Python 3.11.11 | packaged by conda-forge | (main, Dec 5 2024, 14:24:23) [Clang 18.1.8 ]

Type "copyright", "credits" or "license" for more information.

IPython 8.32.0 -- An enhanced Interactive Python. Type '?' for help.

%runfile /Users/juanramonjimenezmogollon/Downloads/Improve\_Hornsrev1\_Layout\_JRJ\_14\_03\_2025.py --wdir

WARNING: This file contains a global statement, but it is run in an empty namespace. Consider using the 'Run in console's namespace instead of an empty one' option, that you can find in the menu 'Run > Configuration per file', if you want to capture the namespace.

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:

([423974, 424042, 424111, 424179, 424247, 424315, 424384, 424452, 424534, 424602, 424671, 424739, 424807, 424875, 424944, 425012, 425094, 425162, 425231, 425299, 425367, 425435, 425504, 425572, 425654, 425722, 425791, 425859, 425927, 425995, 426064, 426132, 426214, 426282, 426351, 426419, 426487, 426555, 426624, 426692, 426774, 426842, 426911, 426979, 427047, 427115, 427184, 427252, 427334, 427402, 427471, 427539, 427607, 427675, 427744, 427812, 427894, 427962, 428031, 428099, 428167, 428235, 428304, 428372, 428454, 428522, 428591, 428659, 428727, 428795, 428864, 428932, 429014, 429082, 429151, 429219, 429287, 429355, 429424, 429492], [6151447, 6150891, 6150335, 6149779, 6149224, 6148668, 6148112, 6147556, 6151447, 6150891, 6150335, 6149779, 6149224, 6148668, 6148112, 6147556, 6151447, 6150891, 6150335, 6149779, 6149224, 6148668, 6148112, 6147556, 6151447, 6150891, 6150335, 6149779, 6149224, 6148668, 6148112, 6147556, 6151447, 6150891, 6150335, 6149779, 6149224, 6148668, 6148112, 6147556, 6151447, 6150891, 6150335, 6149779, 6149224, 6148668, 6148112, 6147556, 6151447, 6150891, 6150335, 6149779, 6149224, 6148668, 6148112, 6147556, 6151447, 6150891, 6150335, 6149779, 6149224, 6148668, 6148112, 6147556, 6151447, 6150891, 6150335, 6149779, 6149224, 6148668, 6148112, 6147556, 6151447, 6150891, 6150335, 6149779, 6149224, 6148668, 6148112, 6147556])

aep\_best\_sol on reference layout randomized Generation 0: 715.7028905615057

Iteration Length ... Fitness Function\_xy\_sol

0 0 ... 715.013345

1 0 ... 715.014427

2 0 ... 715.021774

3 0 ... 715.022324

4 0 ... 715.032553

.. ... ... ...

895 2 ... 715.308216

896 2 ... 715.319796

897 2 ... 715.367521

898 2 ... 715.372233

899 2 ... 715.441066

[900 rows x 4 columns]

Best solution on Genetic Generation 1:

