

# Clean Development Mechanism and Oil and Gas Industry

## 清洁发展机制和油气行业

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*By*

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Sustainable Development Mechanisms 可持续发展机制

UNFCCC Secretariat 《联合国气候变化框架公约》秘书处

*International Workshop on Methane Emissions Reduction  
Technologies in the Oil and Gas Industry*

**油气行业甲烷减排技术国际研讨会**

*17-18 April, 2008 (2008年4月17-18日)*

*Huadong, China (中国, 华东)*



# What is the CDM - Incentives

## 什么是CDM-动机

Industrialized countries (AI) 工业化国家

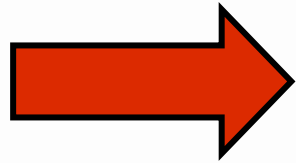
→To assist in meeting their **emission limitation commitments**  
→为了达到他们的限排承诺

Investors

投资者



private business,  
governments, NGOs  
私人企业, 政府,  
非政府组织



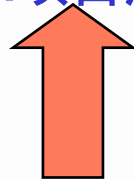
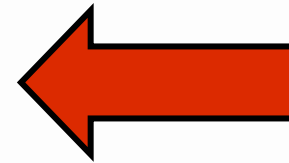
CDM project  
activity  
CDM项目活动

Project participants

项目参与者



private business,  
governments, NGOs  
私人企业, 政府,  
非政府组织



Developing countries (Non-AI) 发展中国家

→To assist in achieving  
**sustainable development**  
→为了达到可持续发展



# CDM - Players CDM-参与者

- 
- COP/MOP
  - CDM Executive Board (supported by **technical panels** and working groups) CDM执行委员会 (由专家小组和技术小组支持)
  - The UNFCCC secretariat 《联合国气候变化框架公约》秘书处
  - Designated national authorities (DNA) 指定的政府当局(DNA)
  - Designated operational entities (DOE) 指定经营实体(DOE)
- 
- Project participants 项目参与者



# The Project Cycle 项目的循环

- Project Activity Design (PDD and project developers)  
项目活动设计（项目设计文件和项目开发者）
- Proposal of a New Baseline and/ or Monitoring Methodology  
新基准线和监控方法的提议
- Use of an Approved Methodology 被批准方法的使用
- Validation of the CDM project activity (DOE)  
CDM项目活动的确认（指定经营实体）
- Registration of the CDM project activity (Executive Board)  
CDM项目活动的注册（执行委员会）
- Certification/ Verification of the CDM project activity (DOE)  
CDM项目活动的证明/核实（指定经营实体）
- Issuance of CERs (Executive Board)核证减排量颁发（执行委员会）



# Types of Methodologies/Project Activities under CDM

## CDM下的方法论/项目活动类型

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- **Small Scale CDM (non A & R) methodologies for projects with emission reduction limits of:**  
小规模的CDM (非A&R) 方法论对项目减排的限制：
  - **max output of 15MW or eq. (Type 1-renewable energy)**  
最大产量为15兆瓦 (类型I-再生能源)
  - **max output of 60 GWh per year (Type II - improvements in energy efficiency)**  
最大产量为每年60百万千瓦小时 (类型II-能源效率的改善)
  - **Less than or equal to 60 kt CO<sub>2</sub> eq. annually (Type III -other project activities)**  
每年小于或等于6万吨的CO<sub>2</sub> (类型III-其他的项目活动)

# Types of Methodologies/Project Activities under CDM

## CDM下的方法论/项目活动类型

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- **Small Scale CDM methodologies for A & R projects (SSC A & R):**

