On the Wind Farm Cable Routing Problem Optimization via
Path-Relinking Metaheuristic [1]

ID	PR5	PR6	VNS	MAHM	ID	PR5	PR6	VNS	MAHM
1	35459451.77	**35418009.71**	36141910.78	36121232.96	44	37331927.66	37294006.91	37282413.54	**37216452.31**
2	35545549.09	**35451620.85**	36413001.07	36057786.82	45	**38194992.90**	38214758.23	38514221.17	38421800.90
3	35819117.24	36129124.99	36736728.93	**35647649.69**	46	37261930.69	37258206.92	37753455.83	**37159360.41**
4	35497474.56	**35436537.70**	35614243.62	35546000.69	47	37892764.44	**37698721.05**	37792321.71	37762109.32
5	35873949.72	**35871069.02**	36451245.57	36270303.19	48	38473078.09	**38441544.95**	38937915.05	38677581.00
6	33082283.66	33037465.57	33037465.57	**33034885.69**	49	**36787252.42**	36818234.13	37397447.60	37129962.56
7	33103336.15	32944954.69	**32788014.12**	32894545.98	50	37626715.22	**37561501.94**	37833502.17	37658708.48
8	33744652.20	33584646.58	33519714.21	**33362800.92**	51	**43439304.74**	43888333.21	44158150.73	44158150.73
9	32717279.60	32644777.01	32558231.87	**32465596.70**	52	**43865255.33**	43919127.49	43979668.95	44004873.07
10	32301518.89	**32232829.10**	32425070.89	32463813.54	53	**44544644.08**	44544644.08	45459064.67	45181869.11
11	**35722328.84**	35771825.89	36170625.88	35944834.19	54	43616367.59	**43604946.11**	44708613.99	44499886.33
12	**35487118.00**	35503458.52	36285562.94	36141739.80	55	**43952100.73**	44005264.30	44195035.47	44153715.11
13	36041599.70	36034570.95	36085731.31	**36027794.59**	56	41173894.65	**40579647.99**	41131229.63	40833475.38
14	**35063020.96**	35134708.49	35344332.36	35313505.71	57	38948654.41	**38939889.49**	40308229.98	40043881.59
15	**36038301.46**	36038301.46	36117990.60	36097165.74	58	**41420060.14**	41514416.34	41985323.30	41695197.16
16	35327796.33	**35279642.92**	36058588.48	35839379.73	59	39453523.55	**39452106.22**	40232339.90	40112538.13
17	29760024.53	29530538.19	29854276.10	**29466349.22**	60	**39974711.29**	40012561.24	40320918.77	40041048.84
18	29700578.34	**29501059.38**	29746021.58	29542938.99	61	**43728027.99**	43808031.40	44017982.16	43827054.36
19	29876917.07	**29847509.56**	29990513.06	29853388.80	62	44412971.95	44412971.95	**44284046.52**	44296939.06
20	30050363.67	30004087.33	29867380.49	**29864011.76**	63	45521582.16	45528094.91	45763547.36	45555465.73
21	**31284646.79**	31318387.36	31485561.49	31445378.55	64	**42048368.40**	**42048368.40**	**42048368.40**	**42048368.40**
22	**30782250.23**	30853624.28	31067193.54	31177585.98	65	42461792.10	42470475.68	**42461447.13**	42461447.13
23	**31013102.06**	31013102.06	31101340.43	31101340.43	66	**43896748.45**	44495440.20	44548416.40	44480282.76
24	**31730026.04**	31730026.04	31900432.21	31881609.04	67	95444428.30	95474768.54	96030779.97	**95066258.71**
25	30971050.97	**30956873.95**	31138473.04	31127816.08	68	99799770.92	**99783370.97**	99944500.43	99793158.71
26	31207894.25	**31204145.61**	31977806.57	31858370.25	69	92755271.22	92782829.45	92873544.65	**92685203.52**
27	**30987238.09**	31095324.13	31631914.82	31523057.89	70	89149755.05	89400851.92	89177562.21	**89018913.74**
28	**31408652.25**	31408652.25	31646837.64	31430625.16	71	86692620.55	**86419538.85**	86628132.31	86628132.31
29	**31401431.63**	31575767.62	32380932.18	32131714.69	72	87813557.65	87463810.31	**86721710.22**	86852319.85
30	32787907.20	**32420402.12**	33484103.23	33211217.24	73	90687862.86	90605332.18	90240835.53	**90146928.25**
31	38712160.37	**38636536.49**	38799219.01	38763304.28	74	84201004.16	83520235.72	83532941.25	**83081517.95**
32	38106689.98	**38087081.48**	38371572.01	38144622.27	75	**84933784.82**	**84933784.82**	**84933784.82**	**84933784.82**
33	38429399.76	**38421067.49**	39003500.09	38591811.09	76	**98534167.19**	98708361.42	99052995.73	99107079.00
34	**38464734.87**	38490675.79	38880525.85	38728849.24	77	99009706.64	99453990.30	99281842.66	**98609013.15**
35	**37396404.99**	37422896.61	38382341.04	37558650.02	78	101290125.62	**101247237.27**	101247237.27	101247237.27
36	34226699.29	34226699.29	**33832701.27**	**33832701.27**	79	**94874501.19**	95065661.74	95518617.81	95512285.89
37	**33646518.71**	33936167.54	33902970.80	33935542.87	80	94866365.64	94866365.64	94669771.04	**94509497.41**
38	34352994.19	34349756.53	34263071.34	**34247726.27**	81	95368333.66	**93881812.38**	94887833.74	94692049.26
39	**32971434.61**	32971434.61	33109920.19	32985468.96	82	95910805.59	95927730.76	96750672.21	**95577413.97**
40	34480372.97	**34426889.79**	34803484.89	34691958.41	83	**98933651.29**	100876394.87	100252519.32	100199084.40
41	38575206.01	38583668.75	38558947.66	**38548357.97**	84	**95292207.93**	95401145.88	97558080.79	96430970.14
42	**38577993.65**	38620446.57	38673715.69	38660890.05	85	**90011924.79**	90364536.01	90364536.01	90328237.32
43	**38711573.04**	38711573.04	38879718.25	38821892.97					

