



**SOLVAY**

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# BPMR Shanghai

## Basic Principles for Carbon Measuring Reporting & Verification

# MRV Architecture an ETS needs from your Company



Report

Sense and  
Monitor

# 监测包括 Monitoring involves what?

- 主管部门依照核准的监测计划监测排放  
Monitor emissions in accordance with approved Monitoring Plans
- 数据收集（能源费用单、发票、生产协议,对原材料和燃料取样等）  
Data collection (bills, invoices, production protocols, sampling of materials and fuels ...)
- 计量表的维护与校对  
Maintenance and calibration of meters
- 控制活动（双人监控原则等）  
Control activities (four eyes principle...)
- 数据存档（避免篡改）  
Data archiving (protect against manipulation)
- 准备年度报告  
Preparation of annual reports

# Narrow MRV for ETS (Minimum Effort)

Report

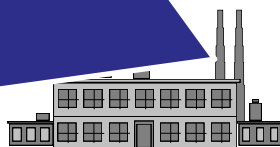
Emission Report (to be verified)

Calculating Methodologies  
(Emission factors...);  
Aggregation of data

Sense  
and  
Monitor

Monitoring plans

Boundaries: which operation to include?  
Where emission sources are?  
How they are monitored?  
Who is responsible?



# MRV like YOUR COMPANY want to implement

## Monitoring Plan

Carbon data as required, to expand/merge with in/out energy data



## Data Collection

Start with existing aiming for automation and accuracy



## Quality Assurance

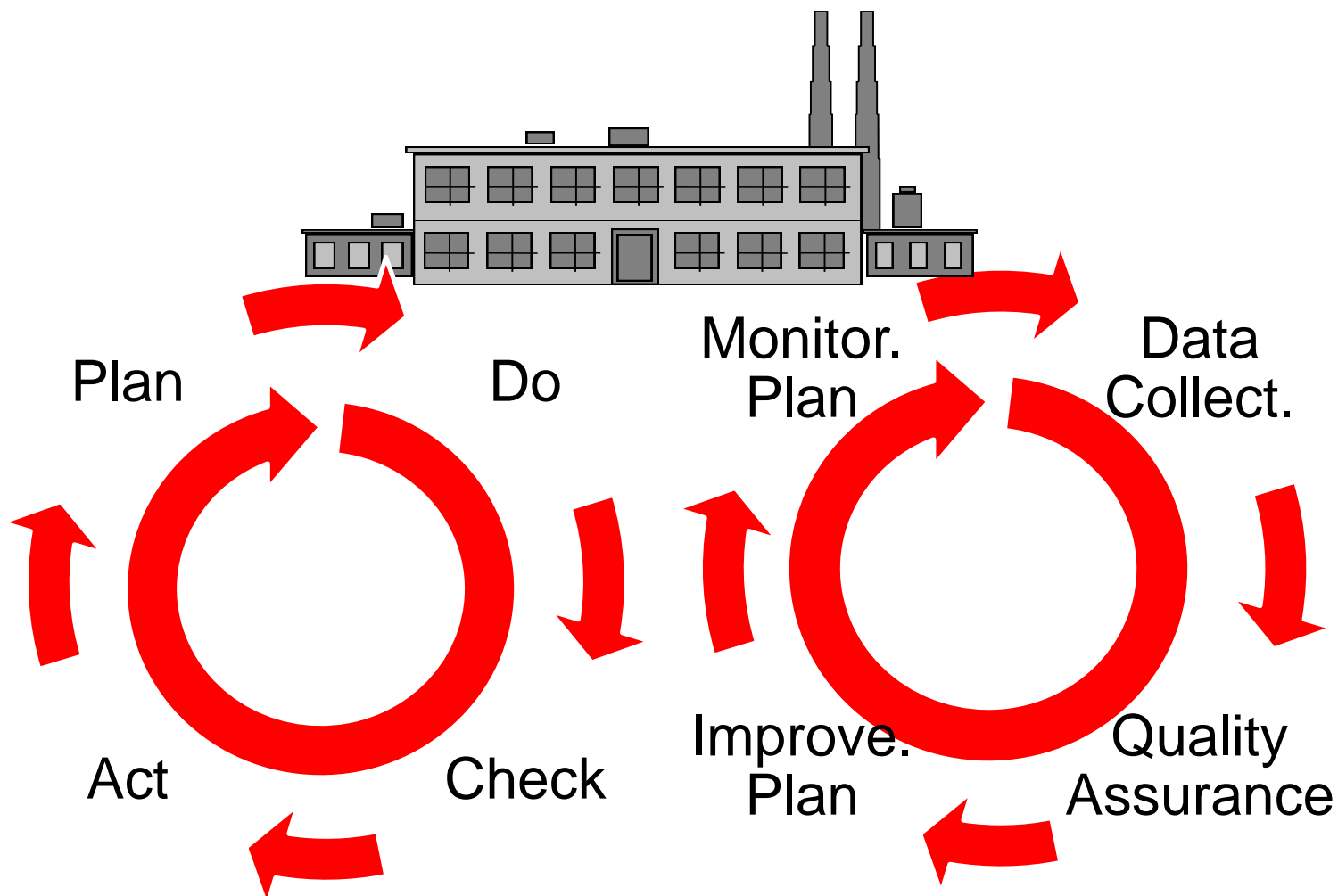
External verification to test and upgrade our internal standards