### A&R项目中小规模CDM方法论：

- Limit of 8 kt CO<sub>2</sub> per year 每年8千吨CO<sub>2</sub>的限制

- **Large Scale methodologies for non A & R projects:**  
非A&R项目的大规模方法论

- No limit 没有限制

- **Large Scale methodologies for A & R projects:**

### A&R项目的大规模方法论

- No limit 没有限制



# Project Activities (Few Key Areas)

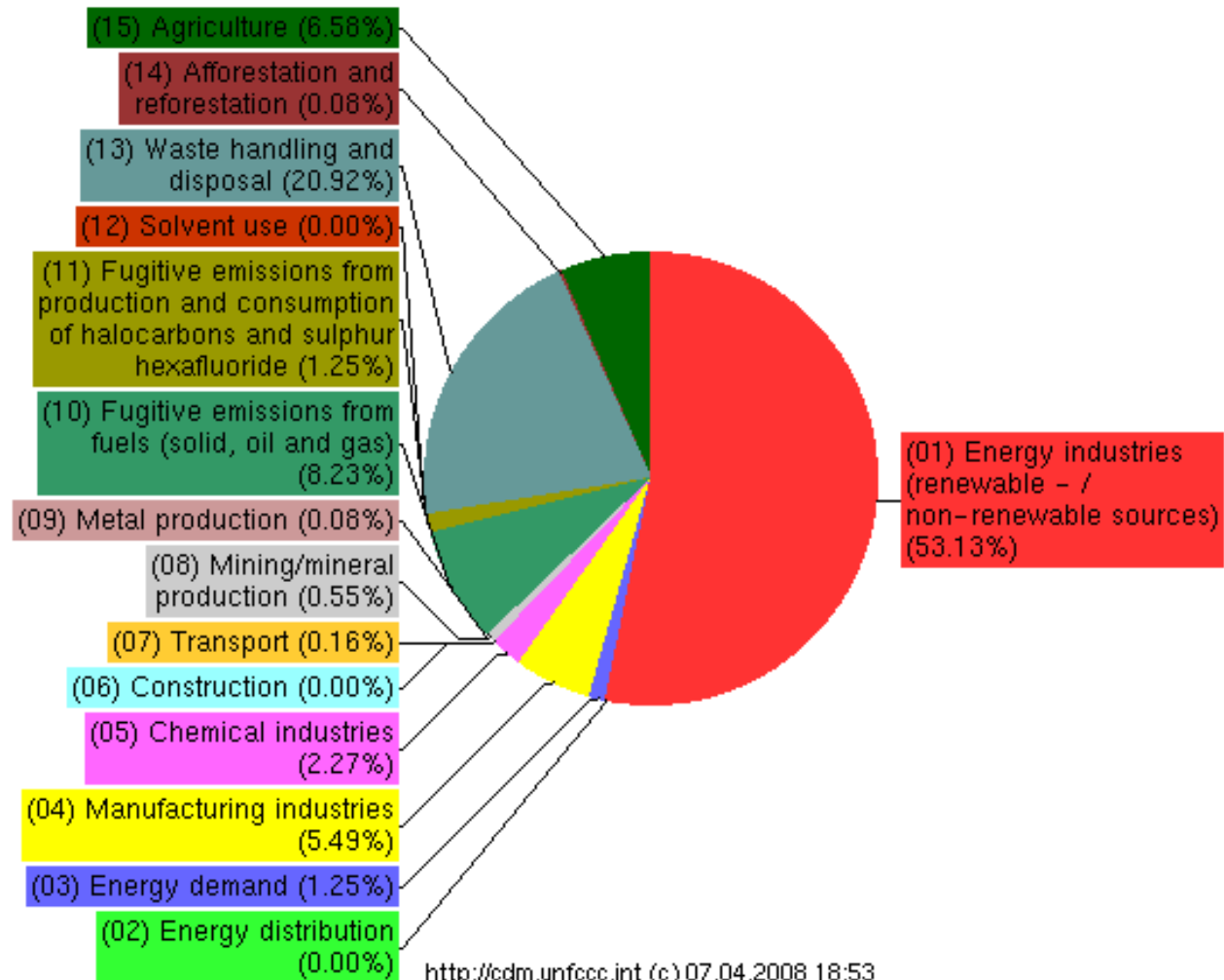
## 项目活动（关键区域）

- Energy Efficiency and fuel switch (industry, agriculture, transportation, residential, commercial sectors) 能源效率和燃料转换（工业，农业，运输，居住和商业部门）
- Additives in cement 水泥添加剂
- Cogeneration 热电联合
- Waste Heat Recovery 废热回收
- Renewable Energy (Wind, solar, biomass) 再生能源（风能，太阳能，生物能）
- Biofuels 生物燃料
- Methane avoidance, capture and energy generation 甲烷的避免，捕获和能量产生
- N<sub>2</sub>O reduction through primary, secondary or tertiary catalysts in Nitric Acid/ Caprolactam plants. 硝酸/己内酰胺设备中的一次，二次和三次催化减少N<sub>2</sub>O
- PFC destruction in Aluminium industry 铝行业中的PFC破坏
- HFC destruction projects HFC破坏项目



