

Additional Information on Proposed Methodology

“Energy Saving by Introduction of High Efficiency Boiler”

1. Reference Boiler

1.1 Market Share of Boilers in Viet Nam

According to the interviews with the major boiler suppliers in Viet Nam, there are no official statistics on industrial boilers. Following are the summary of interviews with major boiler suppliers concerning boiler market share in Viet Nam.

Table 1 Summary of the boiler market survey in Viet Nam

Summary of interview concerning boiler market share in Viet Nam
<ul style="list-style-type: none"> Flue and smoke tube boiler is more popular than once-through boiler in Viet Nam.

Source: Based on interview results

Various fuels for boiler are applied in Viet Nam, including coal, oil and gas.

The specifications of boilers made in Viet Nam are below.

Table 2 Specifications of boilers made in Viet Nam

Company	Company A		
Model	LD3/10W ~ LD10/13W	D0.1/5D ~ LD1/8D	LT3/10KE ~ LT8/16KEH
Type of boiler	Fire tube	Water tube, Once-through	Water tube
Steam output	3.0 ~ 10.0 t/h	0.1 ~ 1.0 t/h	3.0 ~ 8.0 t/h
Efficiency	0.89 ~ 0.9 (89 ~ 90%)	0.88 ~ 0.89 (88 ~ 89%)	0.75 ~ (75% ~)
Fuel	Diesel oil, Fuel oil, Gas	Diesel oil, Fuel oil, Gas	Coal piece, powder, firewood

Source: Website of Company A

1.2 Setting Efficiency of Reference Boiler

As shown in Table 2, efficiency of boiler made in Viet Nam is around 0.89 ~ 0.9.

In the tool for CDM, “TOOL09: Determining the baseline efficiency of thermal or electric energy generation systems ver02.0”, maximum default efficiency for boilers which could be applied in Viet Nam is 0.92(92 %), as shown in Table 3.

Table 3 Default efficiency for thermal applications

Technology of energy generation system	Default efficiency
New natural gas fired boiler (w/o condenser)	0.92 (92%)
New oil fired boiler	0.9 (90%)
Old natural gas fired boiler (w/o condenser)	0.87 (87%)

New biomass fired boiler (on dry biomass basis)	0.85 (85%)
Old oil fired boiler	0.85 (85%)
Old biomass fired boiler (on dry biomass basis)	0.8 (80%)
Old coal fired boiler	0.8 (80%)
Other	1.0 (100%)

Source: CDM 「 TOOL09: Determining the baseline efficiency of thermal or electric energy generation systems ver02.0 」

Considering facts above, the efficiency of the boiler currently dominant in the Vietnamese market is conservatively set as 0.92.

Efficiency of reference boiler is the efficiency of the boiler currently dominant in the Vietnamese market (0.92) or the existing boiler to be replaced, whichever is higher.