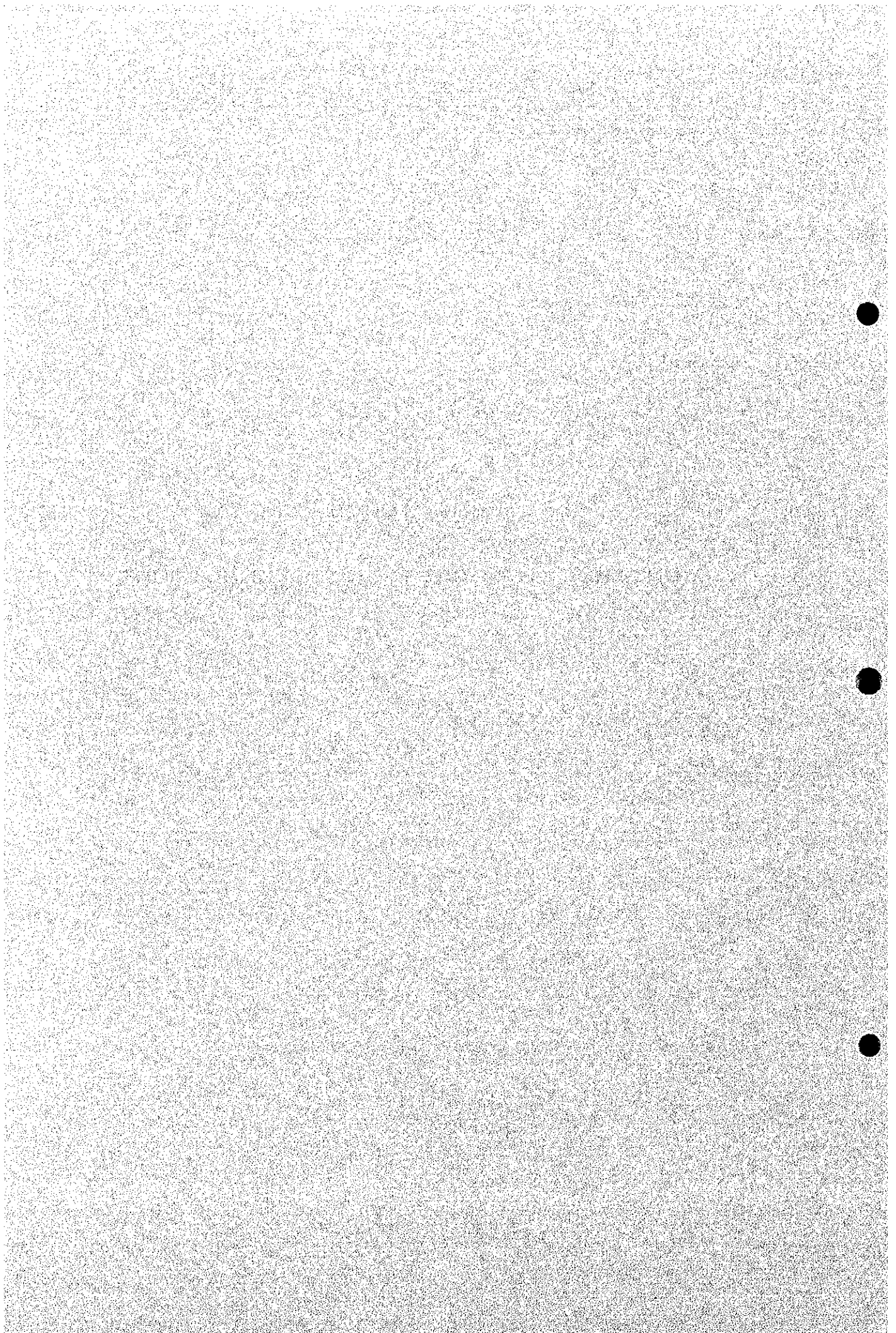


**CHAPTER 8**

**CONSTRUCTION COST AND EXPENDITURE**



## CHAPTER 8 CONSTRUCTION COST AND EXPENDITURE

### 8.1 Total Construction Cost

The total construction cost in this Study from 1997 to 2016 is as indicated below:

| Items                              | Construction cost (Million Baht) |                         |                           |
|------------------------------------|----------------------------------|-------------------------|---------------------------|
|                                    | Foreign currency                 | Local currency          | Total                     |
| Subtransmission Line               | 10,033                           | 7,169                   | 17,202                    |
| Substation                         | 22,606                           | 15,310                  | 37,916                    |
| Telecommunication                  | 397                              | 283                     | 680                       |
| <b>Total</b><br>( ) : Million US\$ | <b>33,036</b><br>( 1,321)        | <b>22,762</b><br>( 911) | <b>55,798</b><br>( 2,232) |

### 8.2 Construction Cost (Short-Term Plan)

The construction cost in the respective fiscal years are as indicated below:

Construction cost in the short-term plan (Unit: Million Baht)

| Items                |          | 1997     | 1998     | 1999     | 2000     | 2001     |
|----------------------|----------|----------|----------|----------|----------|----------|
| Subtransmission Line | F.C.     | 338.96   | 187.24   | 484.19   | 1,810.75 | 196.96   |
|                      | L.C.     | 362.24   | 405.00   | 513.41   | 1,090.35 | 144.42   |
|                      | Subtotal | 701.20   | 592.24   | 997.60   | 2,901.10 | 341.38   |
| Substation           | F.C.     | 2,637.70 | 1,418.87 | 1,576.61 | 2,253.61 | 1,517.77 |
|                      | L.C.     | 1,929.62 | 842.82   | 988.32   | 1,565.53 | 1,064.71 |
|                      | Subtotal | 4,567.32 | 2,261.69 | 2,564.93 | 3,819.14 | 2,582.48 |
| Telecommunication    | F.C.     | 43.04    | 35.52    | 30.10    | 45.14    | 43.04    |
|                      | L.C.     | 30.65    | 25.30    | 21.38    | 32.07    | 30.65    |
|                      | Subtotal | 73.69    | 60.82    | 51.48    | 77.21    | 73.69    |
| Total                | F.C.     | 3,019.70 | 1,641.63 | 2,090.90 | 4,109.50 | 1,757.77 |
|                      | L.C.     | 2,322.51 | 1,273.12 | 1,523.11 | 2,687.95 | 1,239.78 |
|                      | Total    | 5,342.21 | 2,914.75 | 3,614.01 | 6,797.45 | 2,997.55 |

