CPIF Contract Methodology

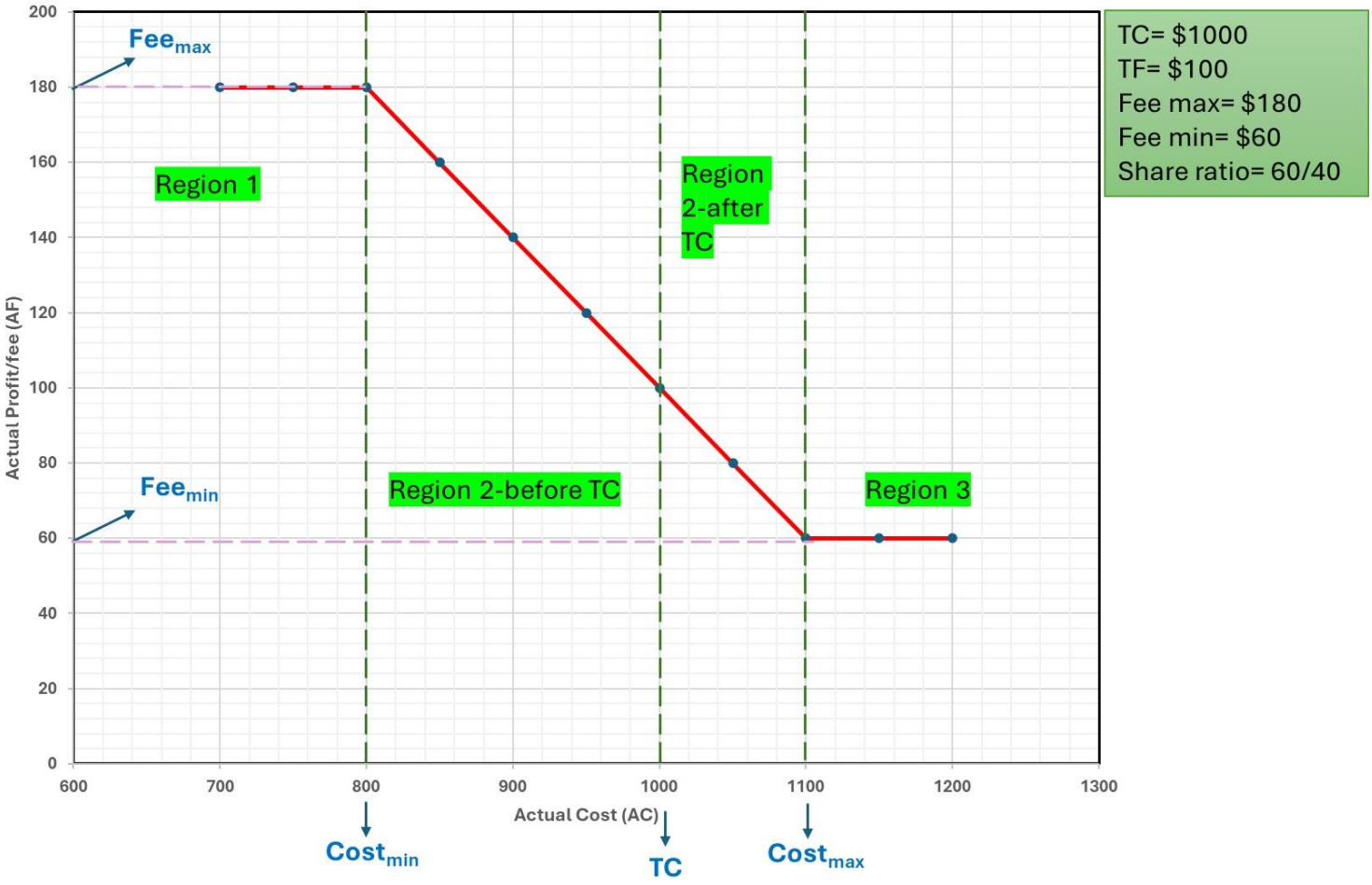
In this type of contract, the customer establishes both a lower (RIEmin) and an upper limit (RIEmax) for the project's total cost. At RIEmin, the contractor earns the maximum fee, while at RIEmax, the contractor receives the minimum fee. Any savings or overruns within this range are shared between both parties. This range is known as the Range of Incentive Effectiveness (RIE). Based on the contractor's actual expenses upon completion of the project, four possible scenarios can occur. To understand these scenarios more clearly, let's consider the following example:

$$\text{RIE (min)} = \text{Target Cost} - \frac{[\text{Fee (max)} - \text{Target Fee}]}{\text{Seller's share ratio}}$$

$$\textbf{RIE (min)} = \textbf{TC} - \frac{\textbf{[(Fee (max) – TF)]}}{\textbf{SSR}}$$

$$\text{RIE (max)} = \text{Target Cost} + \frac{[\text{Target Fee} - \text{Fee (min)}]}{\text{Seller's share ratio}}$$

$$\textbf{RIE (max)} = \textbf{TC} + \frac{\textbf{[TF – Fee (min)]}}{\textbf{SSR}}$$



