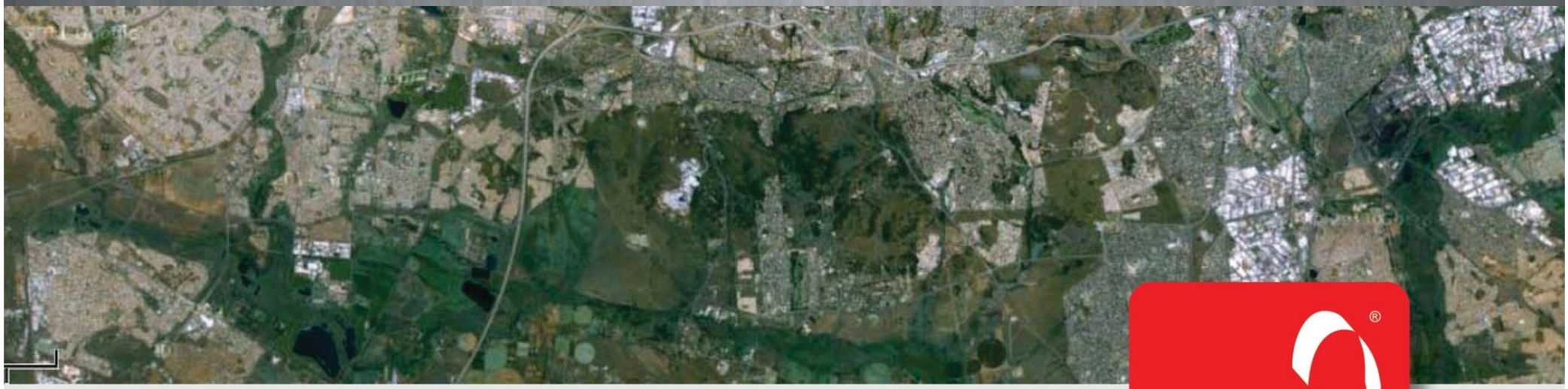


Innovation through Technology

GSMA-IFC Green Power for Mobile Regional Working Group

Dar es Salaam, Tanzania

12 – 13 August 2014



Driving Green Power adoption through Innovations in Technology and Business Models

