

Feasibility Studies with the Aim of Developing a Bilateral Offset  
Credit Mechanism FY2011

Studies for Project Exploration and Planning

**Program exploration research of CO2  
reduction project through renewal/  
consolidation of servers of datacenters in the  
Socialist Republic of Vietnam**

New Energy and Industrial Technology Development Organization (NEDO)  
NEC Corporation  
Smart Energy Co., Ltd.

# Program exploration research of CO2 reduction project through renewal/consolidation of servers of datacenters in the Socialist Republic of Vietnam

## FS by NEC&SmartEnergy

### Research Subjects

- ◆ Measure energy saving & GHG emission reduction amount of current servers in Vietnam
  - Measure energy consumption of servers.
  - Measure and select adequate parameters to construct MRV. (i.e CPU utilization rate, Data processing rate)
- ◆ Conduct the Server Product and Datacenter Market Research in Vietnam
  - To conduct a case study of baseline equipment selection with new implement.
  - Identify market share of the servers installed in Vietnam Datacenters.
  - Identify market expansion of Datacenters.

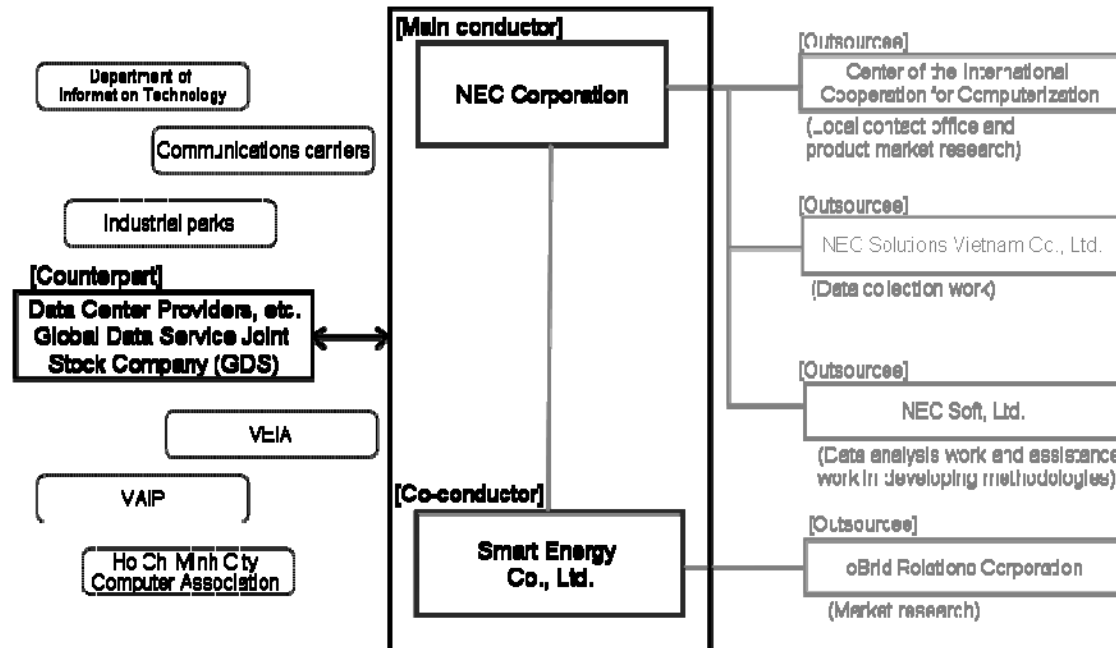
### Support Organization

#### NEC

- Measurement of Baseline at counterpart data center in Vietnam
- Measurement of electricity by ECO Server in NEC Fuchu factory
- Potential calculation for CO2 reduction and build the methodology

#### Smart Energy

- Study on temperature fluctuation policy and financial policy in Vietnam
- Verification of CO2 reduction methodology