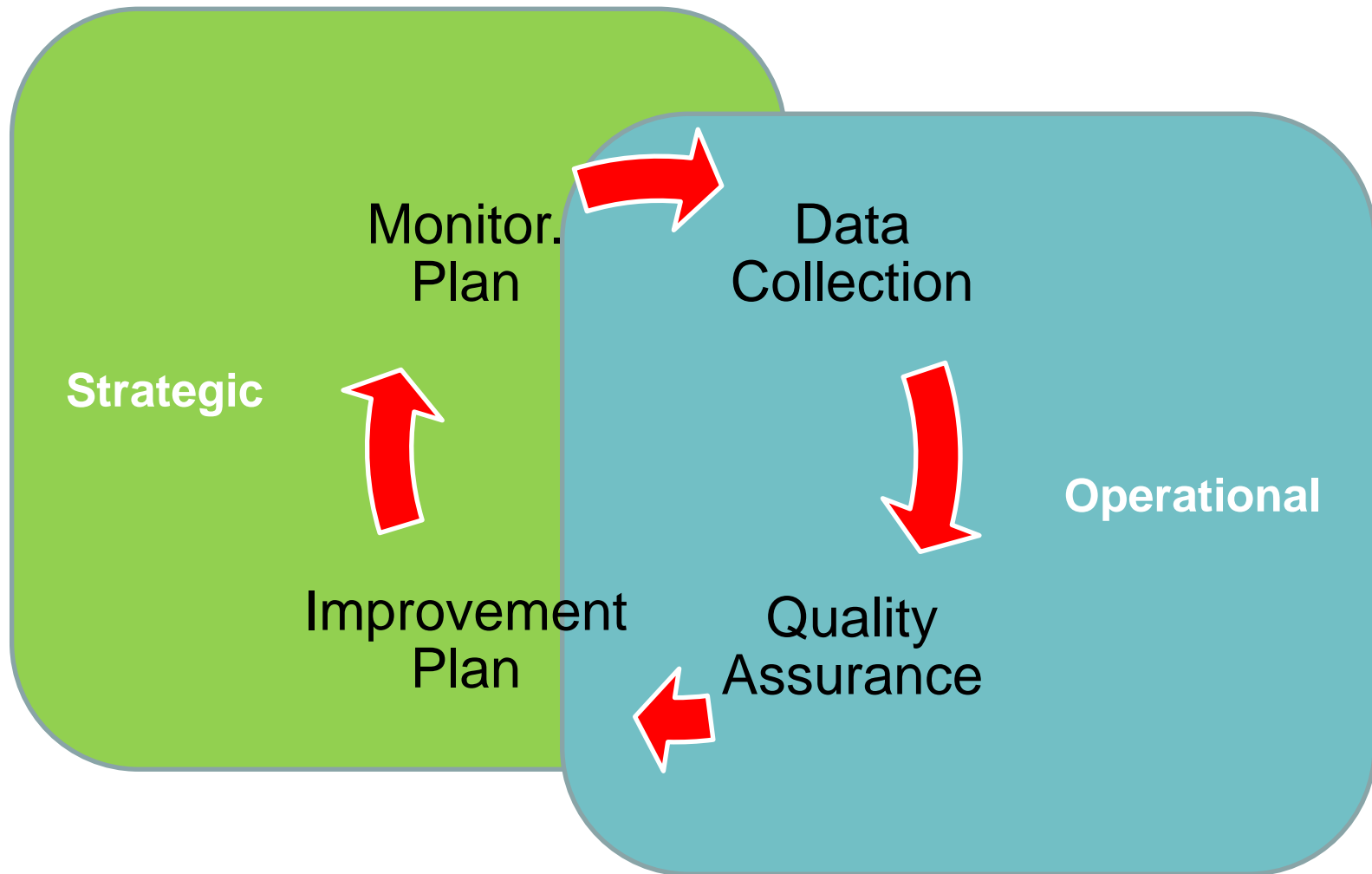
## Improvement Plan

To make data more useful for energy governance/Risk management

# MRV Static to Dynamic



# Carbon (and Energy) Management



# Plan

Process: Work in cycles

Cycle 1: Start from what is there: Map basic needs of MRV and match with existing processes (Quality? Energy Management?)

Cycle 2: Streamline responsibilities according to the results of cycle 1 and objectives

Use bottom up approach: site operators know well what is measured and how to upgrade

- Task force should be created with all departments involved by carbon, but top management should Clarify Company Objectives in Carbon Management: Minimal Compliance? Energy Conservation?
- Use industry associations, they usually provide guidance and allow to participate actively in an ETS.

