On the Wind Farm Cable Routing Problem Optimization via Path-Relinking Metaheuristic $^{\rm 1}$

 $[\]overline{\ \ ^{1}\text{XIII Latin and American Algorithms, Graphs and Optimization Symposium (LAGOS 2025)}$

A Parameters for instance generation

| ID | Parameters | ID | Parameters | ID | Parameters | ID | Parameters | | | |
|-----------------|-----------------------|-----|-----------------------|-----|-----------------------|-----|----------------------|--|--|--|
| Small instances | | | | | | | | | | |
| 1 | n50 s01 t01 w01 | 23 | n50 s02 t03 w03 | 45 | n50 s03 t03 w05 | 67 | n50 s05 t01 w02 | | | |
| 2 | n50 s01 t01 w02 | 24 | n50 s02 t03 w04 | 46 | n50 s03 t04 w01 | 68 | n50 s05 t01 w03 | | | |
| 3 | n50 s01 t01 w03 | 25 | n50 s02 t03 w05 | 47 | n50 s03 t04 w02 | 69 | n50 s05 t01 w04 | | | |
| 4 | n50 s01 t01 w04 | 26 | n50 s02 t04 w01 | 48 | n50 s03 t04 w03 | 70 | n50_s05_t01_w05 | | | |
| 5 | n50 $s01$ $t01$ $w05$ | 27 | n50 s02 t04 w02 | 49 | n50 $s03$ $t04$ $w04$ | 71 | n50_s05_t02_w01 | | | |
| 6 | n50 $s01$ $t02$ $w01$ | 28 | n50 $s02$ $t04$ $w03$ | 50 | n50 $s03$ $t04$ $w05$ | 72 | n50 s05 t02 w02 | | | |
| 7 | n50 $s01$ $t02$ $w02$ | 29 | n50 s02 t04 w04 | 51 | n50 $s04$ $t01$ $w01$ | 73 | $n50_s05_t02_w03$ | | | |
| 8 | $n50_s01_t02_w03$ | 30 | $n50_s02_t04_w05$ | 52 | $n50_s04_t01_w02$ | 74 | n50_s05_t02_w04 | | | |
| 9 | $n50_s01_t02_w04$ | 31 | $n50_s03_t01_w01$ | 53 | $n50_s04_t01_w03$ | 75 | n50_s05_t02_w05 | | | |
| 10 | $n50_s01_t02_w05$ | 32 | $n50_s03_t01_w02$ | 54 | $n50_s04_t01_w04$ | 76 | n50_s05_t03_w01 | | | |
| 11 | $n50_s01_t03_w01$ | 33 | $n50_s03_t01_w03$ | 55 | $n50_s04_t01_w05$ | 77 | n50_s05_t03_w02 | | | |
| 12 | $n50_s01_t03_w02$ | 34 | $n50_s03_t01_w04$ | 56 | $n50_s04_t02_w01$ | 78 | n50_s05_t03_w03 | | | |
| 13 | $n50_s01_t03_w03$ | 35 | $n50_s03_t01_w05$ | 57 | $n50_s04_t02_w02$ | 79 | n50_s05_t03_w04 | | | |
| 14 | $n50_s01_t03_w04$ | 36 | $n50_s03_t02_w01$ | 58 | $n50_s04_t02_w03$ | 80 | n50_s05_t03_w05 | | | |
| 15 | $n50_s01_t03_w05$ | 37 | $n50_s03_t02_w02$ | 59 | $n50_s04_t02_w04$ | 81 | n50_s05_t04_w01 | | | |
| 16 | $n50_s01_t04_w01$ | 38 | $n50_s03_t02_w03$ | 60 | $n50_s04_t02_w05$ | 82 | n50_s05_t04_w02 | | | |
| 17 | $n50_s02_t02_w02$ | 39 | $n50_s03_t02_w04$ | 61 | $n50_s04_t03_w01$ | 83 | n50_s05_t04_w03 | | | |
| 18 | $n50_s02_t02_w03$ | 40 | $n50_s03_t02_w05$ | 62 | $n50_s04_t03_w02$ | 84 | n50_s05_t04_w04 | | | |
| 19 | $n50_s02_t02_w04$ | 41 | $n50_s03_t03_w01$ | 63 | $n50_s04_t03_w03$ | 85 | n50_s05_t04_w05 | | | |
| 20 | $n50_s02_t02_w05$ | 42 | $n50_s03_t03_w02$ | 64 | $n50_s04_t03_w04$ | - | - | | | |
| 21 | $n50_s02_t03_w01$ | 43 | $n50_s03_t03_w03$ | 65 | $n50_s04_t03_w05$ | - | - | | | |
| 22 | $n50_s02_t03_w02$ | 44 | $n50_s03_t03_w04$ | 66 | $n50_s04_t04_w01$ | - | - | | | |
| | | | Medium | | es | | | | | |
| 86 | $n80_s01_t02_w01$ | 105 | $n80_s02_t01_w05$ | 124 | $n80_s03_t02_w04$ | 143 | n80_s04_t04_w03 | | | |
| 87 | $n80_s01_t02_w02$ | 106 | $n80_s02_t02_w01$ | 125 | $n80_s03_t02_w05$ | 144 | n80_s04_t04_w04 | | | |
| 88 | $n80_s01_t02_w03$ | 107 | $n80_s02_t02_w02$ | 126 | $n80_s04_t01_w01$ | 145 | $n80_s04_t04_w05$ | | | |
| 89 | $n80_s01_t02_w04$ | 108 | $n80_s02_t02_w03$ | 127 | $n80_s04_t01_w02$ | 146 | n80_s05_t01_w01 | | | |
| 90 | $n80_s01_t02_w05$ | 109 | $n80_s02_t02_w04$ | 128 | $n80_s04_t01_w03$ | 147 | n80_s05_t01_w02 | | | |
| 91 | $n80_s01_t03_w01$ | 110 | $n80_s02_t02_w05$ | 129 | $n80_s04_t01_w04$ | 148 | n80_s05_t01_w03 | | | |
| 92 | $n80_s01_t03_w02$ | 111 | $n80_s02_t03_w01$ | 130 | $n80_s04_t01_w05$ | 149 | n80_s05_t01_w04 | | | |
| 93 | $n80_s01_t03_w03$ | 112 | $n80_s02_t03_w02$ | 131 | $n80_s04_t02_w01$ | 150 | n80_s05_t02_w05 | | | |
| 94 | $n80_s01_t03_w04$ | 113 | $n80_s02_t03_w03$ | 132 | $n80_s04_t02_w02$ | 151 | n80_s05_t03_w01 | | | |
| 95 | $n80_s01_t03_w05$ | 114 | $n80_s02_t03_w04$ | 133 | $n80_s04_t02_w03$ | 152 | n80_s05_t03_w02 | | | |
| 96 | $n80_s01_t04_w01$ | 115 | $n80_s02_t03_w05$ | 134 | $n80_s04_t02_w04$ | 153 | n80_s05_t03_w03 | | | |
| 97 | $n80_s01_t04_w02$ | 116 | $n80_s02_t04_w01$ | 135 | $n80_s04_t02_w05$ | 154 | n80_s05_t03_w04 | | | |
| 98 | $n80_s01_t04_w03$ | 117 | $n80_s02_t04_w02$ | 136 | $n80_s04_t03_w01$ | 155 | n80_s05_t03_w05 | | | |
| 99 | $n80_s01_t04_w04$ | 118 | $n80_s02_t04_w03$ | 137 | $n80_s04_t03_w02$ | 156 | n80_s05_t04_w01 | | | |
| 100 | $n80_s01_t04_w05$ | 119 | $n80_s02_t04_w04$ | 138 | $n80_s04_t03_w03$ | 157 | n80_s05_t04_w02 | | | |
| 101 | $n80_s02_t01_w01$ | 120 | $n80_s02_t04_w05$ | 139 | n80_s04_t03_w04 | 158 | n80_s05_t04_w03 | | | |
| 102 | $n80_s02_t01_w02$ | 121 | n80_s03_t02_w01 | 140 | $n80_s04_t03_w05$ | 159 | n80_s05_t04_w04 | | | |
| 103 | $n80_s02_t01_w03$ | 122 | $n80_s03_t02_w02$ | 141 | n80_s04_t04_w01 | 160 | n80_s05_t04_w05 | | | |
| 104 | n80_s02_t01_w04 | 123 | n80_s03_t02_w03 | 142 | n80_s04_t04_w02 | - | - | | | |