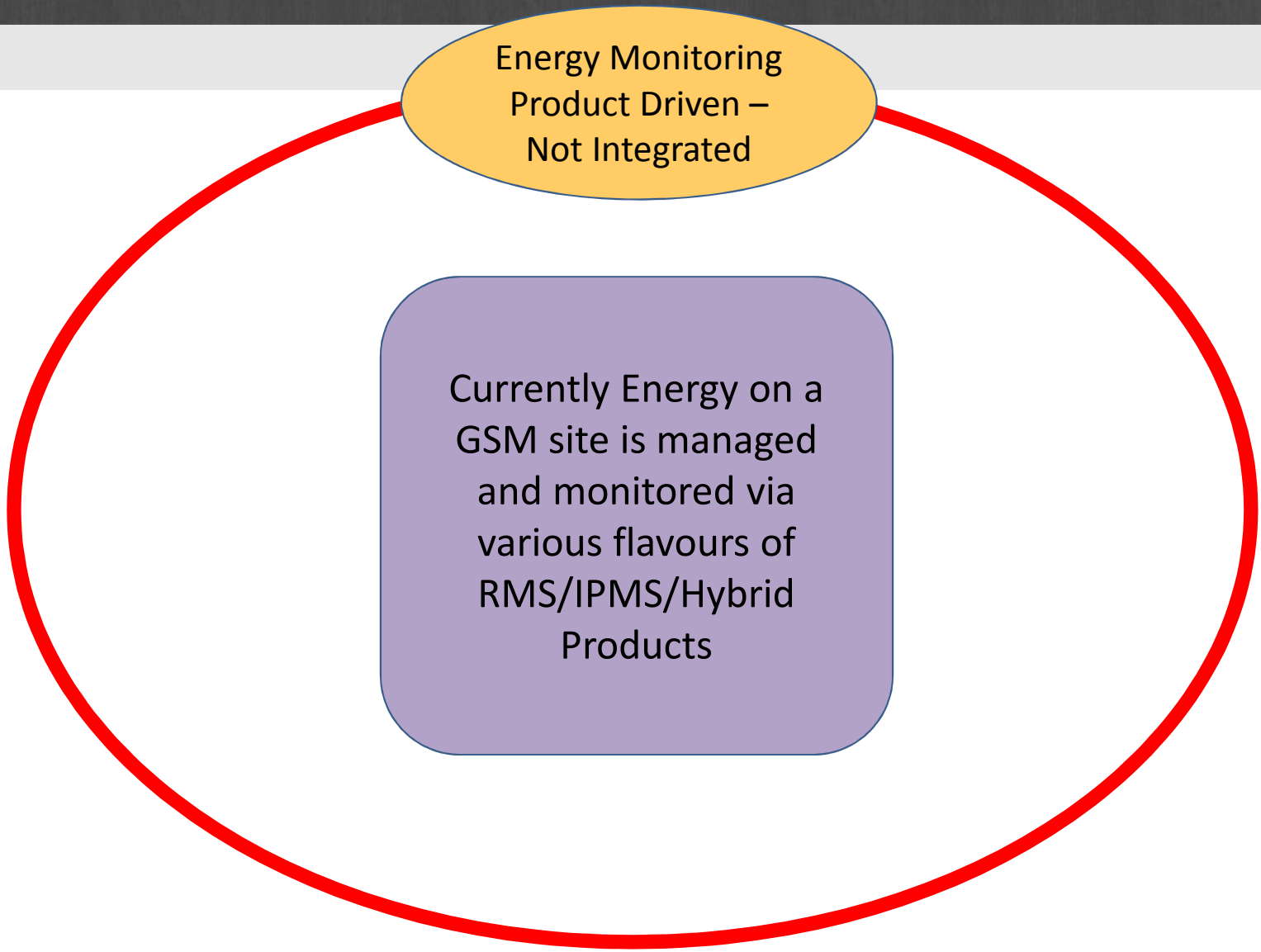
Building Blocks to Adopt Green Power

To be able to successfully and optimised adopt Green Power onto a exisitng GSM Site you need certain key information :

- Power Assets and Power Configuration per site
- Power Demand per site
- and Detailed Consumption per site for AC/DC based on accurate historic data:
  - Whether single or multi tenant site