# PROJECTS BY SCOPE 项目范围

Distribution of registered project activities by scope





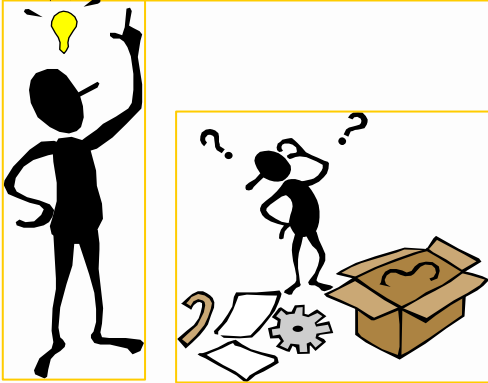
# Methodologies - Process the Basics

## 方法学-基本过程

Bottom up approach! 倒置方法

Submission 提交

Made by PPs  
(through DOEs)  
由项目参与者制定  
(通过指定经营实体)



Meth Panel  
甲烷小组

**Recommends for: 推荐**  
-approval/consolidate  
批准/巩固  
-re-consideration 再考虑  
-non-approval 不认可

Public input / desk  
review of submission  
and public input  
公共投入/提交和公共投入  
的桌面回顾



Executive Board  
执行委员会

**Agrees to: 同意**  
-Approve/consolidate  
(A) 批准/巩固  
-Preliminary  
Recommendation  
初步推荐  
-Non-approval  
(C) 不认可



# Elements of a CDM Methodology I

## CDM方法学I的原理

- **Project Boundary 项目界限**
  - Spatial extent of boundary, emission sources within boundary
  - 空间界限程度，在界限内排放源
- **Applicability Conditions 适用性条件**
- **Baseline Scenario 基准线方案**
  - Baseline alternatives 基准线备选方案
- **Additionality 额外性**
  - Would the project happen under business as usual scenario?
  - 项目是否会作为普通方案在商业中发生？
- **Determining baseline emissions 决定基准线排放**
  - Emissions that would have occurred in the absence of the project activity
  - 没有项目活动时排放将会发生

# Elements of a CDM Methodology II

## CDM方法学II的原理

- Estimating project emissions 估算项目排放
- Leakage Estimations 泄漏估算
  - Net change of anthropogenic emissions occurring outside the project boundary that is measurable and attributable to the implementation of the CDM project activity.
  - 发生在项目界线外的人为排放净现是可以测量的，归因于CDM项目活动的执行
- Emission Reductions =  $BL_{Emissions} - Project_{Emissions} - Leakage$   
减排 = 基准线<sub>排放</sub> - 项目<sub>排放</sub> - 泄漏
- Monitoring 监测

# Approved Methodologies in the Oil and Gas Sector

## 油气部门中批准的方法学

**AM0009** Recovery and utilization of gas from oil wells that would otherwise be flared

AM0009 回收和利用会被燃烧掉的油井产出气

**AM0037** Flare (or vent) reduction and utilization of gas from oil wells as a feedstock

AM0037 减少油井产出气燃烧（或排放）并作为原料进行利用

**AM0043** Leak reduction from a natural gas distribution grid by replacing old cast iron pipes or steel pipes without cathodic protection with polyethylene pipes

