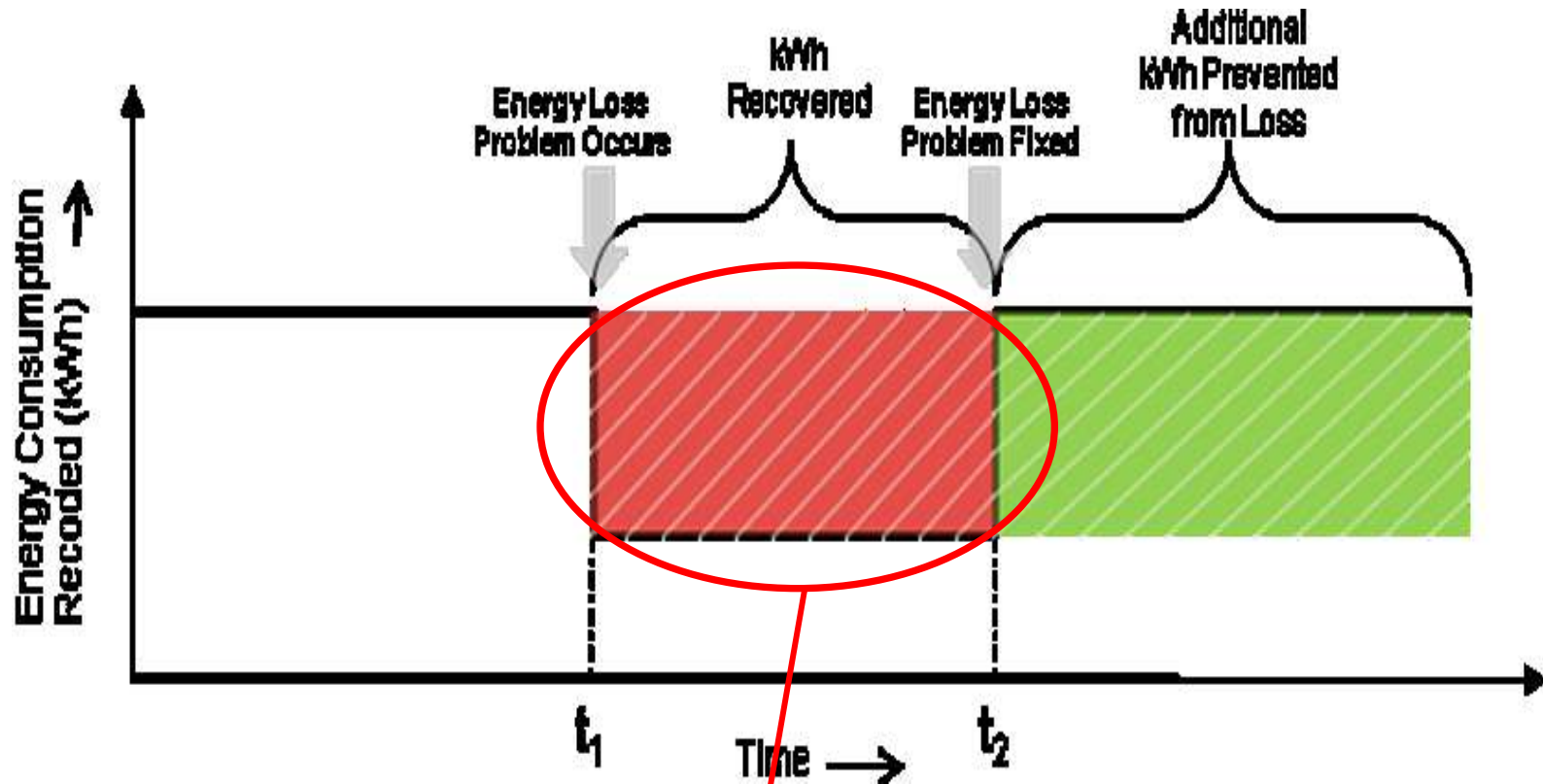
**Impact: Reference Consumption likely to be unrepresentative**

