Final ATC for SIDC is calculated as:

ATC calculation is different for positive and negatve RAM

**For positive RAM**

Let us assume three borders:  
1. Border 1  
2. Border 2  
3. Border 3

Let the RAM for these borders are :  
1000 MW for border 1  
800 MW for border 2  
1200 MW for border 3

Let the CNEC value of the borders be:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Border | RAM | CNEC 1 | CNEC 1 | CNEC 1 |
| border 1 | 1000 | 0.2 | 0.3 | 0.1 |
| border 2 | -800 | 0.25 | 0.35 | 0.15 |
| border 3 | 1200 | 0.2 | 0.4 | 0.1 |

The initial ATC for each border is zero   
i.e ATC = [0,0,0]

**Step 1 :Calculate the remaining available margin(RAM)**

RAM(K) = RAM(0) - PTDF \* ATC(k-1)

RAM(1) = RAM(0) – PTDF \* ATC(0)

**Only borders with positive RAM are taken**

For border 1:

RAM(1) = 1000 – [0.2 0.3 0.1]\*0 = 1000  
   
For border 3:

RAM(1) = 1200 – [0.25 0.35 0.15]\*0 = 1200

Final RAM(1) =

**Step 2 : Distribute remaining RAM equally among borders**

Share\_ATC = RAM(1)/no. of borders

Share\_ATC = =

**Step 3 : Compute additional exchanges**

Additional\_ ATC = Share\_ATC / PTDF

Additional\_ ATC =

Additional\_ ATC =

**Step 4 : Find the minimum additional exchange per border and updatet ATC**

Minimum additional exchange = minimum value of each row of Additional\_ATC

=

ATC(1) = ATC(0) + Minimum additional exchange

= +

=

**Step 5: Limit ATC to a predefined max value (if applicable)**

If max value of ATC is not available then skip this step  
lets assume max value of ATC is 1500 MW

Then,

ATC(1) =

=

Now we have ATC(1) and ATC(0)

Sum of ATC(1) = 1111.11 + 1142.85

= 2253.96

Sum of ATC(0) = 0 + 0 = 0

Difference = Sum of ATC(1) –Sum of ATC(0)

= 2253.96 – 0

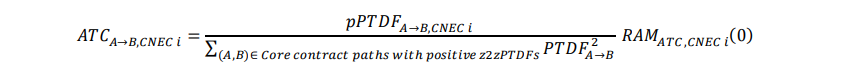
= 2253.96 MW

Is difference less than 1 KW or 0.001 MW ??  
In this case ….No  
So we have to iterate again  
Now start from step 1 again

put the values of ATC(1) in place of ATC(0)   
put the value of RAM(1) in place of RAM(0)  
Calculate ATC(2)

if the difference [Sum of ATC(2) –Sum of ATC(1)] is less than 0.001 MW then ATC(2) is the final ATC

**if** the difference [Sum of ATC(2) –Sum of ATC(1)] is more than 0.001 MW then repeat the process till the difference is less than 0.001 MW  
  
In this way we can get the list of ATCs for positive RAM  
  
**For Negative RAM**

We now the compute the negative ATCs using equation  


**Step 1: Find ATC according to above equation**

For Border 2: (Taking border with negative RAM only)

RAM(0) = -800 MW

PTDF = [0.25 0.35 0.15]

The denominator of the above equation = 0.25^2 + 0.35^2 + 0.15^2 = 0.0225

For Border 2:

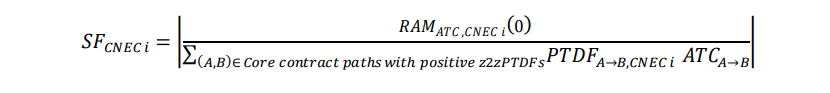
ATC\_CNEC1 = (0.25/0.0225) \* -800 = -8888.88 ~ -8889MW

ATC\_CNEC2 = (0.35/0.0225) \* -800 = -12444.44 ~ -12445MW

ATC\_CNEC3 = (0.15/0.0225) \* -800 = -5333.33 ~ -5334 MW

**Step 2 : Compute most negative ATC per border**  
ATC\_min = min(ATC\_CNEC1 , ATC\_CNEC2 , ATC\_CNEC3)

ATC\_min = -12445 MW

Step 3: Compute scaling factor for each CNEC ****

SF = -800/[(0.25\*-12445) + (0.35\*-12445) + (0.15\*-12445)] = 0.0857

IF there are multiple borders then   
SF = max(SF1,SF2,SF3,………)

**Step 4: Compute ATC negative final**

ATC\_negative\_final = ATC\_min \* SF

= -12445 \* 0.0857 = -1066.53 ~ -1067 MW

**Final ATC = min(positive\_ATC\_Final , ATC\_negative\_final)**