AM0043 通过将没有阴极保护的旧铸铁管或钢管替换为聚乙烯管以减少天然气分销管网的泄漏

**AM0055** Baseline and Monitoring Methodology for the recovery and utilization of waste gas in refinery facilities

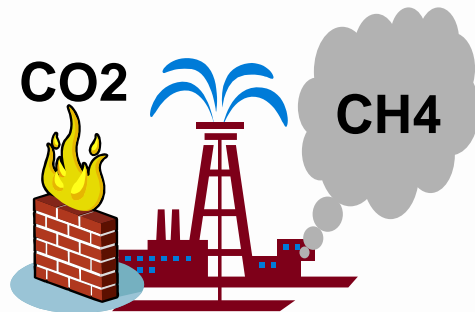
AM0055 炼油设施中废气回收和利用的基准线与监测方法学



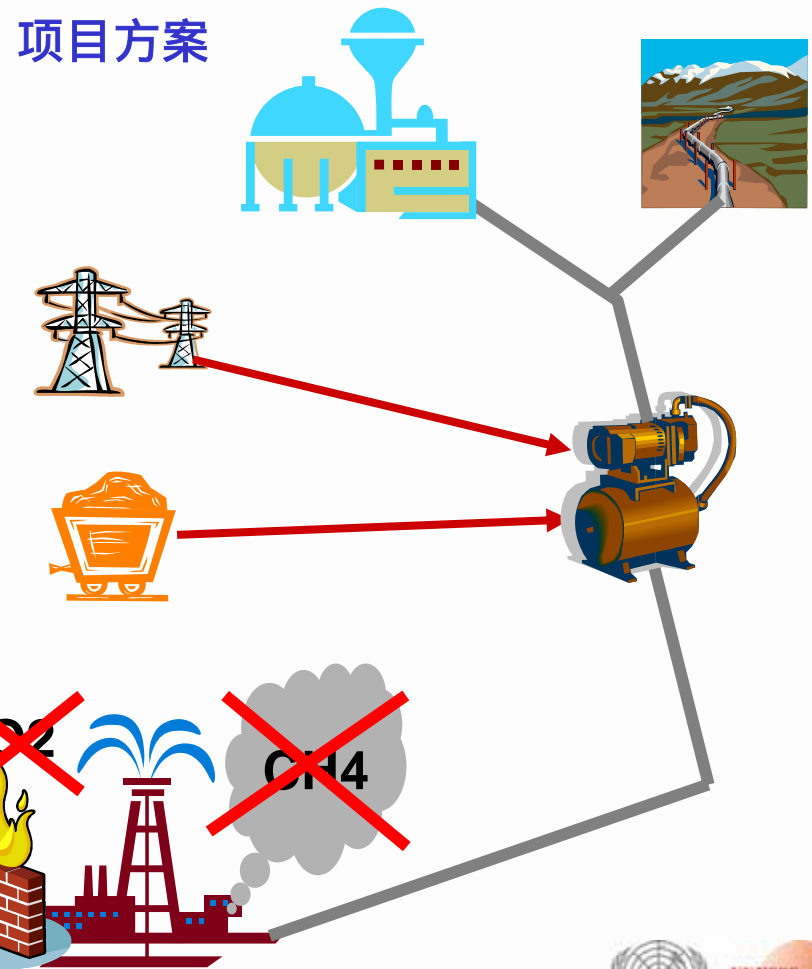
# AM0009 Recovery and utilization of gas from oil wells that would otherwise be flared

回收和利用会被燃烧掉的油井产出气

Baseline scenario  
基准线方案



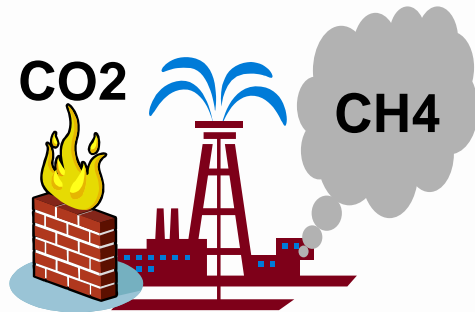
Project scenario  
项目方案



# AM0037 Flare (or vent) reduction and utilization of gas from oil wells as a feedstock 减少油井产出气燃烧（或排放）并作为原料进行利用

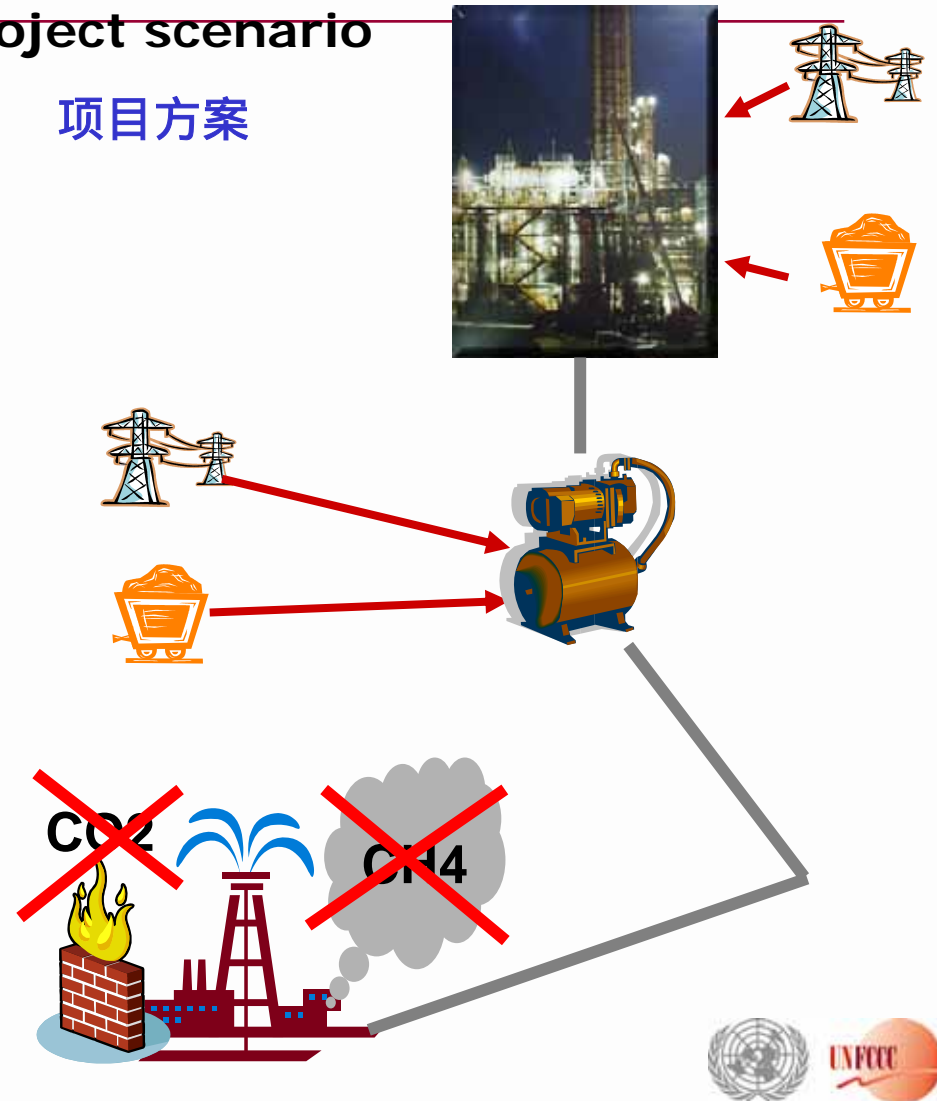
## Baseline scenario

基准线方案



## Project scenario

项目方案



**AM0043** Leak reduction from a natural gas distribution grid by replacing old cast iron pipes or steel pipes without cathodic protection with polyethylene pipes **通过将没有阴极保护的旧铸铁管或钢管替换为聚乙烯管以减少天然气分销管网的泄漏**

