run_case33loss202

File Details

```
% run_case33Loss202.m

mpc = case33Loss202(); % Load your custom case

results = runpf(mpc); % Run power flow

printpf(results); % Print results
```

Output:

```
MATPOWER Version 8.0, 17-May-2024

Power Flow -- AC-polar-power formulation


Newton's method converged in 3 iterations.

PF successful


Converged in 0.37 seconds
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| System Summary |
================================================================================
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How many? How much? P (MW) Q (MVAr)
-------------------- ------------------- ------------- -----------------
Buses 33 Total Gen Capacity 3267.0 -3267.0 to 3267.0
Generators 33 On-line Capacity 99.0 -99.0 to 99.0
Committed Gens 1 Generation (actual) 3.9 2.4
Loads 32 Load 3.7 2.3
Fixed 32 Fixed 3.7 2.3
Dispatchable 0 Dispatchable -0.0 of -0.0 -0.0
Shunts 0 Shunt (inj) -0.0 0.0
Branches 32 Losses (I^2 * Z) 0.20 0.14
Transformers 0 Branch Charging (inj) - 0.0
Inter-ties 0 Total Inter-tie Flow 0.0 0.0
Areas 1
```

```
Minimum Maximum
------------------------ --------------------------------
Voltage Magnitude 0.913 p.u. @ bus 18 1.000 p.u. @ bus 1
Voltage Angle -0.50 deg @ bus 18 0.50 deg @ bus 30
P Losses (I^2*R) - 0.05 MW @ line 2-3
Q Losses (I^2*X) - 0.03 MVAr @ line 5-6


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| Bus Data |
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====
Bus Voltage Generation Load
# Mag(pu) Ang(deg) P (MW) Q (MVAr) P (MW) Q (MVAr)
----- ------- -------- -------- -------- -------- --------
1 1.000 0.000* 3.92 2.44 - -
2 0.997 0.014 - - 0.10 0.06
3 0.983 0.096 - - 0.09 0.04
4 0.975 0.162 - - 0.12 0.08
5 0.968 0.228 - - 0.06 0.03
6 0.950 0.134 - - 0.06 0.02
7 0.946 -0.096 - - 0.20 0.10
8 0.941 -0.060 - - 0.20 0.10
9 0.935 -0.133 - - 0.06 0.02
10 0.929 -0.196 - - 0.06 0.02
11 0.928 -0.189 - - 0.04 0.03
12 0.927 -0.179 - - 0.06 0.04
13 0.921 -0.270 - - 0.06 0.04
14 0.918 -0.349 - - 0.12 0.08
15 0.917 -0.386 - - 0.06 0.01
16 0.916 -0.409 - - 0.06 0.02
17 0.914 -0.487 - - 0.06 0.02
18 0.913 -0.496 - - 0.09 0.04
19 0.997 0.004 - - 0.09 0.04
20 0.993 -0.063 - - 0.09 0.04
21 0.992 -0.083 - - 0.09 0.04
22 0.992 -0.103 - - 0.09 0.04
23 0.979 0.065 - - 0.09 0.05
24 0.973 -0.024 - - 0.42 0.20
25 0.969 -0.067 - - 0.42 0.20
26 0.948 0.173 - - 0.06 0.03
27 0.945 0.229 - - 0.06 0.03
28 0.934 0.312 - - 0.06 0.02
29 0.926 0.390 - - 0.12 0.07
30 0.922 0.496 - - 0.20 0.60
31 0.918 0.411 - - 0.15 0.07
32 0.917 0.388 - - 0.21 0.10
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33 0.917 0.380 - - 0.06 0.04
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Total: 3.92 2.44 3.72 2.30


================================================================================
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| Branch Data |
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Brnch From To From Bus Injection To Bus Injection Loss (I^2 * Z)
# Bus Bus P (MW) Q (MVAr) P (MW) Q (MVAr) P (MW) Q (MVAr)
----- ----- ----- -------- -------- -------- -------- -------- --------
1 1 2 3.92 2.44 -3.91 -2.43 0.012 0.01
2 2 3 3.44 2.21 -3.39 -2.18 0.052 0.03
3 3 4 2.36 1.68 -2.34 -1.67 0.020 0.01
4 4 5 2.22 1.59 -2.20 -1.58 0.019 0.01
5 5 6 2.14 1.55 -2.11 -1.52 0.038 0.03
6 6 7 1.10 0.53 -1.09 -0.52 0.002 0.01
7 7 8 0.89 0.42 -0.89 -0.42 0.005 0.00
8 8 9 0.69 0.32 -0.68 -0.32 0.004 0.00
9 9 10 0.62 0.30 -0.62 -0.29 0.004 0.00
10 10 11 0.56 0.27 -0.56 -0.27 0.001 0.00
11 11 12 0.52 0.24 -0.51 -0.24 0.001 0.00
12 12 13 0.45 0.21 -0.45 -0.21 0.003 0.00
13 13 14 0.39 0.17 -0.39 -0.17 0.001 0.00
14 14 15 0.27 0.09 -0.27 -0.09 0.000 0.00
15 15 16 0.21 0.08 -0.21 -0.08 0.000 0.00
16 16 17 0.15 0.06 -0.15 -0.06 0.000 0.00
17 17 18 0.09 0.04 -0.09 -0.04 0.000 0.00
18 2 19 0.36 0.16 -0.36 -0.16 0.000 0.00
19 19 20 0.27 0.12 -0.27 -0.12 0.001 0.00
20 20 21 0.18 0.08 -0.18 -0.08 0.000 0.00
21 21 22 0.09 0.04 -0.09 -0.04 0.000 0.00
22 3 23 0.94 0.46 -0.94 -0.46 0.003 0.00
23 23 24 0.85 0.41 -0.84 -0.40 0.005 0.00
24 24 25 0.42 0.20 -0.42 -0.20 0.001 0.00
25 6 26 0.95 0.97 -0.95 -0.97 0.003 0.00
26 26 27 0.89 0.95 -0.88 -0.95 0.003 0.00
27 27 28 0.82 0.92 -0.81 -0.91 0.011 0.01
28 28 29 0.75 0.89 -0.75 -0.88 0.008 0.01
29 29 30 0.63 0.81 -0.62 -0.81 0.004 0.00
30 30 31 0.42 0.21 -0.42 -0.21 0.002 0.00
31 31 32 0.27 0.14 -0.27 -0.14 0.000 0.00
32 32 33 0.06 0.04 -0.06 -0.04 0.000 0.00
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Total: 0.203 0.14


Converged in 0.37 seconds
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| System Summary |
================================================================================
====

How many? How much? P (MW) Q (MVAr)
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Buses 33 Total Gen Capacity 3267.0 -3267.0 to 3267.0
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Committed Gens 1 Generation (actual) 3.9 2.4
Loads 32 Load 3.7 2.3
Fixed 32 Fixed 3.7 2.3
Dispatchable 0 Dispatchable -0.0 of -0.0 -0.0
Shunts 0 Shunt (inj) -0.0 0.0
Branches 32 Losses (I^2 * Z) 0.20 0.14
Transformers 0 Branch Charging (inj) - 0.0
Inter-ties 0 Total Inter-tie Flow 0.0 0.0
Areas 1


Minimum Maximum
------------------------ --------------------------------
Voltage Magnitude 0.913 p.u. @ bus 18 1.000 p.u. @ bus 1
Voltage Angle -0.50 deg @ bus 18 0.50 deg @ bus 30
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# Mag(pu) Ang(deg) P (MW) Q (MVAr) P (MW) Q (MVAr)
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1 1.000 0.000* 3.92 2.44 - -
2 0.997 0.014 - - 0.10 0.06
3 0.983 0.096 - - 0.09 0.04
4 0.975 0.162 - - 0.12 0.08
5 0.968 0.228 - - 0.06 0.03
6 0.950 0.134 - - 0.06 0.02
7 0.946 -0.096 - - 0.20 0.10
8 0.941 -0.060 - - 0.20 0.10
9 0.935 -0.133 - - 0.06 0.02
10 0.929 -0.196 - - 0.06 0.02
11 0.928 -0.189 - - 0.04 0.03
12 0.927 -0.179 - - 0.06 0.04
13 0.921 -0.270 - - 0.06 0.04
```