Scenario 1 (Region 1): If AC<TC & AC<$Cost_{min}$

In this scenario, the customer informs the contractor that if they complete the project within this range, they will receive all the savings from the difference between the minimum cost (Costmin) and the actual cost (AC), with a savings ratio (SR) of 0/100. In other words, the contractor gets the maximum fee.

1- **Seller's share of <u>saving</u>= (TC-$Cost_{min}$)*SSR**(in region 2) **+ ($Cost_{min}$- AC)** **Eq.1**

In our current example and using Eq.1:

And using the above formulas: Cost (min)= $800 & Cost(max)= $1100

a. AC= $700 → AC< TC and AC< $Cost_{min}$

Eq.1: Seller's share= (1000-800)*0.4 + (800-700)= 180

2- Actual Profit/ Fee (AF): AF= Fee(max) **Eq.2**

In our current example:

a. AF= Fee(max)= $180

3- Actual Price (APR) APR= AC+AF **Eq.3**

In our current example: AF= Fee(max)

a. APR= 700 + 180 = $880

Scenario 2 (Region 2): If AC<TC & AC=$Cost_{min}$ or AC> $Cost_{min}$

1- Seller's share of <u>saving</u>= (TC-AC) *SSR (in region 2) **Eq.4**

In our current example and using Eq.4:

b. AC= $800 → AC= $Cost_{min}$ → Seller's share= (1000-800) *0.4 = $80
c. AC= $900 → AC> $Cost_{min}$ → Seller's share= (1000-900) *0.4 = $40
d. AC= $1000→ AC> $Cost_{min}$ and AC=TC → Seller's share= (1000-1000) *0.4 = $0

2- Actual Profit/Fee (AF): AF= TF+ Seller's share of saving **Eq.5**

b. AF= 100+80= $180
c. AF= 100+40= $140
d. AF= 100+0= $ 100 = TF

3- Actual Price (APR): **Eq.3**

b. APR= 800+ 180= $980
c. APR= 900+ 140= $1040
d. APR= 1000+100= $1100 = Target Price

Scenario 3 (Region 2): If AC>TC & AC < $Cost_{max}$ or AC= $Cost_{max}$

1- Seller's share of overrun= (TC-AC)*SSR(in region 2) Eq.4

e. AC= $1050 → AC>TC and AC< $Cost_{max}$ → Seller's share= (1000-1050)*0.4= - $20

f. AC= $1100 → AC>TC and AC= $Cost_{max}$ → Seller's share= (1000-1100)*0.4= - $40

2- AF= TF+ Eq.4 Eq.6

e. AF= 100 + (-20)= $80

f. AF= 100 + (-40)= $60 = Fee_{min}

3- APR Eq.3

e. APR= 1050+ 80 = $1130

f. APR= 1100+60 = $1160

Scenario 4 (Region 3): If AC>TC & AC >$Cost_{max}$

Note that the seller's share of overrun is calculated by: (**TC-$Cost_{max}$)*SSR Eq.7 or seller's share at $Cost_{max}$:**

because in this region the SR= 100/0. So, the contractor will not pay any extra share beyond $Cost_{max}$. The customer will reimburse this much to the contractor.

1- Seller's share of overrun= Eq.7

g. AC= $1150 → AC>TC and AC> $Cost_{max}$ → Seller's share= (1000-800)*0.4= - $40= f

h. AC= $1200 → AC>TC and AC> $Cost_{max}$ → Seller's share= (1000-800)*0.4= - $40= f

2- AF= Fee_{min} Eq.8

g. AF= $60

h. AF= $60

3- APR = AC+ Fee_{min} Eq.9

g. APR= 1150+60= $1210

h. APR= 1200+60= $1260

	Actual cost	Cost variance	Seller's share	Actual Fee	Actual price
	700	300	180	180	880
	750	250	130	180	930
COST MIN	800	200	80	180	980
	850	150	60	160	1010
	900	100			
	950	50			
TC	1000	0	0	100	1100
	1050	-50	-20	80	1130
COST MAX	1100	-100	-40	60	1160
	1150	-150	-40	60	1200
	1200	-200	-40	60	1260