System Parameters and Daily Load Demand

This document provides system-related parameters, including those for thermal and wind power units, and presents the daily load demand curve.

The system control parameters are shown in Table I:

TABLE I

SYSTEM AND CONTROL PARAMETERS

Parameter Name	Value
PFR optimization period	30 s
System nominal frequency	50 Hz
Maximum frequency deviation limit	0.5 Hz
Maximum RoCoF limit	0.6 Hz/s
Maximum QSSFD limit	0.32 Hz
WT rotor speed upper and lower limit	[0.6, 1.44] p.u.
Maximum/Minimum PFR power limits of wind farm	[0, 208] MW
Wind Farm capacity	192 MW
WT capacity	6 MW
Load damping constant	0.2

The parameters of thermal units are shown in Table II:

TABLE II

PARAMETERS OF THERMAL UNITS

Unit	Max/Min output power /MW	Minimum up/down time /h	Ramp down/up capacity /(MW/h)	Operational cost coefficient /$	Startup cost /$	H_G	K_G	T_G (s)	F_G
1	120/12	2	20	0.00615/3.3855/75	225	10	8	4.5	0.2875
2	120/12	2	20	0.00681/3.5862/125	273	10	9	3	0.3450
3	100/10	2	20	0.00444/3.6390/145	282	10	9.6	7	0.3565
4	110/8	2	20	0.00450/3.7929/160	315	10	11	6	0.3680
5	120/12	2	20	0.00636/3.7062/150	339	10	12.2	6	0.3680
6	130/14	2	20	0.00783/3.8898/125	318	10	13.6	3.5	0.2875
7	115/6	2	20	0.00867/3.4554/160	291	10	12.8	4	0.3105
8	117/6	2	20	0.01146/3.9303/110	321	10	16	4.5	0.3335
9	95/10	2	20	0.00840/3.6036/115	351	10	13.8	5	0.3565

10	150/16	2	20	0.00876/3.9102/225	360	10	14	3.5	0.2645

The daily load demand curve is shown in Fig. 1:

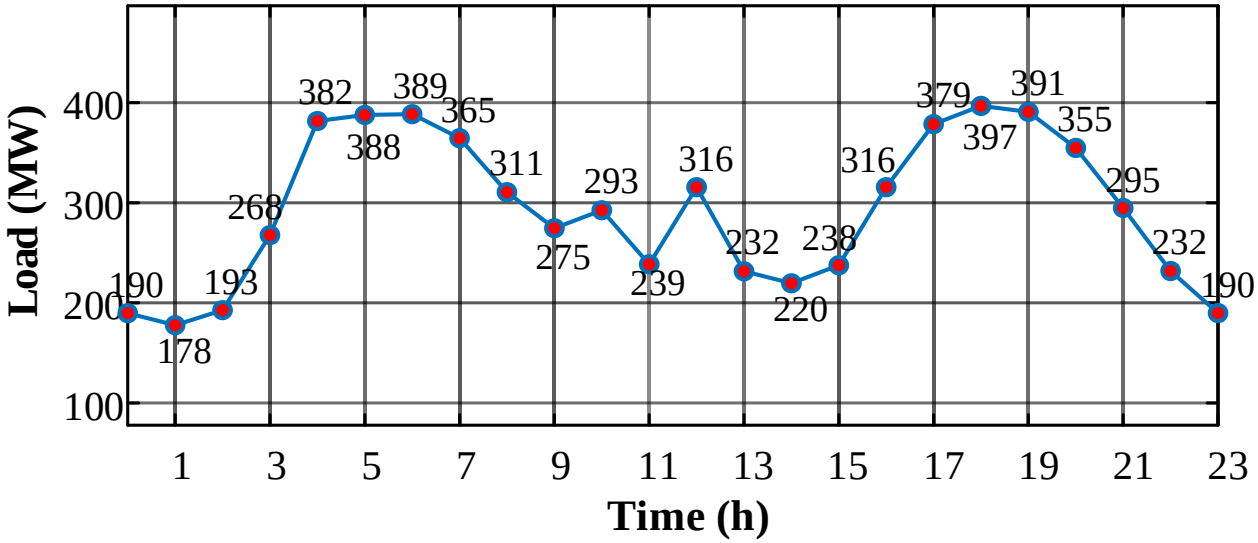

Fig. 1 The daily load demand curve.