Exp - 11

Economic Load Dispatch

Aim:

To minimize the total Fuel cost for committed units in a power plant using **λ**- iteration method.

Apparatus Required:

SI.No	Apparatus	Specification
1	PC	Dual core, RAM 512 MB 1.2 GHz speed, 80 GB
2	MATLAB	7.5

Algorithm:

Step 1: Start the program

Step 2: Get the fuel cost equation and the maximum load demand is calculated using the formula

$$? = \frac{?_? + \sum_{?=1}^{?} \frac{?_?}{?_{??}}}{\sum_{?=1}^{?} \frac{1}{?_{??}}}$$

Step 3: Calculate the dispatch value

$$?_{??} = \frac{? - ??}{?_{??}}$$

Step 4: Compare the dispatch value with the max operating limit if the dispatch value is greater than max operating limit then make it as P_{Dmax}

Step 5: Find the new load Demand value

$$P_{Dnew} = P_{DOLD} - P_{GZ}$$

Step 6: Calculate new λ

$$? = ?_{????} + \sum_{?=1}^{?} \frac{?_?}{?_{??}}$$

Step 7: Display the Result

Step 8: Stop the program

Program:

```
clc;
clear all;
n= input('Enter the number of units:');
pd= input('Enter the load demand:');
for i=1:n
   a(i)= input('Enter the coefficient of Pgi^2:');
   b(i)= input('Enter the coefficient of Pgi:');
   c(i)= input('Enter the constant coefficient :');
   pgmax(i)= input('Enter the maximum generating limit:');
   pgmin(i)= input('Enter the minimum generating limit:');
end
x=0; y=0;
for i= 1:n
      x= x+(b(i)/(2*a(i)));
      y=y+(1/(2*a(i)));
end
lambda=(pd+x)/y;
for i=1:n
   pg(i)=(lambda-b(i))/(2*a(i));
end
pg
k(n)=0;
for i=1:n
if (pg(i)<pgmin(i))
    k(i)=1;
   pg(i)= pgmin(i);
elseif (pg(i)>pgmax(i))
   k(i)=1;
   pg(i)=pgmax(i);
end
end
k
for j=1:n
    pd=pd-k(j)*pg(j);
end
pd
x1=0;   y1=0;
for i=1:n
if(1~=k(i))
x1= x1+(b(i)/(2*a(i)));
y1= y1+(1/(2*a(i)));
end
end
lambdanew=(pd+x1)/y1;
for i=1:n
if (1~=k(i))
   pg(i)=(lambdanew-b(i))/(2*a(i));
end
end
fprintf('The economic dispatch values:');
pg
```

Result: