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2105A21032

In [1]:
```
def generation(lam,fc,limits,n):
    i=0
    for i in range(n):

        x = (lam - fc[i,1])/(2*(fc[i,0] ))
        pgen.append(x)
        if(pgen[i]<limits[i,0]):
            pgen[i] = limits[i,0]
        if(pgen[i]>limits[i,1]):
            pgen[i] = limits[i,1]
    print(pgen)
```

In [ ]:
```
pd = float(input('Enter the value of pd:'))
n = int(input('Enter numbers of generators:'))
rows = n
cols = 3
```

In [ ]:
```
import numpy as np
```

In [ ]:
```
fc= np.zeros((rows,cols))
for i in range(rows):
    for j in range(cols):
        value = float(input('Enter parameters of fuel cost:'))
        fc[i,j] = value
np.set_printoptions(suppress = True)
print(fc)
```

In [ ]:
```
limits= np.zeros((rows,2))
for i in range(rows):
    for j in range(2):
        value = float(input('Enter lower limit and upper limit:'))
        limits[i,j] = value
np.set_printoptions(suppress = True)
print(limits)
```

In [ ]:
```
lam = np.max(fc[:,1])
lam
```

In [ ]:
```
pgen = []
fgen = []
```

In [ ]:
```
generation(lam,fc,limits,n)
```

In [ ]:
```
pgen
delp = pd - sum(fgen)
```

In [ ]:
```
while(abs(delp)>0.001):
    den = 0
    for i in range(n):
        den = den + 1/2*(1/fc[i,0])
    del_lambda = delp/den
    lam = lam + del_lambda
    pgen.clear()
    generation(lam,fc,limits,n)
    delp = pd - sum(pgen)
```

In [ ]:
```
for i in range(n):
    x = (lam - fc[i,1])/(2*(fc[i,0]))
    pgen.append(x)
    print('unit {} generation = {} MW\n'.format(i,pgen[i]))

print('-----------------------------------------------------------------------------------------------------')
print('incrimental cost = {} $/H'.format(lam))
print('-----------------------------------------------------------------------------------------------------')
for i in range(n):
    y = fc[i,0]*pgen[i]**2 + fc[i,1]*pgen[i] + fc[i,2]
    fgen.append(y)
    print('unit {} cost = {} $/H\n'.format(i,fgen[i]))
print('-----------------------------------------------------------------------------------------------------')

ft = sum(fgen)
print('total cost = {} $/H\n'.format(ft))
```

In [ ]:

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