# Calculation – Additional Revenue



$$\text{Average Energy Prevented From Loss by Oct 08} = \frac{\Delta X_{\text{Apr 08}} + \Delta X_{\text{May 08}} + \dots + \Delta X_{\text{Oct 08}}}{7}$$

Where  $\Delta x_i$  = the kWh reading in month i – reference consumption

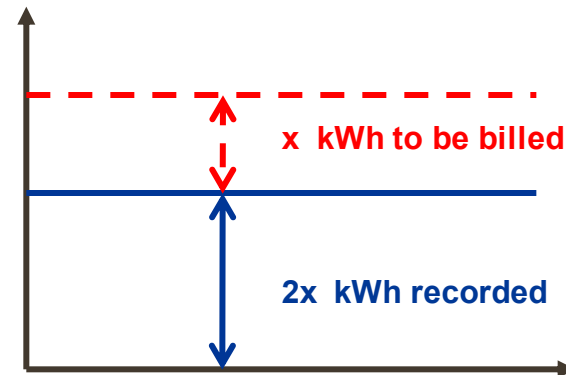


Dual Components to Fixing an Energy Loss Problem

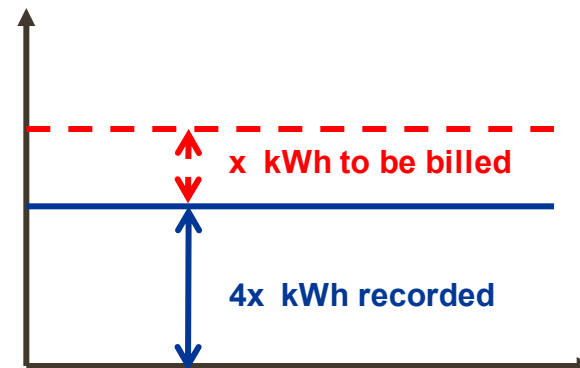
**Revenue Recovered**

- ✦ No generic calculation methodology
- ✦ Determine duration of energy loss situation
- ✦ Case by case analysis dependent on nature of energy loss problem

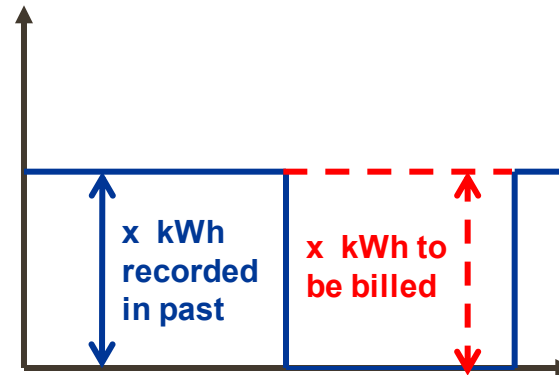
**3 phase meter with one phase disabled**