### 8.3 Construction Cost (Long-Term Plan)

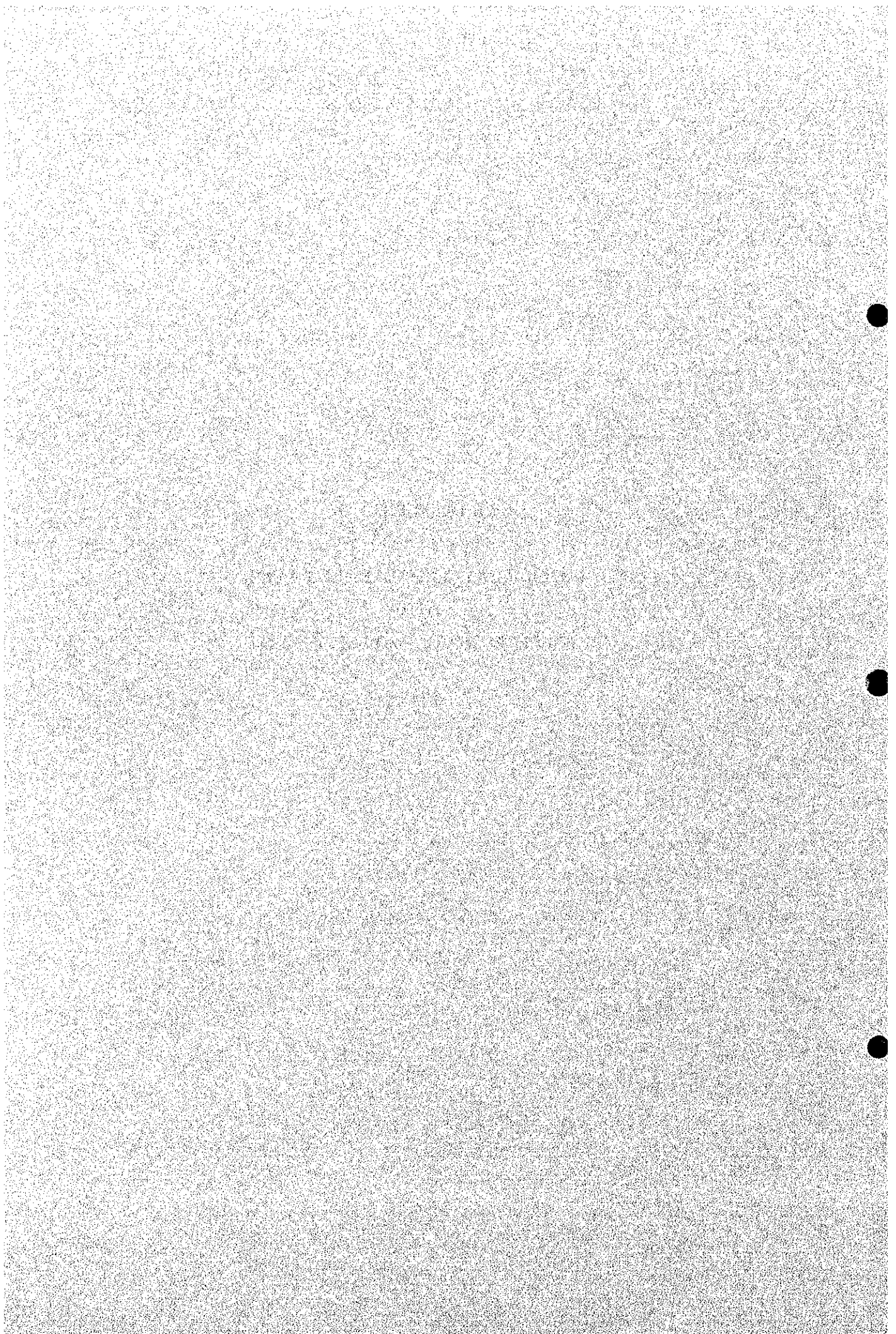
The construction cost in the respective fiscal years are as indicated below:

Construction cost in the long-term plan (Unit: Million Baht)

| Planned year         | 2001     | 2006     | 2011    | 2016    | Total    |
|----------------------|----------|----------|---------|---------|----------|
| Period from the last | 5        | 5        | 5       | 5       | 20       |
| Subtransmission line | 5,533.5  | 8,261.9  | 1,348.4 | 2,058.6 | 17,202.4 |
| Substation           | 15,795.6 | 9,773.2  | 6,701.6 | 5,646.3 | 37,916.7 |
| Telecommunication    | 336.9    | 169.6    | 96.5    | 76.6    | 679.6    |
| Total                | 21,666.0 | 18,204.7 | 8,146.5 | 7,781.5 | 55,798.7 |
| Annual investment    | 4,333.2  | 3,640.9  | 1,629.3 | 1,556.3 | 2,789.9  |

**CHAPTER 9**

**ECONOMIC EVALUATION  
AND  
FINANCIAL ANALYSIS**





## CHAPTER 9 ECONOMIC EVALUATION AND FINANCIAL ANALYSIS

### 9.1 Economic Assessment Result

The acquired Economical Internal Rate of Return (EIRR), increased benefit (B-C), and ratio of benefit against the cost (B/C) are described below.

EIRR: 12.58%

B-C : Baht 8,528.32 Million(US\$ 341,133 Thousand)

B/C : 1.03

The economic assessment of this Project shows a satisfactory EIRR, B-C, and B/C. This reinforcement project is, therefore, feasible in terms of its economical performance.

### 9.2 Financial Internal Rate of Return (FIRR)

#### (1) Construction cost

The construction cost for FIRR calculation is described in Table 9.2-1.

#### (2) Financial Internal Rate of Return (FIRR)

Based on the cost flow, the flow of income from sales, the above construction cost and the other premises, the FIRR is calculated as 11.79%. It is concluded from this FIRR, that this Project is financially sound.

### 9.3 Review of Electricity Fee

The calculations show that this Project is financially sound. But to be more attractive Project, it is necessary to revise the current electricity fee equivalent to the escalation rate of local currency.