([423968.66787128564, 424042.0976684414, 424110.8401553914, 424175.1067378959, 424250.07036786067, 424311.10502463643, 424382.27141951275, 424448.1086320132, 424531.69756231667, 424608.1875894869, 424668.31120139733, 424743.7178113215, 424813.54947246436, 424874.7627854105, 424947.30189979397, 425006.4951046052, 425098.32878211094, 425158.1196527071, 425224.11567559844, 425294.5549857054, 425363.57976460137, 425441.09116303583, 425500.5201057411, 425572.6851294912, 425648.45749924117, 425715.2257247633, 425796.1686425646, 425861.2531646422, 425921.7842219131, 425992.8051021913, 426063.85661701555, 426135.9695450111, 426216.70119370177, 426283.8628688351, 426345.23734155105, 426422.4655289529, 426482.0577565074, 426550.8842144079, 426624.09751261654, 426686.6585917222, 426774.87184741464, 426842.8158938198, 426906.8976909271, 426985.03845285694, 427046.40425609867, 427117.98914224794, 427183.25593077735, 427251.54057061067, 427330.5787356607, 427395.81938460417, 427467.5951984777, 427536.07696029556, 427602.3603579985, 427668.9720618296, 427740.00548914226, 427811.31920026767, 427900.9467484449, 427957.61565152596, 428028.4039809842, 428105.14068876853, 428164.9249754133, 428229.7052683297, 428304.8868008696, 428370.86719930166, 428451.3415930306, 428517.87805280404, 428588.57921456074, 428657.8986587488, 428732.37560154014, 428794.4393905298, 428865.29941840074, 428930.9762785473, 429013.34789845406, 429085.4835247774, 429151.132652553, 429222.9375243808, 429292.8034944016, 429354.5405122744, 429429.44607507245, 429494.98368601], [6151445.559645711, 6150894.964585244, 6150329.925222269, 6149777.441407212, 6149220.738852396, 6148661.425235747, 6148112.618396754, 6147557.652852137, 6151449.073835044, 6150889.109329998, 6150340.145502837, 6149776.319391119, 6149222.865608507, 6148671.0714704245, 6148110.569544038, 6147550.369581984, 6151442.3257626705, 6150897.783660345, 6150339.659192798, 6149780.439460228, 6149222.198447963, 6148669.302743013, 6148107.019484561, 6147562.401089025, 6151453.260547169, 6150892.314374091, 6150332.366723721, 6149774.667032704, 6149229.434893659, 6148669.735848429, 6148105.587666674, 6147549.2347969515, 6151446.705303179, 6150884.257303018, 6150336.322267221, 6149775.646525791, 6149226.880413955, 6148674.248355466, 6148107.302409541, 6147549.016473518, 6151448.23190993, 6150894.69542, 6150331.673076299, 6149775.27107641, 6149220.779487225, 6148661.181851951, 6148114.5926765995, 6147552.671187874, 6151450.159598311, 6150893.287131486, 6150341.660971229, 6149776.585957151, 6149228.898530711, 6148669.639324359, 6148115.502459117, 6147562.035323477, 6151452.954437262, 6150897.319081161, 6150337.554563998, 6149777.597203562, 6149227.627881273, 6148668.212219964, 6148117.564553948, 6147553.952709356, 6151450.758096255, 6150892.092283442, 6150341.612439981, 6149784.662746821, 6149227.55756727, 6148673.349676389, 6148111.5131541, 6147550.089764839, 6151447.697860657, 6150886.100450788, 6150329.792845724, 6149776.890705543, 6149222.3802373195, 6148662.626603336, 6148106.757473171, 6147549.008244808])

aep\_best\_sol on Genetic Generation 1: 715.7152895399279

Best solution on Genetic Generation 2:

([423964.63596247416, 424045.2659994062, 424107.64719752636, 424172.1291228949, 424250.99485061865, 424316.4307305625, 424384.3617278609, 424446.30163056764, 424531.07670222817, 424602.30013610405, 424665.20326406055, 424743.7324583151, 424816.1011769936, 424872.2503897044, 424951.35362931114, 425003.88286973134, 425101.05959894834, 425151.99703587015, 425230.3122991462, 425296.0151432152, 425367.0540176571, 425442.8066248709, 425506.71730159165, 425566.86197565077, 425647.0703353502, 425715.7964902588, 425796.5044036983, 425856.5280492901, 425927.5368699196, 425989.2303031458, 426059.1282183297, 426134.0655759423, 426221.3968810364, 426286.1455164508, 426345.84842116974, 426418.99617408693, 426484.17683761707, 426547.94679763936, 426628.14772871963, 426683.2112191506, 426776.94172599475, 426847.0958021282, 426910.14381391543, 426988.42465009785, 427040.1796983947, 427113.66262021696, 427176.8679226377, 427256.21204902267, 427326.3547279238, 427401.7694593269, 427460.6432991725, 427537.44797650113, 427605.2786626145, 427667.6007358873, 427743.41632302466, 427805.7788319529, 427898.3599019884, 427964.0209254084, 428033.00629235135, 428110.0219411945, 428169.80309346045, 428226.2046436643, 428298.86183515616, 428372.4914661156, 428448.7961096688, 428524.27079929045, 428590.4666766975, 428663.34219946497, 428736.81319935824, 428797.01852104266, 428861.3308963106, 428930.40124042553, 429020.1638953861, 429090.7458314195, 429157.82005570567, 429227.3994366248, 429293.34234098264, 429359.31444453704, 429429.31787552993, 429501.11894659844], [6151452.37644872, 6150888.580055798, 6150334.885503177, 6149782.4718849305, 6149220.609632352, 6148666.282192805, 6148111.8936364995, 6147557.410248528, 6151452.650469716, 6150894.33803458, 6150335.30645927, 6149772.314233249, 6149224.909946578, 6148677.021931356, 6148110.8776878165, 6147556.111121765, 6151445.697885802, 6150895.8722126875, 6150344.621563846, 6149774.933049461, 6149227.51281684, 6148673.13787663, 6148108.152552984, 6147558.537394214, 6151455.888834148, 6150891.057374447, 6150327.890587057, 6149775.223320905, 6149228.273326368, 6148671.385670448, 6148109.635004972, 6147554.49854864, 6151442.030723351, 6150890.666555701, 6150339.4157617, 6149771.387592882, 6149222.966785071, 6148672.268986262, 6148109.962775024, 6147553.89207732, 6151447.467917019, 6150892.247813193, 6150331.729928127, 6149776.467270599, 6149217.9666075865, 6148660.363518025, 6148111.701422791, 6147554.786417837, 6151453.727907993, 6150897.678690292, 6150342.147940442, 6149781.349089775, 6149230.761648843, 6148665.057051491, 6148116.353432631, 6147564.076205584, 6151457.127701868, 6150895.654056745, 6150342.020436733, 6149781.002766856, 6149226.7629678855, 6148662.017930358, 6148115.8407208575, 6147551.7947109, 6151452.576930053, 6150889.445751309, 6150341.905038047, 6149779.098801016, 6149230.098066874, 6148678.7966047805, 6148114.445147704, 6147556.864767017, 6151446.51001437, 6150881.504596416, 6150335.993060082, 6149783.837473744, 6149225.420475791, 6148668.530768089, 6148105.9911742555, 6147544.465124543])

aep\_best\_sol on Genetic Generation 2: 715.7487708548132

Best solution on Genetic Generation 3:

([423963.97440767614, 424046.2932072534, 424100.99752329674, 424171.8219841525, 424246.0406186234, 424309.52960467257, 424382.8829988306, 424442.78996662184, 424537.54400067026, 424597.0919964035, 424661.43194808427, 424741.25889081386, 424814.1866360268, 424876.6186538394, 424954.58873961563, 425003.2153419824, 425105.60658287175, 425146.2796229886, 425227.46327099204, 425301.8170269596, 425362.7370248859, 425446.52259503485, 425511.50800760277, 425561.98078235326, 425648.9644884348, 425718.7230527487, 425803.41825137334, 425861.2880317329, 425925.02465748205, 425991.3425546307, 426063.4783060663, 426131.36316616787, 426227.56145951577, 426281.67975259013, 426349.9176166281, 426414.0795456773, 426477.3731501003, 426550.74081632664, 426623.58640313655, 426688.03118607047, 426779.32500059163, 426850.174303493, 426910.9281027493, 426985.1708932105, 427038.00923055585, 427107.69636434707, 427169.911286273, 427256.92517625383, 427325.6327152779, 427398.7170442592, 427454.3210588279, 427534.52057240304, 427601.7258442269, 427671.4737303835, 427748.2583233442, 427810.6184104489, 427894.1803335881, 427964.6802905585, 428033.04207997874, 428109.36169878923, 428172.4736632719, 428225.1160091335, 428303.18847065716, 428378.17297073855, 428449.25227573473, 428528.4300432136, 428596.41139908775, 428665.5657950967, 428741.8229415074, 428802.9320913513, 428866.9043505722, 428930.4435997718, 429025.60785948386, 429096.3178432679, 429157.58877031284, 429230.1255966597, 429292.63710539485, 429360.4167815934, 429433.34681304503, 429500.44621412444], [6151458.405996758, 6150887.245940211, 6150336.349387094, 6149778.583042316, 6149218.256098764, 6148669.28643953, 6148117.835137377, 6147551.302888391, 6151455.560115182, 6150892.830653038, 6150338.941131884, 6149765.5179469595, 6149222.69813844, 6148683.81234177, 6148111.74720576, 6147549.881558709, 6151444.589292259, 6150899.491632079, 6150342.605952435, 6149769.9035694925, 6149227.08566048, 6148679.964414527, 6148105.425784155, 6147551.654233809, 6151454.043993935, 6150895.699399107, 6150334.5502542425, 6149776.473584955, 6149232.069097014, 6148672.284825414, 6148109.421361076, 6147551.526275618, 6151446.792933101, 6150891.732325203, 6150336.5859032795, 6149770.944794488, 6149224.558919013, 6148677.754637265, 6148110.364796597, 6147556.442928696, 6151441.392187089, 6150890.457397611, 6150324.958161285, 6149780.487177145, 6149221.629137882, 6148665.899776845, 6148105.474384619, 6147556.678071814, 6151449.513321174, 6150901.88671205, 6150342.909720981, 6149784.744547304, 6149228.247028291, 6148662.522355788, 6148112.031370336, 6147564.582437003, 6151458.995668234, 6150899.946698523, 6150335.421373657, 6149780.045509863, 6149223.597471582, 6148665.370913253, 6148116.85798258, 6147551.166671925, 6151450.424309489, 6150884.747105928, 6150347.239551615, 6149775.526745076, 6149231.786003332, 6148675.69587029, 6148110.448407072, 6147557.8342325445, 6151453.107738079, 6150879.506704092, 6150329.358246115, 6149777.469894472, 6149231.57057597, 6148674.199991908, 6148099.615011323, 6147539.453111332])