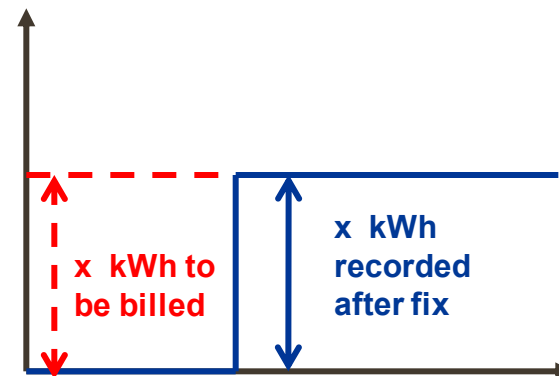
**Meter that has slowed down by 20%**

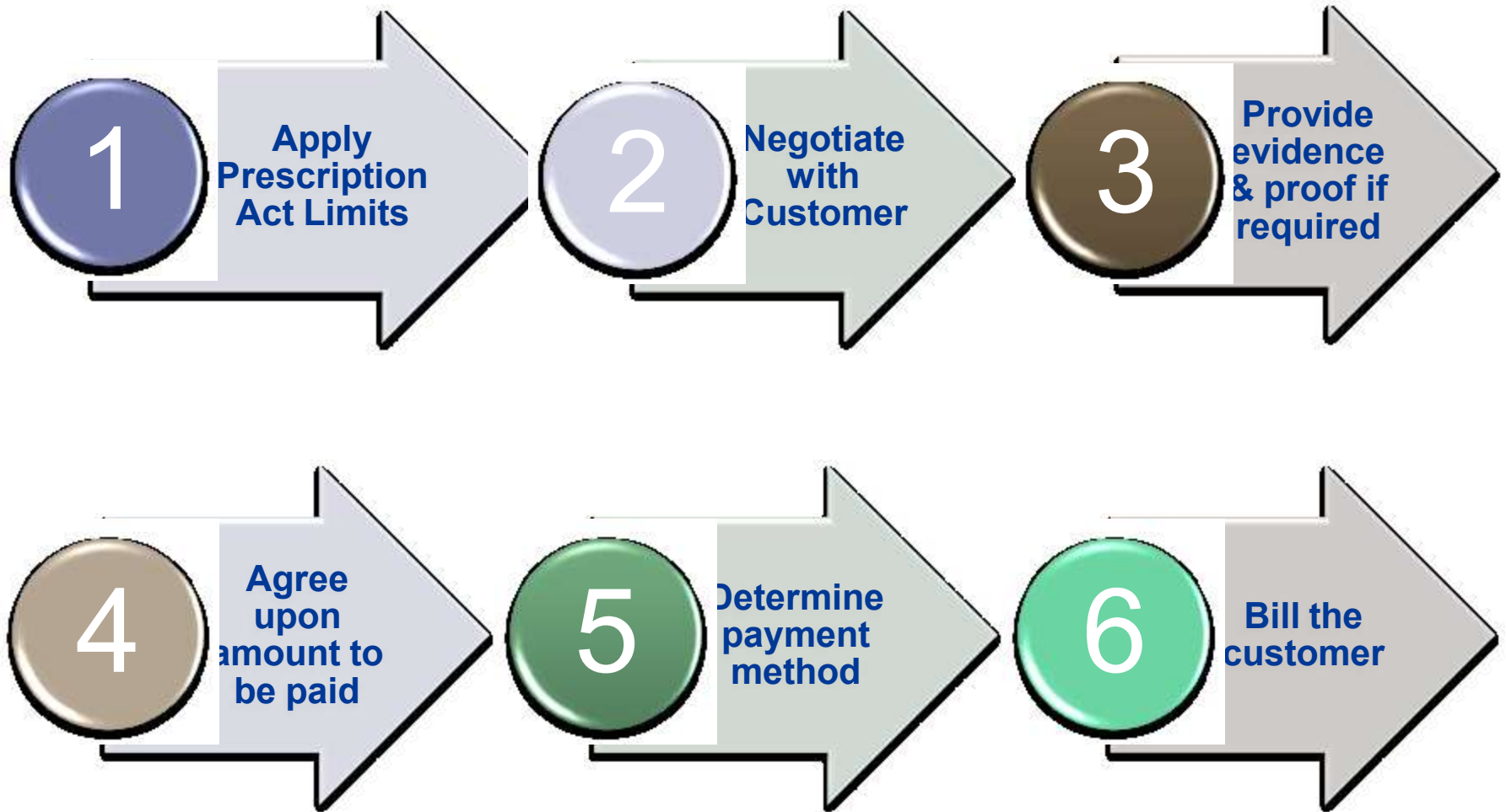


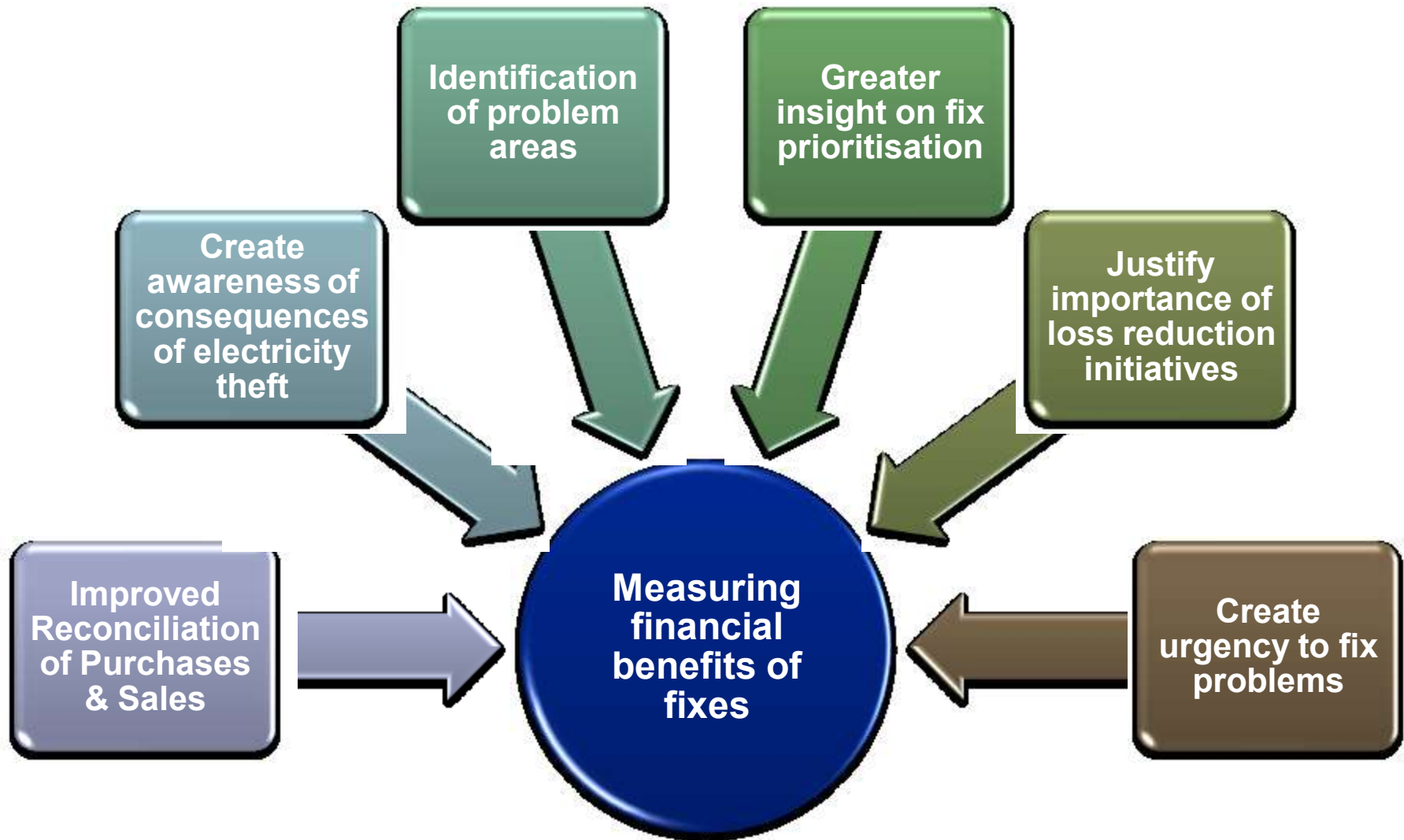
**No meter recordings for duration of problem.  
History available**



**No meter recordings for duration of problem. No history available either.**







Thank you