Table 1: Mean results concerning the solution quality for small instances

ID	PR5	PR6	VNS	MAHM	ID	PR5	PR6	VNS	MAHM
86	47571467.65	**47211071.47**	47275060.94	47398793.48	124	50661652.11	50351100.81	50282425.57	**50158763.44**
87	47336474.04	46985472.62	46887410.54	**46838244.88**	125	50754665.02	50543837.68	50560245.28	**50521759.03**
88	47602167.72	47212967.79	47341551.95	**47056257.15**	126	62576302.79	**62465923.32**	62614674.80	62471363.51
89	47145053.27	47044167.43	47166850.19	**47017984.14**	127	64186012.63	64297385.17	64255799.29	**64128813.71**
90	47087534.74	46975708.24	46787806.94	**46760305.78**	128	64340985.14	**64221357.65**	64499747.96	64438472.49
91	52917913.55	52850771.88	53108381.69	**52832775.36**	129	62630184.60	**62511484.30**	62716749.34	62703745.91
92	52761682.82	52743654.12	52743654.12	**52610135.98**	130	62165263.49	62106305.15	61907841.67	**61903066.57**
93	53971038.81	53985179.22	53860757.52	**53418473.24**	131	57287046.67	56952870.90	57183111.50	**56811349.27**
94	**51635549.29**	51926675.07	52437955.20	51979755.47	132	57502903.44	57480498.12	57787735.17	**56690458.03**
95	52632072.49	52629076.26	52949560.41	**52583996.96**	133	58462812.83	58453635.17	58460644.83	**58255041.41**
96	50792051.17	50805844.01	**50619695.36**	50626123.23	134	56815821.30	56685887.22	56725148.03	**56653024.92**
97	51192919.17	51075987.75	50935307.84	**50854146.37**	135	58355184.94	**58085133.92**	58474284.27	58342743.70
98	51979131.15	51952152.95	51817010.73	**51620246.22**	136	**66122571.72**	66185540.71	66393096.30	66196248.79
99	50431389.43	50348301.71	**50330755.65**	50399382.10	137	**64464635.48**	64658626.81	64980534.36	64823241.18
100	51230164.30	51147727.61	51183370.45	**51086758.27**	138	66566635.34	66496658.34	66886520.82	**66417227.52**
101	45033457.55	44923287.09	44990138.75	**44842925.20**	139	**64380147.24**	64380147.24	65418232.39	64694524.70
102	45408213.64	45190647.63	45146325.33	**45084086.54**	140	66192388.47	**66168596.77**	66686304.72	66235020.09
103	45574792.13	45509065.93	45623617.92	**45455251.16**	141	62528825.20	**62307789.89**	62436235.40	62428115.42
104	45501628.36	45365774.40	45456249.11	**45293745.93**	142	62788312.80	**62546653.51**	62827058.70	62841834.04
105	44168182.23	43839749.01	**43598080.07**	43676587.30	143	63740403.53	63675100.46	63741829.61	**63461731.08**
106	**41482066.78**	41486797.33	41551264.43	41535720.55	144	60849072.54	**60798736.65**	60970479.04	60970479.04
107	41929266.88	**41781483.07**	42030696.22	41796127.01	145	63701471.46	63781271.25	63787596.63	**63675555.83**
108	41820317.65	**41720009.57**	41907087.33	41834900.16	146	136173465.06	136125451.62	135661171.76	**135471555.81**
109	42332871.64	42126630.96	41746598.24	**41598990.81**	147	**134474612.01**	134494783.22	134635741.59	134585846.97
110	41291677.74	41145205.55	41202927.60	**41039823.05**	148	137968018.11	137878589.42	138247002.72	**137809866.02**
111	46108590.33	**46028186.33**	46257473.98	46153850.92	149	**132875410.22**	133446981.16	133268737.77	133268737.77
112	46463496.96	**46398120.35**	46640043.77	46508996.18	150	116464940.23	**116105184.79**	117045227.75	116831024.91
113	**46688733.57**	46786414.00	46993289.43	46852383.65	151	141368420.32	141368420.32	**140313618.63**	140341110.48
114	46826642.41	46760657.12	46601273.88	**46590121.43**	152	142672557.74	**142505951.97**	143220237.34	143141920.78
115	45702304.73	**45490177.94**	45640370.55	45630932.04	153	147577769.73	147449789.92	146828232.66	**146781067.82**
116	44572244.18	**44522524.59**	44617988.32	44595997.14	154	138492686.95	138477460.84	138561584.56	**138215913.26**
117	44167602.96	44101503.44	44327542.22	**44004002.68**	155	**136396459.85**	**136396459.85**	**136396459.85**	**136396459.85**
118	45251581.85	**45147915.94**	45196695.70	45187681.55	156	132732622.19	132725686.47	**132399493.31**	**132399493.31**
119	44269851.69	**44208234.54**	**44208234.54**	**44208234.54**	157	132814514.77	132814514.77	**132524394.56**	132563765.40
120	43684219.64	43511209.84	43434073.97	**43291553.14**	158	140475590.27	140028018.73	139866564.81	**139793525.19**
121	50989412.83	50837686.34	50669548.78	**50599668.64**	159	131898452.23	131898452.23	131898452.23	**131893018.12**
122	50286731.77	50259123.90	50246164.12	**50110012.30**	160	**131952441.44**	133271370.83	133500176.36	133261261.45
123	50651956.25	50450827.45	50429573.23	**50394739.73**					

