We list the two endpoints of the arcs involved and the distance of the arcs. In the actual case network, the first numbers column represents the start node of an arc, the second is end node, and the last column represents the distance of this arc.

0 4 51

4 0 51

0 33 35

33 0 35

0 34 21

34 0 21

0 15 45

15 0 45

0 40 48

40 0 48

0 41 31

41 0 31

0 43 74

43 0 74

1 3 31

3 1 31

1 34 31

34 1 31

1 41 43

41 1 43

2 12 99

12 2 99

2 33 67

33 2 67

2 34 81

34 2 81

2 42 61

42 2 61

3 34 51

34 3 51

3 42 24

42 3 24

3 43 41

43 3 41

4 38 87

38 4 87

4 39 79

39 4 79

4 40 31

40 4 31

4 41 85

41 4 85

4 43 128

43 4 128

4 50 124

50 4 124

5 25 28

25 5 28

5 27 13

27 5 13

5 39 41

39 5 41

5 45 6

45 5 6

5 50 48

50 5 48

6 7 75

7 6 75

6 32 15

32 6 15

6 17 27

17 6 27

7 30 71

30 7 71

7 16 52

16 7 52

7 44 7

44 7 7

8 22 31

22 8 31

8 24 89

24 8 89

8 14 55

14 8 55

8 26 99

26 8 99

8 37 84

37 8 84

9 30 31

30 9 31

9 31 15

31 9 15

9 49 59

49 9 59

10 20 78

20 10 78

10 21 41

21 10 41

18 46 71

46 18 71

19 20 21

20 19 21

19 21 161

21 19 161

19 22 159

22 19 159

19 23 121

23 19 121

19 28 131

28 19 131

20 21 66

21 20 66

21 22 76

22 21 76

21 23 146

23 21 146

21 28 155

28 21 155

22 23 144

23 22 144

22 28 153

28 22 153

23 24 58

24 23 58

23 28 115

28 23 115

24 26 81

26 24 81

24 37 65

37 24 65

14 25 54

25 14 54

26 27 51

27 26 51

26 37 75

37 26 75

28 29 62

29 28 62

29 30 25

30 29 25

30 31 31

31 30 31

31 32 61

32 31 61

17 12 61

12 17 61

17 11 55

11 17 55

12 33 56

33 12 56

12 34 181

34 12 181

12 11 78

11 12 78

12 38 57

38 12 57

33 34 63

34 33 63

33 15 46

15 33 46

33 40 49

40 33 49

33 41 104

41 33 104

33 43 148

43 33 148

34 15 46

15 34 46

34 41 38

41 34 38

16 36 51

36 16 51

35 36 43

36 35 43

35 45 47

45 35 47

36 11 22

11 36 22

36 38 43

38 36 43

37 44 71

44 37 71

38 15 22

15 38 22

38 39 88

39 38 88

38 50 154

50 38 154

15 40 53

40 15 53

15 41 108

41 15 108

15 43 152

43 15 152

39 50 146

50 39 146

40 41 111

41 40 111

40 43 155

43 40 155

41 43 64

43 41 64

46 47 52

47 46 52

47 48 36

48 47 36

48 49 57

49 48 57

13 51 57

51 13 57

13 52 30

52 13 30

51 41 55

41 51 55

51 0 40

0 51 40

52 43 71

43 52 71

52 0 80

0 52 80

Number of nodes：53

nd  The number of State Of Charging interval /10.00/

W0.0 / 0.32/

W0.1 / 0.34/

W0.2 / 0.36/

W0.3 /0.38/

W0.4 / 0.40/

W0.5 / 0.43/

W0.6 / 0.46/

W0.7 / 0.50/

W0.8 /0.55/

W0.9 / 0.65/

k Type of user / 2.0/

ci Construction cost of station at node i/500.00/

u Unit deviation cost/1.00/

f Energy consumption per unit distance/1.00/

β Battery driving range/240.00/

βmin Lower bound of the battery driving range /5.00/

βmax  Upper bound of the battery driving range /145.00/

δ Charging time cost coefficient at stations/ 40.00/

 Charging time cost coefficient at origins /40.00/

 Benchmark satisfaction/1.00/

 Expected satisfaction level/0.50/

 /0.30/

 Capacity-sensitive coefficient/ 1.00/

S1  Charging amount in the SOC interval 1/0.00/

S2  Charging amount in the SOC interval 2/ 0.80/

S3  Charging amount in the SOC interval 3/0.95/

S4  Charging amount in the SOC interval 4/1.00/

T1  Charging time / 0.00/

T2  Charging time / 1 hour/

T3  Charging time /2 hours/

T4  Charging time / 2.5 hours/

 / 0.3

 / 0.8