## Referred Methodology

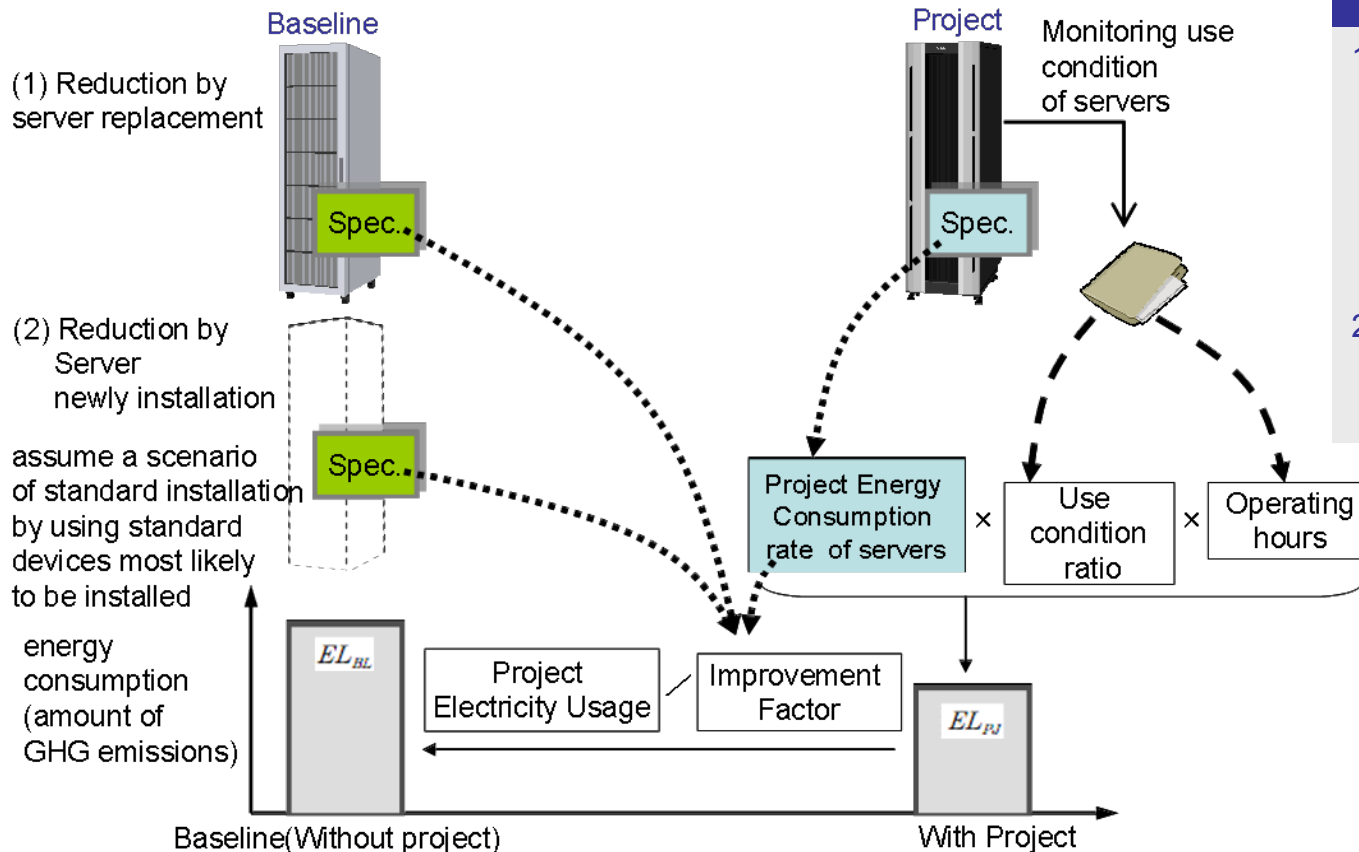
### Reduction by server replacement / Newly installing ECO Servers

$$EL_{BL} = EL_{PJ} \times \frac{1}{\alpha}$$

$$\alpha = \frac{G_P}{G_B}$$

$EL_{BL}$	Baseline Electricity Usage	kWh/year
$EL_{PJ}$	Project Electricity Usage	kWh/year
$\alpha$	Improvement Factor	
$G_p$	Project Energy Consumption rate of servers.	kWh/Data Process Value, CPU Process Value, etc
$G_b$	Baseline Energy Consumption rate of servers	kWh/Data Process Value, CPU Process Value, etc

## Proposal Methodology



### Key factors to establish MRV

- 1) Refer to current MRV available from Kyoto CDM projects and apply where applicable and simplify the monitoring process as minimum as possible.
- 2) Refer to current MRV available from J-CDM projects.