aep\_best\_sol on Genetic Generation 3: 715.8541974456634

Best solution on Genetic Generation 4:

([423961.80978943035, 424041.2353906641, 424099.79031079076, 424175.0479703604, 424242.24599306355, 424308.31861747685, 424376.3130595239, 424441.8316170667, 424533.2808302747, 424599.7105456587, 424665.6519581067, 424740.09346892923, 424811.18670038285, 424877.33913611283, 424954.2957405442, 424997.09926925827, 425107.2392000817, 425149.9078623971, 425222.59769481566, 425297.9135081786, 425363.7247667991, 425439.5415963008, 425512.88723949477, 425565.89661185915, 425652.23413042445, 425711.7952145213, 425804.74993351346, 425864.5391638181, 425923.52778981376, 425993.88944086246, 426069.2132779136, 426136.224111522, 426223.4264712161, 426280.91093143396, 426356.0607842541, 426408.7552576232, 426474.38042657595, 426550.90847311495, 426619.1467441648, 426684.9108101415, 426774.4408549219, 426848.5476632951, 426909.41667787876, 426978.37866529904, 427036.2904209965, 427113.64182555303, 427175.1891005545, 427263.6236052339, 427327.087542356, 427391.88585297455, 427459.96799160785, 427527.9947235423, 427600.81403340097, 427669.77860212803, 427748.60702895216, 427814.13338492584, 427896.3236099247, 427965.9162795667, 428039.56383810344, 428107.87445322063, 428176.9819352278, 428224.1729198431, 428309.7996879095, 428382.8991335535, 428453.0835564995, 428529.5522490133, 428591.7717090138, 428664.1025222062, 428745.38795771997, 428799.38393674773, 428864.51480798324, 428935.21802182915, 429026.5471385851, 429095.8243969181, 429160.5442832471, 429232.10157162626, 429294.0148410566, 429364.35904100357, 429430.16852121614, 429506.22056879045], [6151462.573739364, 6150890.971208113, 6150334.689788632, 6149779.002635116, 6149224.872335288, 6148675.018667827, 6148118.479879245, 6147547.150838136, 6151462.551186424, 6150893.722646549, 6150342.197391714, 6149765.260401974, 6149218.339799724, 6148689.085076784, 6148110.300917764, 6147548.991556805, 6151449.621276229, 6150904.104936246, 6150341.152519171, 6149771.616978893, 6149225.588741055, 6148676.257123722, 6148107.70987387, 6147547.916277081, 6151458.033729924, 6150897.467325818, 6150333.784548725, 6149778.327991233, 6149238.737942751, 6148669.13358089, 6148112.263500705, 6147548.075866865, 6151450.918165683, 6150885.222858851, 6150338.90466754, 6149766.977921776, 6149222.022796818, 6148671.715459216, 6148116.894247625, 6147552.92253477, 6151447.880134008, 6150887.5900273025, 6150325.494960699, 6149776.268121166, 6149226.270852706, 6148668.015834443, 6148111.5344221, 6147558.56907821, 6151444.846748804, 6150896.734382344, 6150336.7061443245, 6149782.931155627, 6149228.449917365, 6148668.604521884, 6148107.030921236, 6147560.9536035275, 6151457.16305736, 6150897.856678112, 6150328.523564918, 6149784.930799352, 6149220.441105344, 6148659.126299572, 6148112.889730051, 6147550.753980134, 6151448.515612682, 6150889.817187411, 6150347.2756584305, 6149771.723224995, 6149233.638991376, 6148676.832790382, 6148116.677383707, 6147551.157998434, 6151455.813858861, 6150882.977996683, 6150335.432162901, 6149779.150247659, 6149228.69190023, 6148670.393143247, 6148098.654655796, 6147536.348088907])