**Baseline scenario**

**基准线方案**

**CH4**  
**甲烷**

Leakage of natural gas  
**天然气泄漏**



Cast iron pipes or steel pipes without cathodic Protection

**没有阴极保护的铸铁管和钢管**

**Project scenario**

**项目方案**

**CH4**  
**甲烷**

Leakage of natural gas  
**天然气泄漏**



Polyethylene pipes

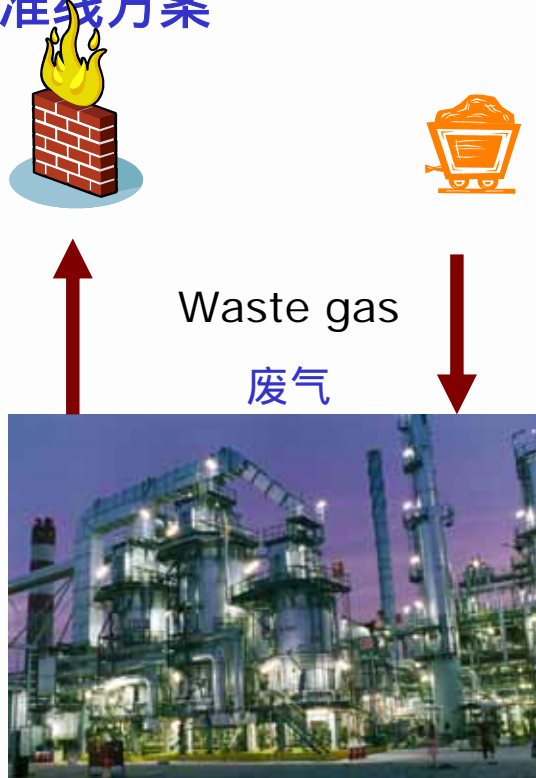
**聚乙烯管**

# AM0055 Baseline and Monitoring Methodology for the recovery and utilization of waste gas in refinery facilities

## 炼油设施中废气回收和利用的基准线与监测方法学

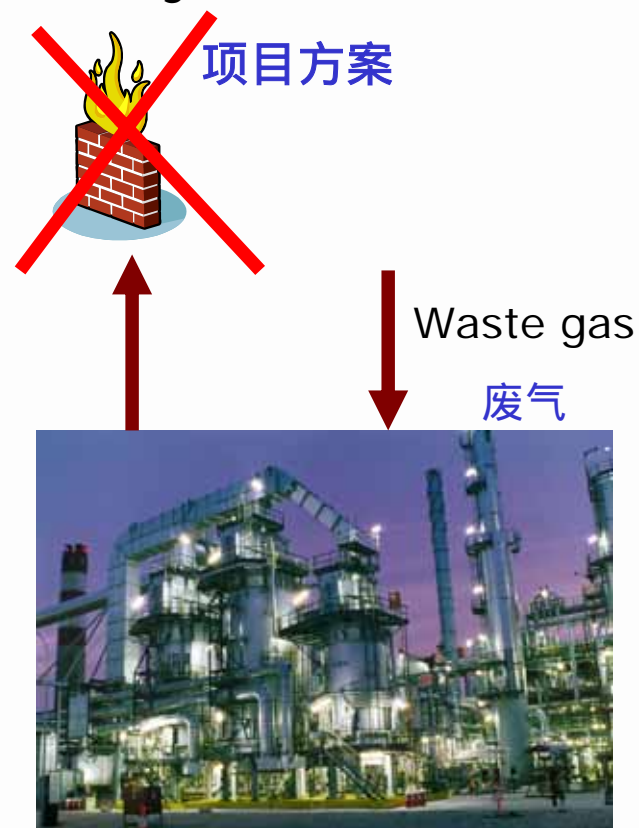
### Baseline scenario

基准线方案



### Project scenario

项目方案





# Information Sources I

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- UNFCCC CDM website (<http://cdm.unfccc.int>)
- UNFCCC CDM News Facility (*Requirement to register as a UNFCCC CDM web site user (join) -> automatically subscribed*)
- Interactive map with registered project activities (<http://cdm.unfccc.int/Projects/MapApp>)
- CDM project search (<http://cdm.unfccc.int/Projects/projsearch.html>)
- CDM EB meetings are web cast (internet)
- Q&A sessions are held in conjunction with COPs/SBIs

# Information Sources II

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- Approved methodologies, SSC and A & R  
*<http://cdm.unfccc.int/methodologies>*
- Forms, PDDs  
*<http://cdm.unfccc.int/Reference>*
- Request for clarification on application of approved methodologies  
*<http://cdm.unfccc.int/methodologies/PAmethodologies/Clarifications>*
- Request for revision of methodologies  
*<http://cdm.unfccc.int/methodologies/PAmethodologies/Revisions>*

**THANK YOU**  
**谢谢！**

