

**Table 1 Prediction of Economic Effect of KEM's CWM Preparation and Preheating Technology**  
*"Cost evaluations by KEM"*

	<b>Conventional CWM Gasification</b>	<b>KEM Tech. (CWM Preparing and preheating)</b>	<b>Effect of KEM's Tech.</b>
Coal supply	503 t/h	186 t/h	<b>317 t/h</b>
Oxygen consumption	126 t/h	17 t/h	<b>109 t/h</b>
Cold gasification efficiency	46.40 %	83.39 %	<b>-36.99 %</b>
Reaction time required	2.0 sec	2.7 sec	<b>-0.7 sec</b>
Heat of Syngas (Fix)	500 Gcal/h	500 Gcal/h	<b>0 Gcal/h</b>
Cost of Oxygen ( 5 mil/Nm <sup>3</sup> )	4,410 US\$/h	595 US\$/h	<b>3,815 US\$/h</b>
Cost of Coal ( 6 US\$/t )	1,811 US\$/h	1,007 US\$/h	<b>804 US\$/h</b>
Total cost of material	6,221 US\$/h	1,602 US\$/h	<b>4,619 US\$/h</b>
CO2 Tax (40 US\$/t·CO2)	7,200 US\$/h	1,080 US\$/h	<b>6,120 US\$/h</b>
Total cost	107 Million US\$/year	21 Million US\$/year	<b>86 Million US\$/year</b>

CWM Preparation plant cost	100 Million US\$	Plant preface	
capacity	186 t·CWM/h	Plant life (=Redemption years)	7 years
CWM Preheating plant cost	130 Million US\$	Interest rate	5%
capacity (13.5 t·CWM/h × 14)	186 t·CWM/h	Inflation rate	0%

**Table2 Prediction of Economic Effect of CWM Preheating Technology**

	<b>KEM Tech. (CWM Preparing Tech.)</b>	<b>KEM Tech. (CWM Preparing and preheating</b>	<b>Effect of preheating Tech.</b>
<b>Coal supply</b>	<b>222 t/h</b>	<b>186 t/h</b>	<b>36 t/h</b>
<b>Oxygen consumption</b>	<b>44 t/h</b>	<b>18 t/h</b>	<b>26 t/h</b>
<b>Cold gasification efficiency</b>	<b>70.07 %</b>	<b>83.39 %</b>	<b>-13.3 %</b>
<b>Reaction time required</b>	<b>2.0 sec</b>	<b>2.7 sec</b>	<b>-0.7 sec</b>
<b>Heat of Syngas (Fix)</b>	<b>500 Gcal/h</b>	<b>500 Gcal/h</b>	<b>0 Gcal/h</b>
<b>Cost of Oxygen ( 5 mil/Nm<sup>3</sup> )</b>	<b>1,540 US\$/h</b>	<b>630 US\$/h</b>	<b>910 US\$/h</b>
<b>Cost of Coal ( 6 US\$/t )</b>	<b>1,202 US\$/h</b>	<b>1,007 US\$/h</b>	<b>195 US\$/h</b>
<b>Total cost of material</b>	<b>2,742 US\$/h</b>	<b>1,637 US\$/h</b>	<b>1,105 US\$/h</b>
<b>CO2 Tax (40 US\$/t·CO2)</b>	<b>2,081 US\$/h</b>	<b>1,080 US\$/h</b>	<b>1,001 US\$/h</b>
<b>Total cost</b>	<b>39 Million US\$/year</b>	<b>22 Million US\$/year</b>	<b>17 Million US\$/year</b>

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Fig. 1 Relation between Amount of CO2 Tax and Economic Effect