Table 2: Mean results concerning the solution quality for medium instances

ID	PR5	PR6	VNS	MAHM	ID	PR5	PR6	VNS	MAHM
161	88124723.20	87983551.51	87746206.02	**87639416.34**	181	188687699.13	188687699.13	188373971.29	**188328642.01**
162	88763484.22	88613759.16	88484388.61	**88308655.30**	182	188567071.44	188567071.44	188180319.42	**188137934.40**
163	88329897.17	88042213.93	87479231.05	**87383122.46**	183	193648841.48	193648841.48	193416956.93	**193413641.51**
164	88039311.02	87802195.95	87631421.24	**87603291.09**	184	186137769.63	186137769.63	185997413.98	**185888714.82**
165	88217161.11	87948112.95	87816038.68	**87749837.91**	185	187891280.15	187891280.15	187835734.94	**187717497.96**
166	80425005.42	80252823.73	80005974.47	**79920046.71**	186	169732835.21	169732835.21	169417115.00	**169253640.56**
167	78507009.02	78444532.34	**78323893.84**	78350321.38	187	168768393.11	168399079.19	168345232.98	**168338204.14**
168	80928829.51	80781926.53	80675396.76	**80476679.30**	188	175579971.59	175560918.20	175273915.71	**175172681.29**
169	80044486.38	79782106.74	**79595134.36**	79624928.57	189	**164403921.81**	164454667.61	164587984.54	164535510.29
170	79752227.93	79695120.42	79555724.82	**79358549.45**	190	173088664.61	173088664.61	172631884.68	**172517612.75**
171	91063293.05	90992035.17	90988717.30	**90934529.11**	191	198181113.06	198160643.01	197931960.66	**197873733.40**
172	91033863.27	90891287.92	90861711.56	**90844066.04**	192	196495030.25	196441856.19	196152057.78	**196144834.48**
173	92176111.58	91971780.53	91965102.73	**91955730.93**	193	204341412.36	204210179.96	204198347.49	**204182428.16**
174	90266148.95	90137012.52	90072391.03	**90004410.48**	194	194427012.07	194487769.46	194339016.43	**194202099.66**
175	91451618.61	91395608.93	91383535.06	**91331192.92**	195	198805252.48	198805252.48	198763616.26	**198697688.70**
176	86475417.14	86483344.20	86023718.27	**85892995.03**	196	186677478.62	186677478.62	186275802.36	**186204546.26**
177	86820218.79	86790809.91	86142722.99	**86064607.05**	197	186611135.52	186699993.31	185896347.22	**185840787.55**
178	87765330.06	87765330.06	87368075.81	**87205216.25**	198	191769569.81	191769569.81	191119652.48	**191084439.45**
179	85757325.15	85709455.48	85548549.47	**85405088.63**	199	184149187.68	184149187.68	183764789.51	**183687347.08**
180	87930372.93	87930372.93	87442234.65	**87413253.24**	200	192395024.96	192395024.96	192071683.95	**191870615.18**

Table 3: Mean results concerning the solution quality for large instances