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| ID | Parameters | ID | Parameters | ID | Parameters | ID | Parameters | | | | |
|-----------------|------------------|-----|------------------|-----|-----------------------|-----|------------------|--|--|--|--|
| Large instances | | | | | | | | | | | |
| 161 | n120_s04_t01_w01 | 171 | n120_s04_t03_w01 | 181 | n120_s05_t01_w01 | 191 | n120_s05_t03_w01 | | | | |
| 162 | n120_s04_t01_w02 | 172 | n120_s04_t03_w02 | 182 | n120_s05_t01_w02 | 192 | n120_s05_t03_w02 | | | | |
| 163 | n120_s04_t01_w03 | 173 | n120_s04_t03_w03 | 183 | n120_s05_t01_w03 | 193 | n120_s05_t03_w03 | | | | |
| 164 | n120_s04_t01_w04 | 174 | n120_s04_t03_w04 | 184 | n120_s05_t01_w04 | 194 | n120_s05_t03_w04 | | | | |
| 165 | n120_s04_t01_w05 | 175 | n120_s04_t03_w05 | 185 | n120_s05_t01_w05 | 195 | n120_s05_t03_w05 | | | | |
| 166 | n120_s04_t02_w01 | 176 | n120_s04_t04_w01 | 186 | $n120_s05_t02_w01$ | 196 | n120_s05_t04_w01 | | | | |
| 167 | n120_s04_t02_w02 | 177 | n120_s04_t04_w02 | 187 | n120_s05_t02_w02 | 197 | n120_s05_t04_w02 | | | | |
| 168 | n120_s04_t02_w03 | 178 | n120_s04_t04_w03 | 188 | n120_s05_t02_w03 | 198 | n120_s05_t04_w03 | | | | |
| 169 | n120_s04_t02_w04 | 179 | n120_s04_t04_w04 | 189 | n120_s05_t02_w04 | 199 | n120_s05_t04_w04 | | | | |
| 170 | n120_s04_t02_w05 | 180 | n120_s04_t04_w05 | 190 | n120_s05_t02_w05 | 200 | n120_s05_t04_w05 | | | | |

Table 1: Parameters for instance generation