GRIDOPT Documentation

Release 1.0

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January 06, 2016

Welcome! This is the documentation for GRIDOPT, last updated January 06, 2016.

What is GRIDOPT?

GRIDOPT is a Python package that provides methods for solving power grid optimization problems.

License

GRIDOPT is released under the BSD 2-clause license.

Contact

If you have any questions about GRIDOPT or if you are interested in collaborating, send me an email:

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GETTING STARTED

This section describes how to get started with GRIDOPT. In particular, it covers required packages, installation, and provides a quick example showing how to use this package.

- Numpy (>=1.8.2)
- Scipy (>=0.13.3)
- OPTALG
- PFNET (>= 1.1)

1.1 Download

The latest version of GRIDOPT can be downloaded from https://github.com/ttinoco/GRIDOPT.

1.2 Installation

The GRIDOPT Python module can be installed using:

```
> sudo python setup.py install
```

from the root directory of the package.

The installation can be tested using nose as follows:

```
> nosetests -v
```

1.3 Example

The next example shows how to solve the power flow problem associated with a power grid using GRIDOPT:

```python
>>> import pfnet
>>> import gridopt

>>> net = pfnet.Network()
>>> net.load('ieee14.mat')

>>> # max mismatches (MW,MVAr)
>>> print '%.2e %.2e' %(net.bus_P_mis,net.bus_Q_mis)
3.54e-01 4.22e+00
```

```
>>> method = gridopt.power_flow.new_method('NRPF')

>>> method.set_parameters({'quiet': True})

>>> method.solve(net)

>>> results = method.get_results()

>>> print results['status']
solved

>>> net.set_var_values(results['variables'])

>>> net.update_properties()

>>> # max mismatches (MW,MVAr)
>>> print '%.2e %.2e' %(net.bus_P_mis,net.bus_Q_mis)
5.16e-04 5.67e-03
```

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