



SYNERGY Programme – Calculating Baselines

SYNERGY项目—基准线计算

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Presented To:

Renewable Energy Developers

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基准线计算

Calculating Baselines - Agenda

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- 如何使用基准线
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- 结论
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什么是基准线排放

What are Baseline Emissions

- 基准线排放指在特定时间和地点如果没有该CDM项目可能产生的暖室气体排放量
- **Baseline Emissions** are the amount of greenhouse gas (GHG) emissions which might occur in a given time and place in the absence of the CDM project



如何使用基准线

How are Baselines Used

- 基准线用于计算CDM项目能产生的**CER**（经认证的排放减少量）
- Baselines are used to calculate the amount of **Certified Emissions Reductions (CERs)** that the CDM project can generate.

$$\begin{array}{lcl} \text{CER} & = & \text{基准线排放} \\ \text{(吨CO}_2\text{)} & & \text{(吨CO}_2\text{)} \\ & & - \text{ CDM项目排放} \\ & & \text{(吨CO}_2\text{)} \\ \text{CER} & = & \text{Baseline Emissions} \\ \text{(tCO}_2\text{)} & & \text{(tCO}_2\text{)} \\ & & - \text{ CDM Project Emissions} \\ & & \text{(tCO}_2\text{)} \end{array}$$



基准线计算方法

Baseline Methodologies

- 大家曾经提出很多计算方法， CDM执行委员会也对此进行了审查和批准

To calculate baselines many methodologies have been submitted, reviewed and/or approved by the CDM Executive Board.

比如：ACM0002 “适用于可再生能源联网电站的基准线计算方法”

e.g. ACM0002 “Consolidated Baseline methodology for grid-connected electricity generation from renewable sources”.

更多请信息查询：

More information on methodologies can be found at:

<http://cdm.unfccc.int/methodologies>



小规模可再生能源项目基准线计算方法 Baseline Methodologies for Small-Scale Renewable Energy Projects

- 对于小规模可再生能源项目（小于15MW），简化后的基准线计算方法可见附件B

For small-scale renewable energy projects (<15MW), the simplified procedures for calculating the baseline can be found in

Appendix B “Indicative Simplified Baseline and Monitoring Methodologies for Selected Small-Scale CDM Project Activity Categories”.

- <http://cdm.unfccc.int/Projects/pac/ssclistmeth.pdf>



小规模可再生能源项目基准线计算方法 Baseline Methodologies for Small-Scale Renewable Energy Projects

- 中国大部分小水电项目都属于**附件B**中**第一类D**“**联网的可再生电力生产**”

Most China SHP projects are **Type 1D “Renewable electricity generation for a grid”** under Appendix B.

- **附件B** 列举了几种基准线计算方法，其中一种如下：
Appendix B lists several methods of calculating the baseline. For example, one methodology states that:

基准线是指可再生能源项目发电总量乘以**排放系数**（排放系数是由通过透明而保守的计算得出的当前系统中各种发电方法所产生的温室气体排放的加权平均值）

- ”the **baseline** is the kWh produced by the renewable generating unit multiplied by an **emissions coefficient** calculated in a **transparent** and **conservative** manner as the **weighted average emissions of the current generation mix**”



小规模可再生能源项目基准线计算方法 Baseline Methodologies for Small-Scale Renewable Energy Projects

基准线排放
(未产生的
二氧化碳排
放) 吨 = 基准线排放系
数
吨/每GWh x 项目预期发电
量
GWh

Baseline
Emissions
(or avoided
emissions)
tCO₂ = Baseline
Emissions
Coefficient
tCO₂/GWh x Anticipated
generation
from project
activity GWh



例：基准线排放系数计算

Example: Calculating the Baseline Emissions Coefficient

排放系数指目前系统中各种发电方法所产生的温室气体排放的加权平均值

Emissions coefficient as the *weighted average emissions of the current generation mix*

- 基准线排放系数=总实际排放量/系统总发电量

Baseline Emissions Coefficient = Total Actual Emissions / Total Actual Generation in the system

每种燃料类型的实际排放计算（如煤、天然气、柴油等）

To calculate Actual Emissions for each fuel type (e.g. coal, gas, diesel etc):

排放量 吨CO2	=	净发电量 Gwh(总发电量 出去厂用电)	x	$\frac{1}{\text{电厂热效率}}$	x	转化因数 Tj/Gwh	X	燃料二氧化 碳排放因数	X	转化因数 (C to CO2) 44/12
Emissions tCO2	=	Net Generation GWh (taking into account auxiliary consumption)	x	$\frac{1}{\text{PlantHeatEfficiency}}$	X	Conversion Factor Tj/GWh	X	Carbon Emissions Factor for fuel tC/Tj (IPCC)	X	Conversion Factor (C to CO2) 44/12



小水电项目的CER计算

Calculating CERs for SHP Projects

- 基准线排放 = 基准线排放系数 x 项目预期发电量
Baseline Emissions = Baseline Emissions Coeff x Project Gen.
- CER = 基准线二氧化碳排放 - 项目二氧化碳排放
CERs = Baseline Emissions - Project Emissions
- 小水电二氧化碳排放=0
Project Emissions for SHP projects = 0
- 因此小水电项目

$$\mathbf{CER = 基准线二氧化碳排放}$$

Therefore for SHP projects:

$$\mathbf{CERs = Baseline Emissions}$$



基准线计算所需数据

Data required to calculate Baselines

- 项目开发者需要提供信息
Project Developers need to provide information.
- 需要非常明确的信息，该项目是否接入电网
Very clear information about whether a project is going to be connected to an electricity grid:
 - 电网名称与类型（县电网还是省电网）
Need information about what the grid is (i.e. county or provincial grid)
 - 接入该电网的其他电站信息（如容量、燃料类型、发电量，热耗率等等）
Need information about the other power stations that are connected to this grid (i.e. capacity, fuel type, generation, heat rates etc).
- 基准线计算结果需以文件形式证明并上报**CDM**国家主管机构和**CDM**执行委员会
Baseline calculations should be documented and shown to the DNA and CDM Executive Board



结束语 Final Point

基准线计算依据的取得是一项具有挑战性的任务，为计算所做的假设应该公开透明，所做估计应以保守为宜

Information to calculate baselines can be challenging to source and assumptions that are made should be transparent and err on the conservative side.