By having above CORRECT information available you can make an informed decision to ensure that you drill out the full benefit and return on your GreenPower CAPEX-investment

Site Power Monitoring and Management



Energy Monitoring Product : Data Availability and Challenges

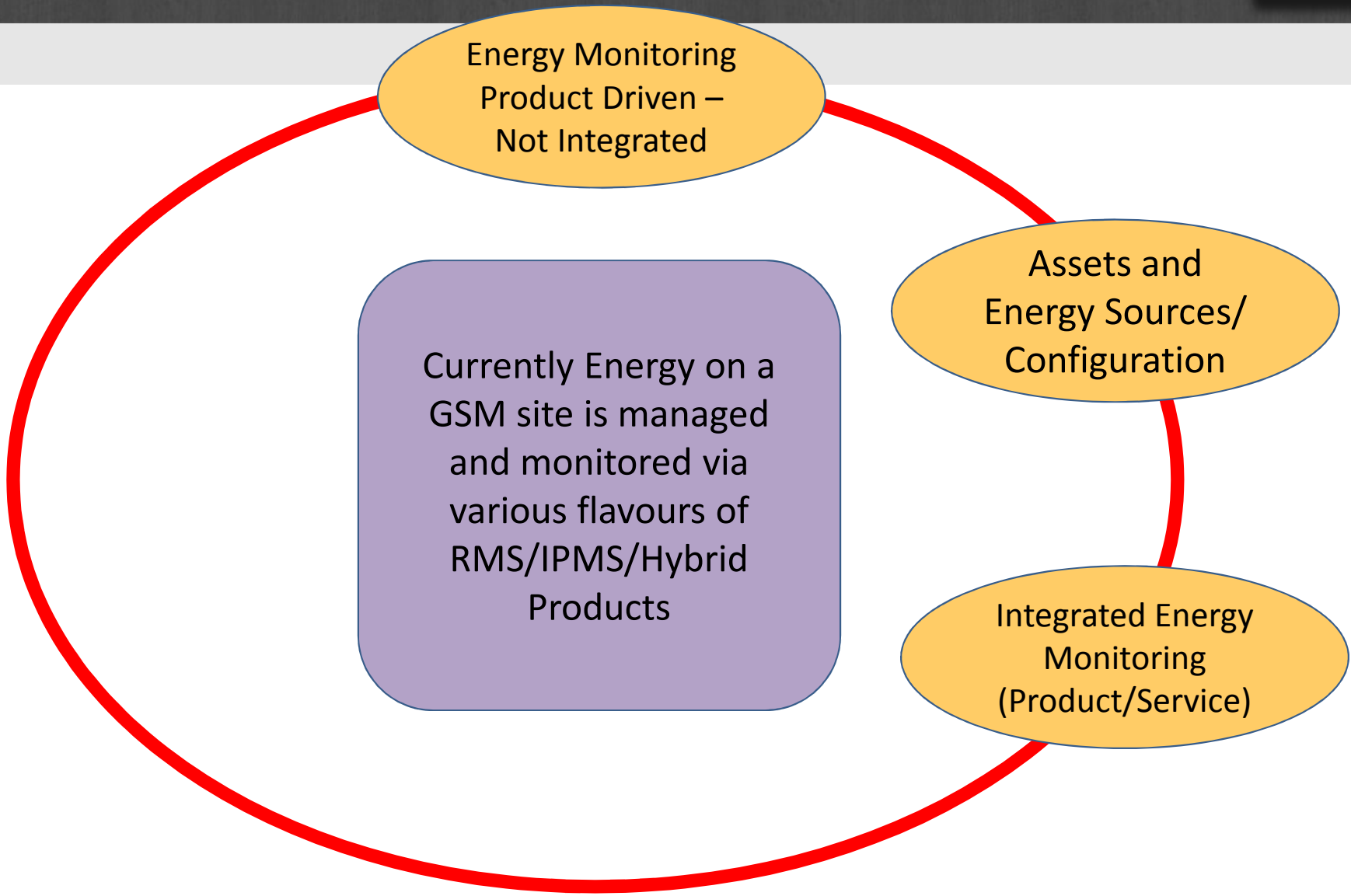
Knowledge /Data flowing from Remote and Energy Monitoring Solution:

- Consumption and Demand in real time and historical trends
- Risks associated to theft, vandalism, illegal access and external factors
- Current / Actual Energy Service Quality from Grid and other Sources
- Energy optimization and saving to ensure lower cost of operation

Challenges:

- Insufficient skills availability- In-Country
- Poor or no support on the product – In-Country
- Spares availability – In-Country
- Interpreting monitoring the unintergarted data of your Energy Sources to be able to managed available energy efficiently and more cost effective
- Getting true OPEX saving out of your Energy Monitoring product
- Ineffective interpretation of Alarms leading to higher downtime and ineffective Preventative and Corrective Maintenance

Understanding of all Energy Sources on Site



Energy Monitoring as an Integrated Service ADVANTAGES

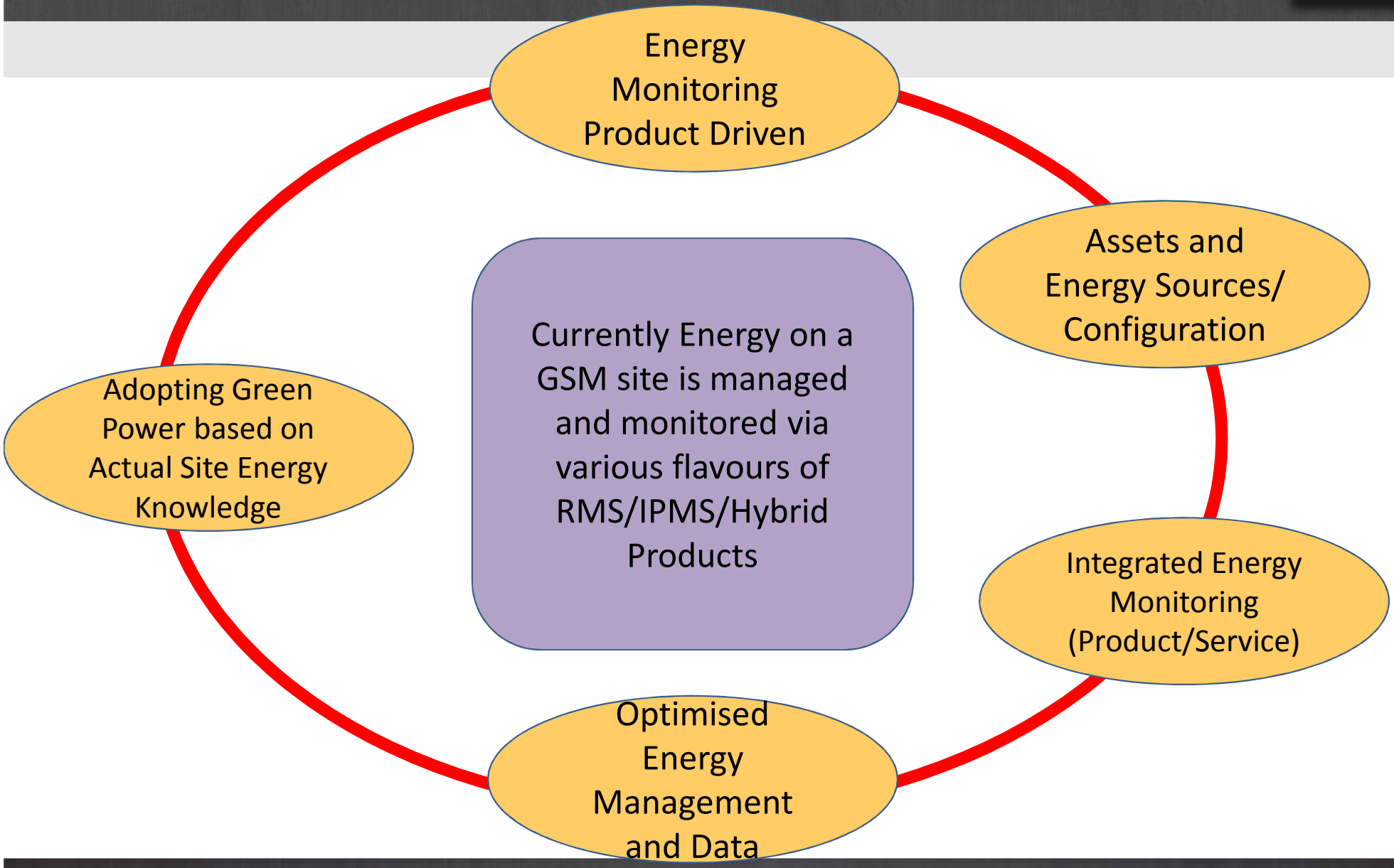
- Higher Visibility of Energy Sources and ability to Managed and Optimise – **OPEX Savings through Energy Efficiency**
- SLA based – better Service Levels **(SLA)**
  - Skills availability
  - Spares availability
- Standardised Energy Management / Simplification
  - Across multiple Countries / OPCOs
  - Multiple Manufacturer's Equipment
  - Performance / Efficiency comparison between multiple Vendor's Equipment
- Effective Energy Management on Multiple Tenant Sites - **(CONSUMPTION)**
  - Tracking and Reconciliation of Energy In and Energy Out/Usage
  - Reconciliation of Grid Power Consumed vs Power Company Invoices
  - AC / DC consumption per Tenant
- More Efficient Fuel Management
  - Reduction of Diesel pilfering
  - Correlation between Actual Diesel supplied and Supplier's Invoice quantities
  - Fuel management Independent from Diesel Suppliers and Maintenance Teams / Contractors

Energy Monitoring as an Integrated Service ADVANTAGES

- More Efficiency on Corrective Maintenance on Energy Sources - **(RISKS)**
  - Pre-Analysis of Root Cause of Alarms by NOC before deployment of corrective maintenance team(s)
  - Predictive maintenance to reduce service disrupting energy problems through trends and analysis
  - Performance monitoring of Maintenance Teams / Contractors
- Strong partnership between vendor and client
  - 3 to 5 year service agreenments based on performance
  - Various CAPEX/OPEX models as to client preferance
  - Ongoing improvements on product deployed and services
  - Vendor responsible for product configuarion management

  - **“Pay for the value that you receive”**

Roadmap to Green Power Adoption



Roadmap to Green Power Adoption

- Integrated Energy Monitoring as a Service will result in:
  - Understanding of Energy Consumption
  - Better Understanding of Risks involved
  - Parameter baseline for Adopting Green Power

Having a better understanding and through :

- the intelligent analysis and
- presentation of factual data on energy sources

allows the ability to inform for :

- immediate operational and strategic decision making into a Green Power Model and Adoption

Innovation through Technology

Q&A