# Market research and Outlooks for Expanding Technologies

Based on hearing survey,

- There is no officially available statistical data about server market
- The features of servers related to eco-efficiency are not attractive in Vietnam market.
- Select several area where IT will be utilized;
  - (1) energy management,
  - (2) communication infrastructure
  - (3) contingency planning (BC/DR)
- In this research we surveyed the energy supply infrastructure in industrial parks.

The results of meeting with the Ministry of Information and Communications (MIC)

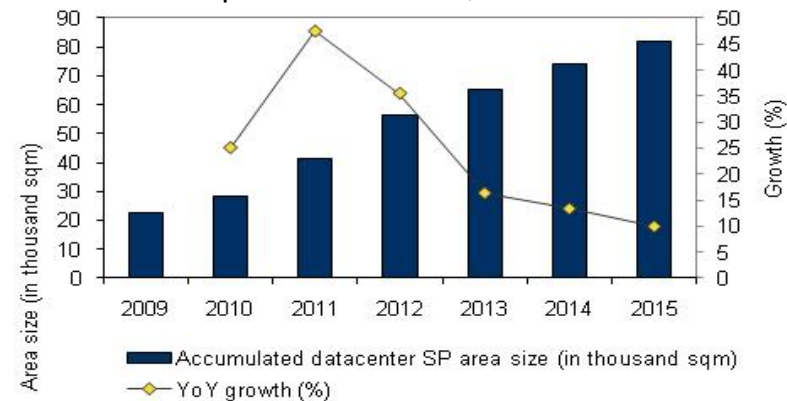
- We will continue exchanging ideas and opinions for the future cooperation.  
We suppose that the MIC can be considered as the counterpart in conducting researches in the future.

## List of datacenter service providers in Vietnam

No.	Provider	Number of DCs Operation / Plan
1	VNPT	2 / 0
2	VDC	4 / 1
3	NetSoft	1/ 0
4	Viettel	3 / 1
(5)	EVN Telecom	2/ 1
6	FPT (group)	4/ 0
7	SPT	1 / 1
8	Vina Data	1 / 0
9	3C	1 / 0
10	NGT	1 / 0

No.	Provider	Number of DCs Operation / Plan
11	HANEL	1 / 0
12	Sacombank	1 / 0
13	CMC telecom	2 / 0
14	ODS	1 / 0
15	PA Vietnam	1 / 0
16	VINETWORKS	0 / 2
17	DOT VN	1 / 0
18	IGREEN	1 / 0
19	NetNam	1 / 0
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## Vietnam Datacenter Service Providers' Area Size Expansion Forecast, 2010–2015



Note: YoY stands for year over year.

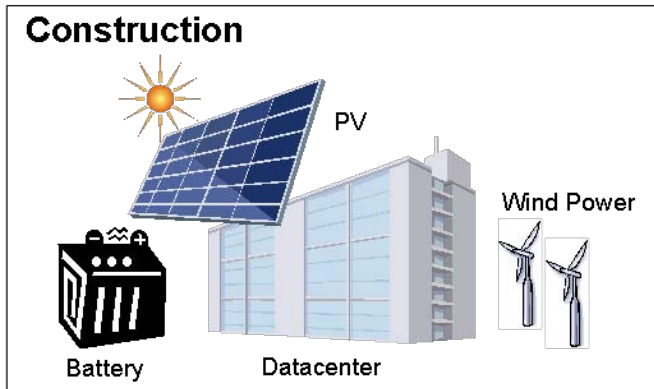
Source: IDC, 2011

## Assumed Amount of Emissions Reduction

- Based on MRV Proposal , the expected amount of reduced GHG emission was calculated under the assumption that the project expands to datacenters in the entire Vietnam.
- The reduction amount of 119 thousand t-CO<sub>2</sub>/year is expected if ECO Servers are introduced by 10% of the total servers in the year 2020.

## “Smart DataCenter” for more reduction of GHG emission

### “Saving Energy, Energy Storage Systems, Renewable Energy”



- ✓ Saving Energy by **Green IT**
- ✓ Energy Storage Systems using **Li-ion Battery**
- ✓ Renewable Energy by **such as PV and wind power**