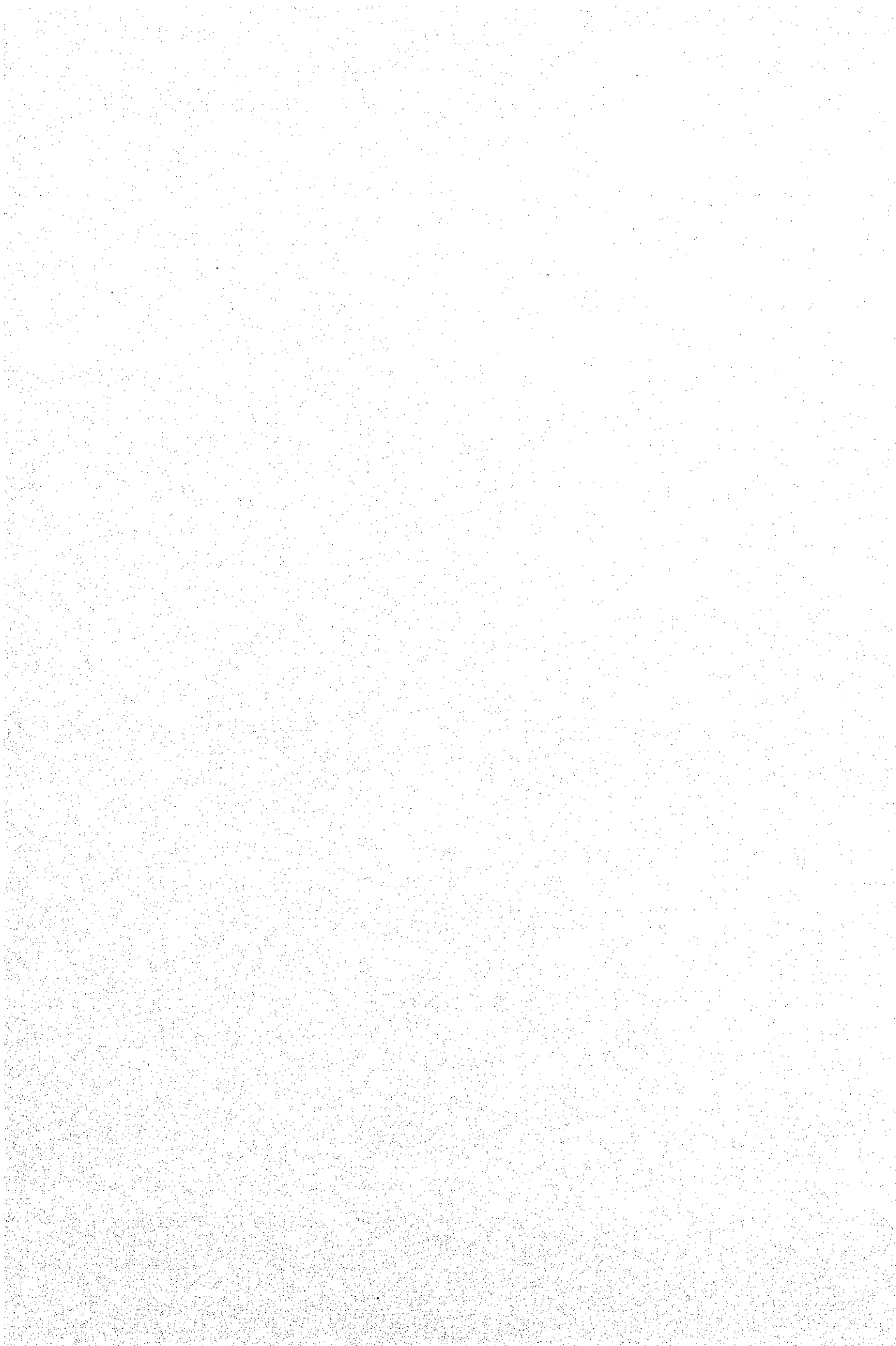
Table 9.2-1 Construction Cost for Financial Analysis