Monitor.  
Plan

Data  
Collection

Improvement  
Plan

Quality  
Assurance



# Do – Monitoring/Reporting

Process:

Aim for automation

Pay attention to Data Archiving

Do not forget maintenance of meters

Automation allows:

faster integration and analysis of data,  
which in turn allows:

More precise management of  
operations (and the use of control  
software)

Monitor.  
Plan

Data  
Collection

Improvement  
Plan

Quality  
Assurance

Access to fast analytics is important to  
optimize carbon position (allowance/  
offset trading) and  
To take advantage of opportunity offered  
by Demand Side Management incentives  
and Smart Grid developments

# Check - Verification

Monitor.  
Plan

Data  
Collection

Process:

Conduct external verification after an internal audit;

Team

Identify key personnel considering their availability: involve people operationally involved along with referent for carbon of top management;

Improvement  
Plan

Quality  
Assurance

Verifications will test a company's level of access to information concerning its own key risk areas associated with energy, and should highlight where robustness of information should be improved.

Companies may use external Technical Assistance for the first verification, and consider taking over with own personnel later on

Data robustness should be guaranteed since it underpins trading and investment decisions

# Act - Improvement

Review of the carbon & energy management verification results should be measured against objectives decided in the Plan phase.

Review should involve also departments not operationally involved in Carbon/Energy Monitoring

Improvement plan should cover head+tail: system objectives should be matched by measures suggested by operators, which should be involved in the improvement plan from the beginning.

Improvement phase allows to adjust the monitoring according to external situation:

Monitor.  
Plan

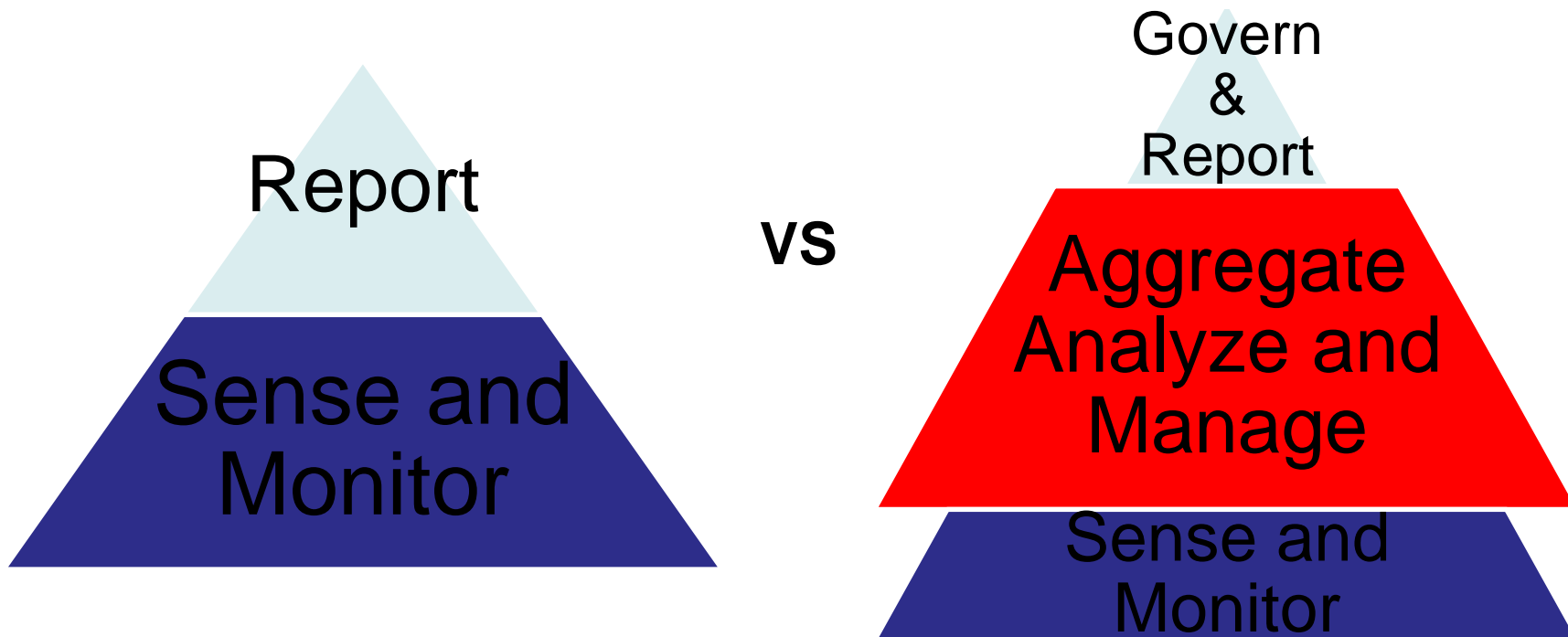
Data  
Collection

Improvement  
Plan

Quality  
Assurance

High carbon prices, cost of technology (etc) should be accounted when determining monitoring objectives and limits

# MRV architecture YOUR COMPANY may want to implement



**Thank You!**

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