COMPUTATIONAL CHARACTERISTICS OF RANDOM HAVERLY INSTANCES

In the following table, for each of the random haverly instances, we include the pq bound (z_{pq}), the pq^+ bound (z_{pq^+}), the optimal solution value z^*, the time for generating cutting planes t_{cut}, the number of cuts (# cut), the number of rounds of the cutting plan algorithm (# rd.), the CPU time in seconds for SCIP to solve the pq formulation to optimality (t_{pq}), the CPU time in seconds for SCIP to solve the pq^+ formulation to optimality (t_{pq^+}), the number of nodes required for SCIP to solve the pq formulation to optimality (n_{pq}), and the number of nodes required for SCIP to solve the pq^+ formulation to optimality (n_{pq^+}). A time limit of 1000 seconds is used.

To save space, we use a shortened version of the instance name. For example, the full instance name `haverly_10_addedges_10_attr_0_1` is shortened to `h_10_ae_10_atr_0_1`.

Instance	z_{pq}	z_{pq^+}	z^*	t_{cut}	# cut	# rd.	t_{pq}	t_{pq^+}	n_{pq}	n_{pq^+}
h_10_ae_10_atr_0_1	-11378.89	-10346.85	-10112.22	0.66	32	5	5.2	0.8	10041	92
h_10_ae_10_atr_0_10	-11073.85	-10292.86	-9871.81	1.12	40	9	6.8	1.1	9848	389
h_10_ae_10_atr_0_2	-18707.23	-17491.84	-17452.50	0.45	22	3	1.2	0.3	519	1
h_10_ae_10_atr_0_3	-16662.88	-15399.62	-15009.45	0.93	37	6	6.5	1.6	11583	435
h_10_ae_10_atr_0_4	-18788.83	-17043.63	-16709.06	0.52	26	3	3.8	1.1	6079	134
h_10_ae_10_atr_0_5	-25472.62	-24401.65	-23603.85	1.31	47	9	3.3	1.4	5189	479
h_10_ae_10_atr_0_6	-15801.91	-15055.29	-14699.64	0.50	15	3	4.6	1.1	8374	264
h_10_ae_10_atr_0_7	-7539.59	-6592.65	-6293.19	0.98	36	6	3.4	1.0	5536	129
h_10_ae_10_atr_0_8	-18632.86	-16804.23	-15924.22	1.07	44	7	12.6	1.1	23264	371
h_10_ae_10_atr_0_9	-13341.32	-11405.85	-10885.35	0.50	27	3	8.0	1.0	13935	244
h_10_ae_20_atr_0_1	-16110.08	-15608.28	-14718.46	1.18	38	8	19.2	16.2	36743	16787
h_10_ae_20_atr_0_10	-25471.50	-25110.42	-23617.35	0.72	27	5	4.2	2.8	5451	1731
h_10_ae_20_atr_0_2	-21571.98	-20701.31	-19887.27	0.81	26	6	2.8	1.6	3141	517
h_10_ae_20_atr_0_3	-46853.09	-46244.15	-45595.84	0.57	21	4	2.1	3.6	2143	1240
h_10_ae_20_atr_0_4	-35314.43	-35238.51	-34393.39	0.91	14	7	1.1	2.1	388	365
h_10_ae_20_atr_0_5	-34353.26	-33490.88	-32415.21	1.02	29	8	3.5	2.1	4027	806
h_10_ae_20_atr_0_6	-17124.83	-16394.14	-15201.95	1.22	31	8	3.1	3.0	5281	2537
h_10_ae_20_atr_0_7	-16246.27	-15624.45	-15348.09	1.23	29	8	0.7	0.8	135	23
h_10_ae_20_atr_0_8	-13232.20	-12581.66	-12434.90	0.56	24	3	2.5	0.8	3114	31
h_10_ae_20_atr_0_9	-9556.50	-8200.34	-7894.22	0.60	34	4	5.2	1.1	6891	227
h_10_ae_30_atr_0_1	-21130.47	-20591.41	-19974.89	1.19	26	8	1.6	3.3	946	509
h_10_ae_30_atr_0_10	-27138.66	-26371.08	-25558.73	0.50	11	3	3.8	2.4	4855	1281
h_10_ae_30_atr_0_2	-32446.05	-32044.23	-31701.52	0.50	9	3	0.9	1.1	504	15
h_10_ae_30_atr_0_3	-30398.06	-29579.00	-29109.04	1.05	27	8	1.4	1.3	873	81
h_10_ae_30_atr_0_4	-35213.74	-34964.46	-34460.59	0.29	7	2	1.2	1.0	271	51
h_10_ae_30_atr_0_5	-42703.99	-42606.30	-40180.52	0.57	14	4	64.3	17.1	90981	13103
h_10_ae_30_atr_0_6	-22414.20	-21602.42	-20875.08	0.54	19	3	6.5	2.3	8846	1044
h_10_ae_30_atr_0_7	-23075.95	-22578.02	-22452.24	0.56	25	3	0.7	1.2	49	1
h_10_ae_30_atr_0_8	-31139.41	-30731.71	-29021.62	1.07	17	7	1.2	1.3	491	484
h_10_ae_30_atr_0_9	-24019.62	-23875.49	-23368.89	1.32	24	9	1.6	1.8	598	130
h_10_ae_40_atr_0_1	-42057.43	-41750.55	-41529.30	1.34	31	9	2.8	17.7	3180	2966
h_10_ae_40_atr_0_10	-33189.57	-32741.59	-32717.16	0.54	15	3	0.9	0.9	47	1
h_10_ae_40_atr_0_2	-32419.90	-32020.48	-31897.06	0.69	13	4	1.2	1.3	157	1
h_10_ae_40_atr_0_3	-37774.55	-37503.05	-36930.25	1.15	14	7	12.2	5.1	18631	3125
h_10_ae_40_atr_0_4	-36544.16	-35787.48	-34506.66	0.70	19	4	3.6	5.1	2641	1384
h_10_ae_40_atr_0_5	-36428.11	-36120.12	-35673.40	0.54	7	3	2.7	3.0	2841	867
h_10_ae_40_atr_0_6	-52426.96	-52180.12	-50934.13	0.63	12	4	1.4	1.8	383	299
h_10_ae_40_atr_0_7	-43767.66	-43423.82	-41270.21	1.10	20	7	1.3	3.3	509	546
h_10_ae_40_atr_0_8	-25403.88	-24947.55	-24501.01	0.50	12	3	1.4	2.5	511	429
h_10_ae_40_atr_0_9	-44690.25	-44540.53	-43608.02	0.50	13	3	1.4	2.0	625	402
h_10_ae_50_atr_0_1	-35228.22	-34857.81	-34439.27	0.68	10	4	1.2	1.3	217	69
h_10_ae_50_atr_0_10	-31774.86	-31774.86	-30392.22	0.55	6	3	2.3	2.7	2081	951
h_10_ae_50_atr_0_2	-28008.75	-27831.98	-26938.56	0.56	8	3	4.5	29.3	4713	10349
h_10_ae_50_atr_0_3	-42591.77	-42411.61	-42374.41	0.81	14	6	0.8	1.5	11	10
h_10_ae_50_atr_0_4	-36557.09	-35945.30	-35362.98	0.93	27	7	12.4	15.7	15611	11541
h_10_ae_50_atr_0_5	-30214.02	-30078.22	-28766.74	0.65	14	4	6.6	5.3	7057	2591
h_10_ae_50_atr_0_6	-36882.78	-36626.67	-36397.07	0.51	7	3	1.9	5.9	487	119
h_10_ae_50_atr_0_7	-53692.97	-53543.34	-53497.12	0.48	5	3	1.4	2.1	11	1
h_10_ae_50_atr_0_8	-47842.12	-47779.10	-47256.89	0.46	6	3	3.1	1.8	587	161
h_10_ae_50_atr_0_9	-45007.99	-44916.92	-43438.57	0.48	6	3	6.9	12.7	1798	1781
h_10_ae_60_atr_0_1	-58510.37	-58358.27	-57832.62	0.51	7	3	2.1	5.5	1351	1471
h_10_ae_60_atr_0_10	-41097.74	-40559.36	-40241.32	0.49	23	3	0.9	2.3	71	19
h_10_ae_60_atr_0_2	-50686.99	-50003.89	-49437.76	0.54	14	4	1.7	1.6	315	99
h_10_ae_60_atr_0_3	-41719.61	-41458.80	-40716.23	0.57	16	3	2.5	6.2	863	318
h_10_ae_60_atr_0_4	-36701.20	-36659.17	-35931.57	0.43	4	2	8.0	16.6	4421	5477
h_10_ae_60_atr_0_5	-31064.69	-30861.33	-28889.23	0.71	19	4	101.3	99.1	134206	71140
h_10_ae_60_atr_0_6	-41163.52	-40423.47	-39435.22	0.49	11	3	1.6	2.5	912	557
h_10_ae_60_atr_0_7	-32419.14	-32367.75	-31262.08	0.55	3	3	34.8	70.9	52281	67431
h_10_ae_60_atr_0_8	-34485.64	-34139.92	-32963.00	1.12	16	8	12.1	3.0	3185	1191
h_10_ae_60_atr_0_9	-59311.38	-58937.42	-58148.64	0.46	13	3	2.0	3.2	558	234

h_15_ae_15_atr_0_1	-31564.38	-30266.93	-29067.35	1.37	41	7	82.3	20.1	150371	18207
h_15_ae_15_atr_0_10	-24860.83	-22953.81	-22525.41	0.74	34	3	134.3	1.6	258458	119
h_15_ae_15_atr_0_2	-19377.80	-19011.45	-18521.72	0.93	36	4	38.5	9.3	70161	7363
h_15_ae_15_atr_0_3	-15333.68	-13114.95	-12394.65	1.80	74	9	320.0	3.3	570952	1153
h_15_ae_15_atr_0_4	-30621.76	-28430.68	-27696.74	1.28	48	7	51.1	3.7	83790	1439
h_15_ae_15_atr_0_5	-22766.64	-21436.17	-20340.02	0.91	35	4	132.1	4.2	247761	2321
h_15_ae_15_atr_0_6	-22136.86	-20192.86	-19522.05	0.74	41	3	51.6	3.0	88754	1564
h_15_ae_15_atr_0_7	-16965.26	-15871.64	-15771.49	1.45	45	7	6.0	0.8	9722	92
h_15_ae_15_atr_0_8	-22317.66	-21026.47	-20204.82	1.47	52	7	155.9	50.4	253131	32547
h_15_ae_15_atr_0_9	-36573.50	-35485.37	-35002.97	1.67	50	8	16.7	2.2	27274	1178
h_15_ae_30_atr_0_1	-34273.00	-33503.81	-33398.55	1.14	22	5	4.4	0.9	5879	23
h_15_ae_30_atr_0_10	-20820.29	-19389.74	-18605.30	1.48	62	7	208.8	11.8	335016	6893
h_15_ae_30_atr_0_2	-42784.01	-42365.56	-41385.84	0.94	24	4	30.9	31.9	43359	25611
h_15_ae_30_atr_0_3	-27689.98	-26882.86	-25867.16	1.41	44	7	1000.0	1000.0	1549341	839990
h_15_ae_30_atr_0_4	-52595.60	-52077.89	-52036.23	0.65	13	3	1.1	1.0	191	1
h_15_ae_30_atr_0_5	-32341.75	-31113.75	-29461.40	1.59	33	8	43.0	21.3	55920	10801
h_15_ae_30_atr_0_6	-21134.17	-19291.54	-18417.90	1.72	51	8	155.9	5.1	244385	2787
h_15_ae_30_atr_0_7	-29084.53	-27701.85	-25783.86	1.57	49	8	90.7	36.7	147776	26234
h_15_ae_30_atr_0_8	-33142.99	-32560.71	-32048.12	0.69	27	3	10.5	1.7	14764	641
h_15_ae_30_atr_0_9	-40342.96	-39229.12	-38276.47	0.75	29	3	230.6	82.5	353851	70401
h_15_ae_45_atr_0_1	-56017.23	-55796.27	-55085.93	1.43	20	6	7.1	7.2	8691	4098
h_15_ae_45_atr_0_10	-51944.13	-50573.81	-48554.61	0.96	23	4	861.0	136.2	1208697	87920
h_15_ae_45_atr_0_2	-50402.07	-50161.21	-48745.17	0.65	20	3	6.7	6.2	7321	2831
h_15_ae_45_atr_0_3	-37738.59	-37217.00	-36194.91	1.33	27	6	3.9	11.6	2877	4189
h_15_ae_45_atr_0_4	-56979.99	-55931.43	-55345.74	0.72	20	3	410.0	27.9	675371	21791
h_15_ae_45_atr_0_5	-40505.21	-39671.80	-37788.94	1.53	27	7	7.1	8.1	6901	3965
h_15_ae_45_atr_0_6	-46931.25	-46319.42	-45093.43	1.62	37	8	5.2	3.8	4641	728
h_15_ae_45_atr_0_7	-62338.84	-61516.03	-56795.04	1.52	28	7	1000.0	942.4	1206490	573101
h_15_ae_45_atr_0_8	-39216.09	-38627.60	-38060.46	1.35	20	6	3.1	3.4	2926	1334
h_15_ae_45_atr_0_9	-34865.90	-34336.18	-33030.20	1.61	53	8	130.9	466.1	177775	381604
h_15_ae_60_atr_0_1	-47325.41	-46625.60	-43332.72	1.40	26	7	88.7	59.2	112483	41631
h_15_ae_60_atr_0_10	-62246.18	-61560.46	-60858.91	1.34	23	6	1.9	3.4	687	541
h_15_ae_60_atr_0_2	-74412.74	-73919.39	-73020.06	1.15	17	5	48.1	15.5	50051	6221
h_15_ae_60_atr_0_3	-43490.24	-43000.77	-41881.13	0.77	20	3	3.7	3.5	2682	1023
h_15_ae_60_atr_0_4	-48398.82	-47954.10	-46883.69	0.77	24	3	106.8	13.9	140541	6525
h_15_ae_60_atr_0_5	-51950.65	-51855.18	-50940.01	0.66	17	3	3.0	8.7	2141	711
h_15_ae_60_atr_0_6	-45306.29	-44920.36	-43792.50	0.79	19	3	21.1	72.8	27478	62447
h_15_ae_60_atr_0_7	-35492.55	-34736.45	-33224.51	1.73	34	7	51.2	19.9	65136	5861
h_15_ae_60_atr_0_8	-49867.49	-49261.40	-47773.11	1.60	23	8	43.1	12.7	53761	6521
h_15_ae_60_atr_0_9	-61290.70	-60634.61	-59120.83	0.78	22	3	1000.0	519.2	1248367	388341
h_15_ae_75_atr_0_1	-59930.61	-59582.99	-58474.11	0.87	14	4	3.3	4.8	571	761
h_15_ae_75_atr_0_10	-52785.34	-51779.43	-50250.76	1.75	47	8	321.9	92.5	370945	34787
h_15_ae_75_atr_0_2	-49769.86	-49660.68	-48022.05	0.78	9	3	6.2	22.8	4988	5261
h_15_ae_75_atr_0_3	-60281.56	-59218.60	-58603.93	1.57	35	7	6.6	11.9	4471	4443
h_15_ae_75_atr_0_4	-72176.44	-71738.16	-68066.47	1.00	18	4	142.0	600.1	119150	261737
h_15_ae_75_atr_0_5	-58111.90	-57463.84	-55315.49	0.79	29	3	152.9	265.8	161733	146221
h_15_ae_75_atr_0_6	-82901.17	-82665.84	-82188.53	1.27	21	6	4.2	5.0	2821	1341
h_15_ae_75_atr_0_7	-82097.31	-81830.30	-80770.29	1.60	15	8	5.5	11.2	4291	3973
h_15_ae_75_atr_0_8	-46467.40	-46317.29	-45331.26	0.87	18	4	31.2	67.0	31172	14968
h_15_ae_75_atr_0_9	-64092.78	-63785.85	-62092.26	0.75	10	3	8.8	18.1	6443	7661
h_15_ae_90_atr_0_1	-62148.59	-61434.29	-60426.93	1.40	31	7	3.9	6.2	2023	1128
h_15_ae_90_atr_0_10	-75249.74	-75001.08	-73672.26	0.96	14	4	29.0	19.4	24426	4419
h_15_ae_90_atr_0_2	-59009.19	-58145.84	-56743.84	0.72	18	3	8.4	7.5	6621	2251
h_15_ae_90_atr_0_3	-78808.70	-78552.72	-76863.93	1.01	4	4	15.7	6.0	15101	1331
h_15_ae_90_atr_0_4	-55524.46	-55158.42	-53330.21	0.80	14	3	109.4	327.4	102139	159718
h_15_ae_90_atr_0_5	-49288.49	-48998.33	-46716.46	1.57	36	7	831.3	811.7	729125	370711
h_15_ae_90_atr_0_6	-56014.07	-55782.10	-54739.77	1.37	11	6	16.3	17.7	10011	3111
h_15_ae_90_atr_0_7	-77190.25	-76998.01	-73894.29	2.00	31	9	264.6	189.2	226811	63715
h_15_ae_90_atr_0_8	-73534.56	-72804.48	-71210.04	1.57	20	7	3.6	5.7	1281	819
h_15_ae_90_atr_0_9	-59762.03	-59229.25	-56064.92	0.76	20	3	1000.0	1000.0	634985	447257
h_20_ae_100_atr_0_1	-79691.43	-79063.39	-78079.55	2.09	37	7	1000.0	1000.0	868846	450720
h_20_ae_100_atr_0_10	-52675.36	-51973.93	-50401.95	2.20	39	7	1000.0	1000.0	875163	505560
h_20_ae_100_atr_0_2	-82165.21	-81041.67	-79715.38	2.48	37	9	11.5	26.6	7231	10191
h_20_ae_100_atr_0_3	-105935.52	-105227.72	-103572.20	1.82	24	6	6.8	9.5	1311	1371
h_20_ae_100_atr_0_4	-62897.08	-62423.13	-61108.90	2.52	28	8	147.3	29.3	113641	9291
h_20_ae_100_atr_0_5	-68883.35	-68195.28	-65686.12	2.22	37	7	65.7	40.5	53391	14511
h_20_ae_100_atr_0_6	-71804.15	-70709.77	-69188.88	1.98	39	7	1000.0	1000.0	894657	490761
h_20_ae_100_atr_0_7	-84707.89	-84460.74	-82358.10	1.12	18	3	50.7	77.8	45398	37878
h_20_ae_100_atr_0_8	-75177.64	-74876.15	-72781.64	0.95	11	3	449.8	484.0	408331	243372
h_20_ae_100_atr_0_9	-92618.41	-92467.05	-91154.50	1.11	20	3	407.0	153.5	321691	77131
h_20_ae_120_atr_0_1	-82352.12	-82201.19	-81222.69	1.09	13	3	59.4	67.8	41311	10621
h_20_ae_120_atr_0_10	-85641.96	-85221.80	-84289.51	2.39	25	8	30.9	37.4	22171	11981
h_20_ae_120_atr_0_2	-93017.79	-92988.30	-91123.35	0.73	4	2	647.5	552.4	493954	196320
h_20_ae_120_atr_0_3	-92090.37	-91287.20	-89209.52	2.63	30	9	211.1	60.7	202724	19901
h_20_ae_120_atr_0_4	-91213.92	-89854.84	-88137.41	1.33	26	4	1000.0	1000.0	637239	330342
h_20_ae_120_atr_0_5	-86516.18	-86379.12	-84347.21	1.20	14	4	1000.0	1000.0	792442	371268
h_20_ae_120_atr_0_6	-79138.15	-78693.57	-76572.89	0.95	19	3	934.7	1000.0	961203	510260
h_20_ae_120_atr_0_7	-95215.21	-94967.49	-93689.76	1.64	20	5	66.8	506.1	41921	233341
h_20_ae_120_atr_0_8	-61311.75	-60534.67	-59141.93	2.11	31	6	45.5	45.1	39359	15104
h_20_ae_120_atr_0_9	-94692.73	-94422.44	-92512.38	1.90	28	7	67.3	124.4	52108	44923
h_20_ae_20_atr_0_1	-31246.00	-28769.33	-27956.29	1.69	56	6	1000.0	3.1	1831324	1649

h_20_ae_20_atr_0_10	-27987.24	-24936.74	-24038.85	2.31	76	8	1000.0	8.2	1637820	4503
h_20_ae_20_atr_0_2	-34700.73	-33309.19	-32203.04	1.22	56	4	1000.0	406.0	1404182	291291
h_20_ae_20_atr_0_3	-37596.00	-35594.88	-34641.05	0.93	40	3	1000.0	4.7	1701470	3224
h_20_ae_20_atr_0_4	-34993.56	-33040.99	-31972.58	2.02	55	7	940.6	11.2	1655439	7327
h_20_ae_20_atr_0_5	-24449.40	-22131.02	-20691.86	1.29	51	4	1000.0	35.6	1461580	26951
h_20_ae_20_atr_0_6	-37877.11	-35126.90	-33545.06	1.34	62	4	1000.0	40.0	1413266	26067
h_20_ae_20_atr_0_7	-25197.24	-23042.19	-21696.22	2.05	61	7	1000.0	1000.0	1256172	785583
h_20_ae_20_atr_0_8	-23544.35	-20618.81	-19311.96	2.30	70	8	1000.0	137.2	1382513	126297