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14 0.918 -0.349 - - 0.12 0.08
15 0.917 -0.386 - - 0.06 0.01
16 0.916 -0.409 - - 0.06 0.02
17 0.914 -0.487 - - 0.06 0.02
18 0.913 -0.496 - - 0.09 0.04
19 0.997 0.004 - - 0.09 0.04
20 0.993 -0.063 - - 0.09 0.04
21 0.992 -0.083 - - 0.09 0.04
22 0.992 -0.103 - - 0.09 0.04
23 0.979 0.065 - - 0.09 0.05
24 0.973 -0.024 - - 0.42 0.20
25 0.969 -0.067 - - 0.42 0.20
26 0.948 0.173 - - 0.06 0.03
27 0.945 0.229 - - 0.06 0.03
28 0.934 0.312 - - 0.06 0.02
29 0.926 0.390 - - 0.12 0.07
30 0.922 0.496 - - 0.20 0.60
31 0.918 0.411 - - 0.15 0.07
32 0.917 0.388 - - 0.21 0.10
33 0.917 0.380 - - 0.06 0.04
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Total: 3.92 2.44 3.72 2.30


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| Branch Data |
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Brnch From To From Bus Injection To Bus Injection Loss (I^2 * Z)
# Bus Bus P (MW) Q (MVAr) P (MW) Q (MVAr) P (MW) Q (MVAr)
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11 11 12 0.52 0.24 -0.51 -0.24 0.001 0.00
12 12 13 0.45 0.21 -0.45 -0.21 0.003 0.00
13 13 14 0.39 0.17 -0.39 -0.17 0.001 0.00
14 14 15 0.27 0.09 -0.27 -0.09 0.000 0.00
15 15 16 0.21 0.08 -0.21 -0.08 0.000 0.00
16 16 17 0.15 0.06 -0.15 -0.06 0.000 0.00
17 17 18 0.09 0.04 -0.09 -0.04 0.000 0.00
18 2 19 0.36 0.16 -0.36 -0.16 0.000 0.00
```

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19 19 20 0.27 0.12 -0.27 -0.12 0.001 0.00
20 20 21 0.18 0.08 -0.18 -0.08 0.000 0.00
21 21 22 0.09 0.04 -0.09 -0.04 0.000 0.00
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27 27 28 0.82 0.92 -0.81 -0.91 0.011 0.01
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32 32 33 0.06 0.04 -0.06 -0.04 0.000 0.00
-------- --------
Total: 0.203 0.14
```