| FY    | Subtransmission Line    |                 |                            | Distribution Substation |                 |                            | Telecommunication       |                 |                            | Distribution System     |                 |                            | (Milion Baht)                        |
|-------|-------------------------|-----------------|----------------------------|-------------------------|-----------------|----------------------------|-------------------------|-----------------|----------------------------|-------------------------|-----------------|----------------------------|--------------------------------------|
|       | Total Construction Cost | Value Added Tax | Construction Cost Analysis | Total Construction Cost | Value Added Tax | Construction Cost Analysis | Total Construction Cost | Value Added Tax | Construction Cost Analysis | Total Construction Cost | Value Added Tax | Construction Cost Analysis | Total Construction Cost for Analysis |
|       | A                       | B               | C=A+B                      | D                       | E               | F=D+E                      | G                       | H               | I=G+H                      | J                       | K               | L=J+K                      | M=F+I+L                              |
| 1996  | 0.00                    | 0.00            | 0.00                       | 1,431.21                | 81.47           | 1,349.74                   | 0.00                    | 0.00            | 0.00                       | 958.63                  | 54.57           | 904.06                     | 2,253.80                             |
| 1997  | 701.20                  | 39.92           | 661.28                     | 3,136.11                | 178.54          | 2,957.57                   | 73.69                   | 4.33            | 69.37                      | 2,619.59                | 149.22          | 2,470.37                   | 6,158.59                             |
| 1998  | 592.24                  | 33.67           | 558.58                     | 2,261.69                | 128.80          | 2,132.89                   | 60.82                   | 3.57            | 57.25                      | 1,952.31                | 111.21          | 1,841.10                   | 4,589.82                             |
| 1999  | 997.60                  | 56.79           | 940.81                     | 2,564.93                | 145.96          | 2,418.97                   | 51.48                   | 3.02            | 48.45                      | 2,420.66                | 137.83          | 2,282.84                   | 5,691.07                             |
| 2000  | 2,901.10                | 165.40          | 2,735.70                   | 3,819.14                | 217.31          | 3,601.83                   | 77.21                   | 4.53            | 72.68                      | 4,552.94                | 259.37          | 4,293.57                   | 10,703.78                            |
| 2001  | 341.37                  | 19.45           | 321.92                     | 2,582.48                | 147.05          | 2,435.43                   | 73.69                   | 4.33            | 69.37                      | 2,007.76                | 114.42          | 1,893.34                   | 4,720.06                             |
| 2002  | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                                 |
| 2003  | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                                 |
| 2004  | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                                 |
| 2005  | 0.00                    | 0.00            | 0.00                       | 3,909.26                | 222.53          | 3,686.73                   | 0.00                    | 0.00            | 0.00                       | 2,618.43                | 149.05          | 2,469.38                   | 6,156.11                             |
| 2006  | 8,261.94                | 470.96          | 7,790.98                   | 5,863.90                | 333.79          | 5,530.11                   | 169.60                  | 9.95            | 159.64                     | 9,575.10                | 545.69          | 9,029.41                   | 22,510.14                            |
| 2007  | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                                 |
| 2008  | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                                 |
| 2009  | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                                 |
| 2010  | 0.00                    | 0.00            | 0.00                       | 2,680.64                | 152.58          | 2,528.06                   | 0.00                    | 0.00            | 0.00                       | 1,795.50                | 102.20          | 1,693.30                   | 4,221.36                             |
| 2011  | 1,348.36                | 76.77           | 1,271.59                   | 4,020.95                | 228.87          | 3,792.08                   | 96.52                   | 5.66            | 90.85                      | 3,661.02                | 208.51          | 3,452.51                   | 8,607.03                             |
| 2012  | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                                 |
| 2013  | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                                 |
| 2014  | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                    | 0.00            | 0.00                       | 0.00                                 |
| 2015  | 0.00                    | 0.00            | 0.00                       | 2,258.53                | 128.52          | 2,130.01                   | 0.00                    | 0.00            | 0.00                       | 1,512.77                | 86.08           | 1,426.68                   | 3,556.69                             |
| 2016  | 2,058.60                | 117.37          | 1,941.23                   | 3,387.79                | 192.76          | 3,195.03                   | 76.61                   | 4.50            | 72.11                      | 3,699.31                | 210.74          | 3,488.57                   | 8,696.94                             |
| Total | 17,202.42               | 980.33          | 16,222.09                  | 37,916.63               | 2,158.18        | 35,758.45                  | 679.61                  | 39.89           | 639.72                     | 37,374.00               | 2,128.89        | 35,245.11                  | 87,865.37                            |









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