h_20_ae_20_atr_0_9	-33251.95	-30636.56	-29870.45	2.25	60	8	1000.0	42.7	1585733	32449
h_20_ae_40_atr_0_1	-59068.95	-58247.80	-57171.23	2.69	43	9	54.1	12.7	62571	6025
h_20_ae_40_atr_0_10	-55292.95	-53130.34	-52224.19	2.11	67	8	118.3	28.8	144751	16793
h_20_ae_40_atr_0_2	-47909.43	-47406.05	-46633.57	2.11	43	8	85.9	22.3	118351	13091
h_20_ae_40_atr_0_3	-53451.50	-51655.24	-49966.27	2.12	55	8	1000.0	1000.0	1295788	708874
h_20_ae_40_atr_0_4	-61394.66	-59676.43	-58359.27	1.65	47	6	1000.0	317.7	1302469	221481
h_20_ae_40_atr_0_5	-49704.98	-48493.33	-46751.05	1.84	43	6	1000.0	1000.0	1092710	587130
h_20_ae_40_atr_0_6	-44491.14	-42347.01	-40823.01	2.28	43	8	448.1	110.5	651928	80330
h_20_ae_40_atr_0_7	-55509.79	-53843.35	-51390.22	2.31	47	9	75.2	22.6	105670	15811
h_20_ae_40_atr_0_8	-56660.96	-54712.63	-53916.95	1.31	38	4	271.8	33.5	397193	22259
h_20_ae_40_atr_0_9	-40637.88	-39212.30	-37714.72	1.63	45	6	1000.0	1000.0	1410071	824494
h_20_ae_60_atr_0_1	-71111.90	-70127.66	-69656.29	2.39	31	8	7.8	11.2	6911	1141
h_20_ae_60_atr_0_10	-76710.66	-76139.08	-73807.59	2.51	29	8	25.0	52.1	26351	29302
h_20_ae_60_atr_0_2	-51083.91	-50679.27	-48718.53	1.32	30	4	1000.0	1000.0	1100192	574093
h_20_ae_60_atr_0_3	-65802.73	-65170.95	-63430.42	1.91	39	7	1000.0	1000.0	974179	538950
h_20_ae_60_atr_0_4	-59642.86	-58232.36	-56378.24	1.39	40	4	1000.0	58.6	1077266	33966
h_20_ae_60_atr_0_5	-64062.52	-62999.16	-61593.51	2.11	42	7	21.6	21.5	23737	11349
h_20_ae_60_atr_0_6	-76995.76	-76229.92	-74403.57	1.34	32	4	859.0	427.1	994746	258681
h_20_ae_60_atr_0_7	-57695.35	-55504.30	-53993.80	2.39	51	8	762.8	344.1	963598	210006
h_20_ae_60_atr_0_8	-50835.84	-49571.81	-48340.35	1.60	42	5	1000.0	1000.0	999599	532157
h_20_ae_60_atr_0_9	-65234.29	-64521.02	-62251.67	1.83	33	6	1000.0	1000.0	1173460	618585
h_20_ae_80_atr_0_1	-64188.72	-63723.12	-61669.53	1.25	34	4	1000.0	1000.0	808591	405785
h_20_ae_80_atr_0_10	-84655.93	-83792.82	-80985.58	2.15	37	7	559.0	381.5	547141	193071
h_20_ae_80_atr_0_2	-52436.80	-51857.49	-48421.85	2.43	46	8	1000.0	1000.0	722987	372129
h_20_ae_80_atr_0_3	-65552.05	-65346.77	-63360.50	1.00	15	3	31.8	20.9	32211	10484
h_20_ae_80_atr_0_4	-61806.11	-60373.95	-59204.16	2.44	48	8	56.0	38.0	53761	16331
h_20_ae_80_atr_0_5	-61887.34	-61478.91	-60540.86	1.87	28	6	42.4	48.4	47460	26225
h_20_ae_80_atr_0_6	-61370.37	-60723.96	-58774.26	2.04	24	7	30.1	16.6	30015	5481
h_20_ae_80_atr_0_7	-67516.26	-66954.29	-66531.70	0.98	25	3	5.0	8.5	3741	1961
h_20_ae_80_atr_0_8	-71737.17	-70390.59	-69247.69	2.52	33	8	154.2	57.8	152321	25261
h_20_ae_80_atr_0_9	-70528.61	-68355.25	-67400.01	1.11	26	3	11.2	6.9	9101	1913