runfile('C:/Users/jrjim/Downloads/Improve\_Hornsrev1\_Layout\_JRJ\_08\_03\_2025.py', wdir='C:/Users/jrjim/Downloads')

Enter Site to be used 1-IEA37, 2-Hornsrev1, 3-UniforSite: 1

Enter Iteration Lenght in meters: 10

Enter Number of Iterations on each Generation: 300

Enter Number of Genetic Generations: 15

Enter border aditional distance from actual laylout in m: 25

Original AEP: 715.702891 GWh

Best solution on reference layout randomized Generation 0:

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aep\_best\_sol on reference layout randomized Generation 0: 715.7377189168983

Best solution on Genetic Generation 1:

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aep\_best\_sol on Genetic Generation 1: 715.7767946673808

Best solution on Genetic Generation 2:

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aep\_best\_sol on Genetic Generation 2: 715.8209434769914

Best solution on Genetic Generation 3:

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aep\_best\_sol on Genetic Generation 3: 715.8209434769914

Best solution on Genetic Generation 4:

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aep\_best\_sol on Genetic Generation 4: 715.85510107287

Best solution on Genetic Generation 5:

([423960.95509221265, 424028.86875328305, 424112.6434431136, 424172.37544902146, 424235.8396372251, 424317.38784771453, 424365.29085533164, 424436.0192318786, 424534.47609182267, 424599.26766096475, 424658.9236825321, 424733.41144955944, 424807.1622412657, 424872.331740365, 424936.53718566505, 424995.7661698012, 425093.5376855649, 425162.4095235832, 425225.18583362846, 425298.5135014494, 425365.3168836111, 425427.30821035075, 425499.6776664453, 425578.2357147689, 425653.4580094285, 425732.5771531761, 425779.15574236, 425847.4817086024, 425922.3554739211, 425987.59670548874, 426044.21946066956, 426131.9741744548, 426207.3614398142, 426295.6656157283, 426336.54082464473, 426424.904065323, 426492.07639083645, 426561.0123828169, 426634.4259843953, 426698.84813619644, 426771.677049132, 426842.67606640444, 426905.5504847883, 426975.50594063103, 427051.0934834282, 427113.24296519643, 427181.44532309205, 427253.78507644497, 427336.88222480804, 427405.71567757707, 427455.6123102592, 427546.10317624046, 427617.28674074577, 427683.4414224636, 427744.82948324276, 427813.40196564025, 427896.6667716103, 427953.1947235822, 428025.8386042133, 428101.0358210791, 428165.16122064664, 428228.90193629824, 428301.6159047601, 428373.7126934893, 428443.06747533113, 428532.8966383744, 428587.4321267462, 428661.8624352629, 428734.5333109345, 428806.92668048176, 428885.9766560048, 428944.99571475125, 429022.7344635015, 429096.55288854724, 429154.40745137434, 429229.61383236444, 429291.41829144687, 429371.07492799073, 429433.3458636369, 429502.8211176322], [6151455.084277127, 6150891.97583271, 6150338.531676123, 6149783.96562219, 6149218.326636091, 6148663.865368103, 6148124.682252925, 6147544.67535613, 6151440.352335386, 6150889.276053583, 6150336.909731882, 6149776.327154961, 6149215.960202275, 6148670.8467787625, 6148105.820430707, 6147551.28082585, 6151447.079595229, 6150876.53169208, 6150330.817070918, 6149774.22021154, 6149228.532902855, 6148673.375751021, 6148097.9044907, 6147543.498671159, 6151452.696872994, 6150878.863635566, 6150340.622233165, 6149769.999473923, 6149222.123700201, 6148661.018910446, 6148101.889527344, 6147539.471440843, 6151455.5815577395, 6150890.120002287, 6150329.97210664, 6149783.39318619, 6149219.424329913, 6148674.066231332, 6148103.804423318, 6147546.856391989, 6151439.152507542, 6150891.140909409, 6150345.653713059, 6149764.39804025, 6149212.848478903, 6148671.495488814, 6148098.965337721, 6147552.563161317, 6151441.552654985, 6150898.093032935, 6150325.939856259, 6149773.0801072335, 6149213.52137225, 6148672.032231726, 6148116.665019034, 6147551.117252349, 6151444.122560721, 6150895.965626849, 6150334.305257385, 6149779.951091207, 6149218.721027818, 6148658.129236413, 6148111.199363548, 6147554.515481025, 6151449.307835179, 6150889.346065429, 6150336.645516561, 6149764.812721596, 6149228.073862912, 6148656.328951001, 6148116.882662457, 6147543.624161631, 6151451.910894987, 6150884.676566535, 6150343.993887237, 6149778.956729504, 6149237.105840821, 6148663.381420814, 6148126.611730858, 6147543.323838883])

aep\_best\_sol on Genetic Generation 5: 715.895852753025

Best solution on Genetic Generation 6:

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aep\_best\_sol on Genetic Generation 6: 715.895852753025

Best solution on Genetic Generation 7:

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aep\_best\_sol on Genetic Generation 7: 716.0148710444734

Best solution on Genetic Generation 8:

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aep\_best\_sol on Genetic Generation 8: 716.0621229308325

Best solution on Genetic Generation 9:

([423963.98575372057, 424039.097269146, 424100.88689548004, 424159.97440089745, 424234.5981031347, 424304.7181550518, 424360.47085521993, 424425.4091942084, 424536.8696773036, 424589.4795008495, 424669.52874867053, 424738.4137911185, 424809.22009313287, 424876.03904876584, 424933.97090686485, 425004.0780329514, 425096.3859573018, 425168.972673374, 425245.0954103003, 425300.77794306044, 425366.74066173425, 425419.30275129323, 425491.1595312837, 425581.05046278035, 425651.27988408424, 425731.3297973215, 425793.05931201135, 425849.5798638431, 425924.8088891994, 425972.37792690675, 426049.32865265774, 426124.61089117, 426206.37469607487, 426296.31653970457, 426336.34796034754, 426422.0904653699, 426492.4768959606, 426559.25927143707, 426643.6349278803, 426691.12058169197, 426773.94154234556, 426840.44492636516, 426909.7801014047, 426976.37884754146, 427041.0749111227, 427103.23771289666, 427182.4435846196, 427264.95574225095, 427338.23890882987, 427407.6534783637, 427469.5231678031, 427545.6048879411, 427616.10341605527, 427684.00065814535, 427749.6132477497, 427816.76839853224, 427909.40445331373, 427967.1480454995, 428019.53839830484, 428095.0024132849, 428170.9505184904, 428228.70672253973, 428304.9874728694, 428362.76455042994, 428455.3043114768, 428524.9233231514, 428586.64061521296, 428665.7604722679, 428733.3412464196, 428811.1056339644, 428895.47736609145, 428963.0606282451, 429028.2017155822, 429109.6805728676, 429151.88775358343, 429240.45180451806, 429301.588138298, 429377.11720041034, 429429.85072959604, 429505.9862281607], [6151460.49424187, 6150890.630039625, 6150340.941772024, 6149770.88487148, 6149212.534300111, 6148671.186622721, 6148123.613705089, 6147554.0602185065, 6151441.167320956, 6150887.616843201, 6150326.811118641, 6149782.002514964, 6149208.123934588, 6148666.549123703, 6148101.572997087, 6147561.405150973, 6151458.125912565, 6150866.870172891, 6150338.04909266, 6149772.67367561, 6149216.523459956, 6148665.310054481, 6148107.589255094, 6147538.863813763, 6151459.777747109, 6150882.603657304, 6150341.707438631, 6149768.901880925, 6149221.053077687, 6148672.72790724, 6148108.800634164, 6147535.450459141, 6151461.196514738, 6150901.294185382, 6150329.976264314, 6149787.4813240785, 6149226.055716463, 6148678.0826832615, 6148103.060960669, 6147543.669128108, 6151445.831658854, 6150895.7174843075, 6150337.542353188, 6149769.351474889, 6149219.48925623, 6148682.510525723, 6148104.193825229, 6147536.123093638, 6151447.424914942, 6150882.269403366, 6150316.633140922, 6149770.195888381, 6149221.433333707, 6148670.690148118, 6148109.330724622, 6147543.860619342, 6151440.451702535, 6150886.779921644, 6150327.01773704, 6149783.587440599, 6149221.297292274, 6148667.860837996, 6148106.690879431, 6147545.531121317, 6151456.391298553, 6150881.216591004, 6150338.822081712, 6149771.319268537, 6149219.280563098, 6148666.840822452, 6148119.440372393, 6147543.160228333, 6151469.237779482, 6150876.17521284, 6150361.676305755, 6149793.259021388, 6149236.912897003, 6148654.795009656, 6148123.52508287, 6147551.660698716])

aep\_best\_sol on Genetic Generation 9: 716.1661686134181

Best solution on Genetic Generation 10:

([423959.9363237139, 424035.8827767066, 424097.8518774182, 424161.4652926119, 424233.6802869143, 424303.89988974837, 424364.1353474365, 424430.4386076127, 424533.07095551264, 424585.80146032665, 424670.5750207813, 424733.75280682894, 424810.4849701557, 424878.3586767668, 424939.6615857607, 424999.8689445622, 425101.5072571812, 425172.3954442881, 425249.68270456186, 425304.5080137604, 425366.604447577, 425412.67482616554, 425485.7700310231, 425587.0696312763, 425647.8788806134, 425728.2655728554, 425799.57808331697, 425842.9069645338, 425924.0544618738, 425971.62043959356, 426049.46790494095, 426128.5457099903, 426209.5304395435, 426292.5615093787, 426342.9816219529, 426419.61181815795, 426490.154627419, 426566.259084628, 426648.6463251176, 426685.93465052015, 426768.7525723759, 426834.8049601041, 426904.431372136, 426973.06312397926, 427046.982693121, 427105.48301575496, 427189.4097511431, 427266.8829535256, 427332.17070274416, 427410.72495106806, 427474.8893296554, 427547.5141824711, 427610.702967353, 427689.0746701722, 427749.3927277926, 427821.93779086834, 427906.26583501016, 427972.1091895278, 428025.1303913508, 428091.707948152, 428171.90068240534, 428230.9519524515, 428310.97042333195, 428359.96624883, 428460.7488021037, 428519.36518913205, 428588.07298920484, 428665.2490943731, 428728.414060151, 428815.9987308542, 428899.248154465, 428960.81023557053, 429035.1267651492, 429107.2790487797, 429154.30965666403, 429236.3588151018, 429300.8137340785, 429372.72225486476, 429436.8249929674, 429510.5050472692], [6151462.432920646, 6150894.083419561, 6150337.046752512, 6149774.991590571, 6149216.673885898, 6148677.603086195, 6148127.238694631, 6147555.6925531635, 6151447.484218163, 6150882.807811058, 6150330.67875509, 6149781.407842704, 6149202.354107094, 6148664.195189661, 6148095.504291436, 6147556.208121254, 6151465.085546475, 6150869.901017416, 6150342.59520348, 6149768.621083516, 6149213.166269322, 6148669.299420084, 6148107.104781246, 6147538.934035111, 6151457.972863263, 6150888.900379037, 6150339.350606742, 6149764.956123939, 6149216.732431948, 6148678.097048998, 6148108.202708583, 6147537.083138814, 6151461.280304217, 6150898.871448589, 6150331.955136158, 6149783.651503202, 6149232.910759608, 6148681.167370693, 6148102.536008196, 6147542.863720966, 6151452.452989184, 6150901.397902043, 6150331.477009567, 6149771.037834843, 6149214.620956994, 6148678.202346898, 6148100.4209545115, 6147535.506061223, 6151443.832626415, 6150880.531562104, 6150323.351680673, 6149772.658837214, 6149219.716272103, 6148676.749870573, 6148107.331348667, 6147549.960180137, 6151446.324225317, 6150891.258381399, 6150332.975896844, 6149781.040093518, 6149220.383967299, 6148672.0781790605, 6148109.779527086, 6147539.850942821, 6151451.6130711315, 6150882.295292146, 6150344.155335269, 6149768.140562897, 6149219.9801375205, 6148665.10819823, 6148116.581251594, 6147537.07249856, 6151469.018271998, 6150881.659755526, 6150363.975517306, 6149793.601407124, 6149237.29295522, 6148652.311959148, 6148118.693565747, 6147549.522522408])

aep\_best\_sol on Genetic Generation 10: 716.2150203360497

Best solution on Genetic Generation 11:

([423963.2264841743, 424035.06285522395, 424100.12228140206, 424160.80996553134, 424228.53332298173, 424307.6480696219, 424358.03228910425, 424424.4133268284, 424534.1365140468, 424584.76146705565, 424665.5546632474, 424730.7393408054, 424814.68707448436, 424873.5781247995, 424946.2405905649, 425003.07195763366, 425098.35891699744, 425171.84112414357, 425254.7425022835, 425302.27333891677, 425363.3540640133, 425412.346439741, 425490.1436132222, 425586.00017651834, 425644.5662433145, 425733.39546183834, 425798.50456561893, 425845.77160284406, 425925.3962779604, 425971.4232749402, 426051.9985693752, 426128.5289639605, 426211.61182691203, 426286.4251312123, 426344.77414305677, 426413.3910029386, 426490.5576754039, 426564.24963538354, 426648.20186380966, 426681.7006342605, 426773.9571387985, 426833.6816701549, 426906.2773074867, 426968.76596446504, 427047.91536371823, 427105.39025631704, 427194.62418211525, 427266.4649117908, 427325.62696272467, 427405.71512558265, 427469.8668018136, 427542.32544057944, 427611.66544767807, 427684.19670240366, 427754.7527630315, 427818.6978532799, 427906.022381492, 427973.86294775276, 428025.01175762137, 428092.90038358397, 428177.2583307646, 428232.2168648099, 428311.96435350884, 428360.5894488267, 428465.16831048543, 428523.3553124049, 428591.6994029233, 428666.38113410457, 428731.4928457636, 428811.8051544117, 428904.13775962236, 428961.5444830562, 429032.2230865527, 429104.5615461045, 429155.83779562236, 429236.8671733784, 429306.3727655881, 429377.4758098377, 429439.4383454101, 429503.9239477239], [6151469.393876396, 6150889.283741624, 6150338.049562765, 6149772.180040554, 6149219.0069674775, 6148675.346734044, 6148130.601225074, 6147556.115915378, 6151444.768262499, 6150879.222497863, 6150335.214015135, 6149787.716814665, 6149209.247028096, 6148659.702713336, 6148098.965453652, 6147553.741093174, 6151466.24368457, 6150870.338142924, 6150340.565773926, 6149771.015001394, 6149211.697179075, 6148664.53087981, 6148101.837932807, 6147544.456087884, 6151463.296245496, 6150888.321835309, 6150334.695000842, 6149761.065513871, 6149220.128951962, 6148673.975401565, 6148103.6677909875, 6147531.481691505, 6151467.138413104, 6150897.00283027, 6150333.754235007, 6149777.70372469, 6149226.835262313, 6148677.369486742, 6148098.62237092, 6147536.619041861, 6151449.337739168, 6150904.425210202, 6150330.081870906, 6149776.75609727, 6149213.088173479, 6148677.569143927, 6148094.41647109, 6147540.872793361, 6151443.454821942, 6150876.702840496, 6150328.203339136, 6149772.67217317, 6149225.342856255, 6148677.794901006, 6148100.573194152, 6147549.016180825, 6151445.059904854, 6150886.339238946, 6150337.80583276, 6149778.743488669, 6149225.295337888, 6148674.280471992, 6148110.885216563, 6147534.108215052, 6151455.811866309, 6150883.233346517, 6150346.442331642, 6149774.990145203, 6149213.4428300345, 6148660.276017354, 6148119.162697429, 6147536.096105328, 6151468.93195714, 6150885.0031992765, 6150361.888012517, 6149793.653167574, 6149239.011039776, 6148645.9613897735, 6148117.3270638995, 6147547.322926626])

aep\_best\_sol on Genetic Generation 11: 716.3299255663378

Best solution on Genetic Generation 12:

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aep\_best\_sol on Genetic Generation 12: 716.3431532534674

Best solution on Genetic Generation 13:

([423959.6984767665, 424040.0743142509, 424101.2211703658, 424159.0461809804, 424229.0023935087, 424301.38917100243, 424357.3602366189, 424424.62999028596, 424529.3335244143, 424583.12290105294, 424666.5136193766, 424740.7705946208, 424807.7062708415, 424878.4588292552, 424946.1250101566, 425003.0620190134, 425088.3030205271, 425177.8011713228, 425246.8731003356, 425306.64723053575, 425370.8251825128, 425407.4527528117, 425493.69085811294, 425591.347483427, 425648.2676514843, 425730.4864589941, 425797.2737265604, 425856.30766372493, 425927.5732369054, 425979.46861070936, 426047.12810692936, 426122.22606313217, 426207.18136708724, 426289.86223747104, 426342.3149384041, 426413.84806673956, 426489.41534652264, 426563.1439285117, 426645.0003357512, 426673.5882753249, 426775.8322293957, 426836.36472685135, 426915.4493648697, 426971.3523045836, 427050.2408298879, 427097.6998379797, 427200.6880555788, 427270.191187945, 427316.32059702085, 427408.10175029736, 427476.1604634904, 427537.2800826317, 427607.0238014693, 427680.45635962335, 427756.99195692403, 427817.59480292693, 427908.8765937015, 427968.2150413676, 428021.7175986062, 428103.320236574, 428177.41735375416, 428237.2087835884, 428309.55861303094, 428350.3392764795, 428457.1253736258, 428523.7364273595, 428596.0509616426, 428669.56287938455, 428729.91164536565, 428811.60668560595, 428901.1870155551, 428963.7192778274, 429035.47115958954, 429101.222376742, 429165.2715667552, 429234.47994724056, 429305.5445227728, 429375.36356119876, 429438.08754516614, 429503.57124396355], [6151463.58206566, 6150887.748720366, 6150331.655004082, 6149772.18412628, 6149209.043909901, 6148676.243712169, 6148131.435969077, 6147551.838748761, 6151446.45732222, 6150880.337079532, 6150330.746628192, 6149778.924348998, 6149205.838880192, 6148663.864298899, 6148097.887021334, 6147560.2792223245, 6151459.007999655, 6150879.94822691, 6150333.779787143, 6149779.707353272, 6149205.819123514, 6148662.861228029, 6148103.196926439, 6147539.54272971, 6151466.095988317, 6150879.25162232, 6150326.662783389, 6149766.188703117, 6149226.735850875, 6148673.6319884285, 6148100.986069646, 6147533.611934074, 6151466.823108742, 6150893.219214237, 6150332.843724604, 6149766.512347732, 6149221.8455937235, 6148674.764637307, 6148100.576576096, 6147540.718114228, 6151449.326397485, 6150895.969210241, 6150329.864654405, 6149777.485270782, 6149206.677992076, 6148680.840124948, 6148103.012297706, 6147548.240326837, 6151441.691731134, 6150886.147123286, 6150321.962273589, 6149780.630908035, 6149224.378274045, 6148689.149041651, 6148102.766558898, 6147536.533621398, 6151443.360605552, 6150892.035108147, 6150338.688721669, 6149772.681464483, 6149227.926638223, 6148676.126482222, 6148110.368506709, 6147531.289477856, 6151464.441411506, 6150891.616319348, 6150348.817305423, 6149765.8724607695, 6149215.769843605, 6148669.7583876485, 6148123.382047048, 6147537.4983584825, 6151468.770983516, 6150894.261794977, 6150354.0655974625, 6149803.576775728, 6149241.968274128, 6148652.208760511, 6148113.372489, 6147542.951866053])

aep\_best\_sol on Genetic Generation 13: 716.3545192631602

Best solution on Genetic Generation 14:

([423956.31759907695, 424042.62092166214, 424098.7366080959, 424156.63034219097, 424227.8318239701, 424306.9513378053, 424360.2633155126, 424426.89424447797, 424524.29257583653, 424584.54209887073, 424672.848034537, 424738.1918793017, 424809.9382978498, 424872.96906139376, 424945.78352390934, 424998.8874470467, 425082.8842883115, 425176.1681009526, 425243.3583301696, 425306.923863889, 425372.723790143, 425411.65696367907, 425494.8653418081, 425593.4475703582, 425652.5567085123, 425730.97354934976, 425791.3001422486, 425850.91045744077, 425926.8954541673, 425984.2802862751, 426043.6509629514, 426127.98879844934, 426211.0450943314, 426285.6980483266, 426339.79910832795, 426407.168910994, 426483.8077678667, 426562.74689500907, 426649.9200755205, 426680.5825172893, 426776.2526273363, 426842.1638302824, 426912.4209413508, 426974.95866391435, 427045.3679066466, 427096.5408381498, 427207.21697602735, 427267.14575377636, 427318.55891982955, 427402.5255193661, 427474.1949676695, 427540.3682112515, 427608.55068721913, 427683.3575945259, 427750.14811992325, 427813.0495365772, 427912.5815098323, 427970.17042763217, 428019.10645939986, 428098.53712250444, 428172.88511932816, 428244.2021953407, 428314.3613148123, 428350.1241167464, 428457.4668654742, 428517.12270350143, 428590.7045769864, 428675.3768958119, 428735.1326187469, 428812.01242463966, 428900.42481574934, 428969.61008695804, 429035.8270213564, 429106.58459279576, 429167.60450111784, 429238.07516434864, 429306.5100681258, 429379.3330266069, 429440.8309784641, 429503.0101795949], [6151466.52517536, 6150890.198930546, 6150334.464289267, 6149776.4978499375, 6149212.0038932655, 6148672.113052272, 6148132.530077121, 6147550.035499208, 6151451.421390566, 6150884.69414278, 6150326.964879378, 6149774.600272238, 6149211.398829858, 6148665.405241085, 6148099.500683422, 6147555.004803991, 6151459.070688108, 6150886.437220638, 6150337.502315699, 6149777.112793426, 6149209.0883953795, 6148658.691788976, 6148108.669692542, 6147537.077664628, 6151469.91622395, 6150885.129523216, 6150330.97083409, 6149767.67816614, 6149224.303085883, 6148680.082746332, 6148104.467804683, 6147533.1368334, 6151471.305078096, 6150890.340004104, 6150333.789555935, 6149759.555769898, 6149215.9184465455, 6148679.36709715, 6148104.018985496, 6147545.699143259, 6151453.023548762, 6150889.2829568945, 6150334.347280053, 6149778.734390972, 6149200.310428683, 6148683.522307243, 6148097.838151791, 6147549.621789327, 6151448.312294574, 6150885.0585799785, 6150328.857460985, 6149783.375033822, 6149217.924400051, 6148692.539093286, 6148105.394394519, 6147535.295102326, 6151439.660138544, 6150893.279371062, 6150334.606729507, 6149778.81114841, 6149229.795936979, 6148682.545377546, 6148104.394785154, 6147534.687895458, 6151468.222375296, 6150889.113370822, 6150348.51258231, 6149769.321805935, 6149213.3929242045, 6148676.590767236, 6148128.143341461, 6147535.783443472, 6151471.764888265, 6150896.969487017, 6150351.2910718825, 6149807.23323296, 6149238.877109233, 6148657.036854084, 6148114.058224458, 6147540.551441808])

aep\_best\_sol on Genetic Generation 14: 716.3771719033924

Best solution on Genetic Generation 15:

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aep\_best\_sol on Genetic Generation 15: 716.3771719033924

finalsolution

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aep\_ref: 715.7028905615057

aep\_max: 716.3771719033924

Gráfico, Gráfico radial, Gráfico de proyección solar

El contenido generado por IA puede ser incorrecto.

Calendario

El contenido generado por IA puede ser incorrecto.

Imagen que contiene Calendario

El contenido generado por IA puede ser incorrecto.

Gráfico, Gráfico de dispersión

El contenido generado por IA puede ser incorrecto.

Gráfico, Gráfico de dispersión

El contenido generado por IA puede ser incorrecto.