aep\_best\_sol on Genetic Generation 4: 715.9670572986282

Best solution on Genetic Generation 5:

([423957.00833112287, 424034.2156712337, 424094.0463340041, 424167.8403744886, 424243.04157899483, 424299.6741963471, 424366.5807753026, 424440.19580461434, 424539.2662762365, 424592.43126439303, 424671.3647227245, 424732.32316913013, 424812.55606920965, 424872.02330443467, 424951.41201647115, 425001.9711632614, 425105.04559853545, 425148.700372941, 425224.22590339114, 425290.7592524892, 425354.32042650087, 425442.92603200587, 425512.1898925576, 425575.6585898494, 425658.1895449998, 425719.5957506214, 425799.04101394047, 425865.9405206064, 425926.26757798076, 425996.10646523134, 426063.7138967797, 426127.6881168922, 426224.34243587434, 426285.82759530836, 426351.09642063285, 426400.2493123785, 426482.46794829104, 426549.4631748747, 426623.04778147256, 426677.4922020344, 426775.1689162453, 426855.66620152513, 426918.686593141, 426982.70628259797, 427042.16837520065, 427109.046974473, 427168.60635874403, 427270.25437614985, 427323.1358433046, 427394.9950370339, 427458.76444595144, 427520.9085164246, 427598.54471018293, 427667.62857890286, 427755.5031440459, 427822.02643746807, 427897.7899961817, 427967.93661424384, 428047.4733414847, 428115.78881277447, 428184.8654143463, 428226.8883595135, 428308.2255567085, 428387.2836701751, 428446.5319254333, 428537.9406306402, 428590.3801623855, 428669.59557774983, 428737.1775743648, 428796.36833180854, 428864.8430177707, 428930.85726085026, 429032.1239209909, 429087.67449659354, 429170.5152515208, 429233.3793055783, 429300.0036197055, 429365.84762037406, 429438.9340163174, 429514.11093994544], [6151461.687093409, 6150889.23577599, 6150341.164432733, 6149780.132359158, 6149217.688054055, 6148668.673031285, 6148127.573877165, 6147539.985972985, 6151470.595925222, 6150901.407168814, 6150348.483324191, 6149765.0497108875, 6149223.920663003, 6148686.153487953, 6148116.609181896, 6147554.198104039, 6151448.402705046, 6150913.099564841, 6150351.028833455, 6149766.506768795, 6149221.191782186, 6148671.272975158, 6148113.747013271, 6147541.713605649, 6151467.24364994, 6150904.452587316, 6150330.319376941, 6149787.037868483, 6149230.273801425, 6148662.780493923, 6148109.192289093, 6147544.895450407, 6151460.596193294, 6150889.326081787, 6150333.580722365, 6149771.491929411, 6149227.8172321115, 6148665.320924035, 6148109.652771392, 6147548.642740669, 6151447.027557605, 6150878.111444107, 6150323.940924275, 6149768.451135513, 6149216.8878543805, 6148662.468596304, 6148114.632634035, 6147550.008397572, 6151437.886272331, 6150905.253664006, 6150327.625393977, 6149783.614277571, 6149218.64292246, 6148668.797455572, 6148097.543641835, 6147558.945744482, 6151463.61772244, 6150893.201745629, 6150321.345502011, 6149792.409853925, 6149219.786328556, 6148667.105829938, 6148108.692321296, 6147548.1105559245, 6151453.826783024, 6150890.205878345, 6150345.243142954, 6149778.68835618, 6149233.071784649, 6148674.468347876, 6148111.709344214, 6147544.948143873, 6151448.728545247, 6150883.224733083, 6150326.001850783, 6149779.5779894255, 6149229.282071476, 6148660.848410906, 6148092.448906313, 6147539.527439399])

aep\_best\_sol on Genetic Generation 5: 716.037757223171

Best solution on Genetic Generation 6:

([423962.21137538453, 424039.1760376796, 424088.5970977762, 424164.2277475255, 424241.1601914482, 424295.1098074312, 424364.4944048912, 424442.51694299426, 424539.5535517176, 424596.6500956507, 424672.3166914023, 424726.06770296, 424805.8898702774, 424873.6095164752, 424951.3794554136, 425007.5900444785, 425098.70223524066, 425147.55770738964, 425229.07936163613, 425287.6795447436, 425348.9070647685, 425440.33044274326, 425512.96338887356, 425575.93206576223, 425658.6544337203, 425716.5006490572, 425792.443944142, 425871.230219394, 425927.8070294799, 425992.0652453527, 426060.61799856054, 426129.6535447481, 426230.3942641939, 426280.9742719833, 426357.19949848246, 426394.7738188675, 426480.48469056055, 426551.5205395183, 426621.34466125246, 426683.413003404, 426774.67328425526, 426849.3533521665, 426915.78540079395, 426982.32918124023, 427047.44857914455, 427107.66649070545, 427170.28593063686, 427276.91223297245, 427323.7938222151, 427389.58012511185, 427463.85777657526, 427524.045688631, 427592.17990351596, 427660.9086845315, 427750.3790275883, 427827.13776649005, 427892.66059933836, 427962.1402867198, 428043.6444903624, 428121.5398255375, 428179.16174417175, 428232.9461237107, 428308.0873842787, 428386.52279651974, 428446.4931145642, 428541.4274416034, 428597.0272299056, 428674.8848906939, 428735.3575053289, 428802.7441449721, 428864.97736096225, 428931.9459129148, 429038.82251582725, 429094.6251994998, 429175.6185914257, 429238.319530381, 429299.60948917415, 429365.8457681713, 429443.10209314805, 429508.33813629526], [6151458.083609002, 6150895.401173088, 6150343.712196489, 6149786.73388363, 6149212.313021693, 6148674.832567235, 6148125.319909941, 6147545.403980905, 6151465.174797486, 6150902.797521279, 6150355.003796433, 6149769.200522482, 6149219.759558781, 6148687.093823558, 6148117.626829978, 6147553.908221918, 6151447.702422449, 6150918.735012627, 6150350.039973095, 6149759.8460683655, 6149216.166839923, 6148669.82228287, 6148110.692296462, 6147546.436557294, 6151468.537575931, 6150901.278654462, 6150336.288967378, 6149782.539860872, 6149235.002509098, 6148655.799991498, 6148105.5635267515, 6147541.342714663, 6151465.397858228, 6150886.032842358, 6150327.734904771, 6149766.96332605, 6149230.821575187, 6148671.969795312, 6148109.354644837, 6147545.18438723, 6151451.967511735, 6150881.284330374, 6150324.749699999, 6149767.047333862, 6149222.258276945, 6148666.4636141835, 6148114.845069597, 6147556.101160489, 6151441.267471553, 6150901.742366762, 6150328.862058279, 6149786.2152794115, 6149212.001634825, 6148674.726574723, 6148101.401541097, 6147556.85696906, 6151458.409935602, 6150891.694086449, 6150327.499569684, 6149792.840426155, 6149222.4892998, 6148672.786237732, 6148103.370484921, 6147542.087350571, 6151449.399283379, 6150887.42954333, 6150340.501474595, 6149783.156910816, 6149227.15850223, 6148673.714368731, 6148107.889140384, 6147541.6683218265, 6151443.631192995, 6150885.109026869, 6150331.895776904, 6149784.509566723, 6149234.634372509, 6148667.276828344, 6148088.831867273, 6147534.561336849])

aep\_best\_sol on Genetic Generation 6: 716.1380345369334

Best solution on Genetic Generation 7:

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aep\_best\_sol on Genetic Generation 7: 716.1851215452907

Best solution on Genetic Generation 8:

([423962.2020211194, 424037.180202, 424091.78120264487, 424158.9172392035, 424232.48562839505, 424298.65597620205, 424362.95727572584, 424441.8397727369, 424537.9780209857, 424589.2240954258, 424668.9234261657, 424726.6546467727, 424808.5536256663, 424874.741051815, 424944.62496086495, 425000.6359389806, 425086.34959525964, 425152.8940454138, 425225.2307482458, 425283.68985532166, 425354.6310773283, 425442.7215154743, 425524.4263068429, 425576.66828283056, 425664.61289748107, 425717.28522626613, 425795.7363510121, 425868.326829421, 425931.61325856554, 425993.0227025787, 426064.86443023814, 426131.0446275095, 426224.3191049991, 426291.991729488, 426356.55345374456, 426387.563969679, 426479.97717278486, 426544.49364763784, 426618.05502724485, 426679.6428580275, 426771.08633352164, 426848.6826373715, 426920.5343143386, 426976.0692496255, 427041.6237692389, 427105.9671729142, 427174.8047290601, 427282.4921961721, 427332.8009347127, 427386.78571552533, 427463.0544914356, 427519.02513685316, 427604.12499086483, 427670.32826687314, 427756.2740029253, 427833.8445070368, 427901.7320088161, 427974.13447612606, 428041.38601971243, 428123.3027055644, 428178.23045535025, 428233.5596996476, 428304.1565760207, 428381.0541854402, 428448.0704200941, 428543.0739727838, 428596.3965200531, 428671.5556557079, 428735.0365509626, 428799.8452963626, 428863.7642923495, 428940.24830362597, 429038.36734744726, 429103.35295901285, 429177.15851351095, 429238.2391810337, 429304.0144427308, 429368.22062241577, 429442.90770986857, 429510.335419459], [6151454.791011356, 6150899.7030807305, 6150334.667985826, 6149791.93963603, 6149210.621981179, 6148673.262659034, 6148126.173794589, 6147537.468908895, 6151467.256048777, 6150901.022018305, 6150351.091865126, 6149771.067398729, 6149211.709659418, 6148678.883945824, 6148114.758050286, 6147551.483372118, 6151452.731998968, 6150912.854154863, 6150347.6544446545, 6149751.851415262, 6149219.0962452805, 6148672.058732759, 6148108.617122517, 6147547.391808586, 6151463.543694952, 6150901.347595461, 6150333.84133486, 6149775.623002752, 6149225.396163062, 6148660.1830577, 6148092.800965712, 6147541.013456995, 6151455.427422221, 6150889.617493951, 6150328.430087007, 6149772.664720046, 6149233.453742361, 6148666.638713979, 6148104.701549862, 6147542.850360109, 6151448.215784872, 6150883.250987474, 6150329.401793992, 6149768.55565842, 6149219.135182925, 6148673.942357863, 6148106.978281483, 6147546.285595691, 6151444.044539768, 6150892.264594549, 6150333.7456254875, 6149782.004512838, 6149213.306584768, 6148667.359242612, 6148107.318372647, 6147552.258531573, 6151449.5662861895, 6150885.440135121, 6150327.934396266, 6149790.068788521, 6149221.006874619, 6148674.398192901, 6148100.019736236, 6147536.151750792, 6151445.131710888, 6150883.321411065, 6150337.274622101, 6149785.06202806, 6149227.285222784, 6148676.621183257, 6148116.705146893, 6147541.188678508, 6151441.757693963, 6150893.850683302, 6150332.698476298, 6149789.504851547, 6149234.889685125, 6148670.564937724, 6148086.86205472, 6147532.615684729])

aep\_best\_sol on Genetic Generation 8: 716.3560825532004

Best solution on Genetic Generation 9:

([423966.90609068325, 424036.58098951675, 424088.5041514692, 424156.3710854238, 424226.3869730894, 424296.63006780733, 424358.2283208376, 424446.71553970996, 424542.7763013046, 424588.3296539889, 424663.75454728765, 424730.70775165013, 424802.2557591062, 424874.06555177976, 424948.285255377, 425004.06012646854, 425087.206579068, 425149.3717906568, 425219.09911480715, 425289.908224189, 425348.7010128062, 425437.7389168745, 425519.27430561447, 425572.65067560534, 425667.3435853019, 425718.5793127098, 425798.449930583, 425862.8982771472, 425924.9245661116, 425986.4628304583, 426064.2588983359, 426128.8931468371, 426225.33095278963, 426285.57845698326, 426355.5432001876, 426388.82592666824, 426473.47242577537, 426546.3250660334, 426618.5529123706, 426681.18577071524, 426772.40442707174, 426845.84174276545, 426922.6325993436, 426976.0886998089, 427038.90912161977, 427100.673335668, 427180.9637214493, 427287.73320073454, 427337.57295489364, 427393.5135568177, 427463.9184726482, 427525.1004184699, 427611.100219883, 427671.44882455084, 427756.77379587246, 427835.7592176511, 427904.16575779376, 427972.37327947124, 428046.54220382514, 428119.44696392154, 428184.71599528386, 428240.3366920593, 428305.14622717287, 428380.8416550615, 428446.17428534315, 428546.77232529735, 428602.8934909698, 428671.8113533266, 428740.5000091824, 428803.30064740643, 428861.7879734773, 428936.3122429449, 429037.6072585829, 429106.5701588828, 429171.1754295422, 429241.68339157506, 429309.45510047924, 429370.99527430866, 429446.56045654544, 429508.6431901227], [6151453.377264508, 6150902.434722066, 6150333.998869087, 6149791.18401826, 6149211.964192932, 6148669.177835896, 6148126.757399457, 6147539.3026808845, 6151465.539469357, 6150900.86357545, 6150351.784532665, 6149765.410793808, 6149212.012256447, 6148674.887621528, 6148113.5601738505, 6147545.577008831, 6151457.446807147, 6150909.191022724, 6150352.688489226, 6149755.976577236, 6149222.984384366, 6148674.185586907, 6148108.882151804, 6147547.709536554, 6151469.438806418, 6150898.068385614, 6150332.535450201, 6149781.074610789, 6149226.415543166, 6148654.544386471, 6148086.947032796, 6147542.539424226, 6151451.115840837, 6150883.95473046, 6150333.427947937, 6149776.459293927, 6149228.236376653, 6148664.5448059235, 6148099.941352026, 6147546.034291306, 6151450.423086238, 6150888.746173663, 6150323.711496203, 6149763.305507173, 6149214.9581232825, 6148673.463415799, 6148113.484116433, 6147545.397760068, 6151444.348400843, 6150885.565918152, 6150331.415680692, 6149784.536214839, 6149217.979245446, 6148665.746541944, 6148102.986903522, 6147548.102433242, 6151454.680800803, 6150887.784797185, 6150329.696099378, 6149787.0136263585, 6149222.765654049, 6148670.574976009, 6148099.605267697, 6147541.361465755, 6151446.385023398, 6150878.36622717, 6150338.323531755, 6149788.723831377, 6149225.867899312, 6148680.800837366, 6148119.782233074, 6147535.698165641, 6151437.309228068, 6150886.967975651, 6150328.433484535, 6149793.09770939, 6149237.711126799, 6148667.507731205, 6148092.278388893, 6147531.251388504])

aep\_best\_sol on Genetic Generation 9: 716.4400536324017

Best solution on Genetic Generation 10:

([423973.457893096, 424034.9868872711, 424092.19092084677, 424154.60665329295, 424225.41282418254, 424292.0477155928, 424359.5530943111, 424451.3445693869, 424548.22639031854, 424585.07036747836, 424661.886407506, 424728.3844429822, 424806.9797155095, 424871.67999032576, 424944.27273811254, 425004.46295125736, 425086.5969061668, 425145.161869468, 425217.46152444265, 425284.36670477997, 425349.8015729648, 425441.50629185984, 425517.20708286326, 425566.7853918882, 425660.9667789745, 425717.6171206954, 425799.73839218356, 425856.4479234867, 425918.79756180407, 425981.6440670771, 426057.50390622823, 426131.4380545224, 426227.61086389056, 426290.52966288046, 426351.5670711222, 426389.81049609696, 426470.2159983663, 426540.44951375196, 426622.3584077652, 426675.6795792154, 426766.07295719616, 426852.7175818469, 426919.2824442664, 426979.8671895048, 427042.71615232056, 427095.8775254644, 427181.1569358333, 427287.06285962585, 427333.2101165502, 427398.5709031989, 427457.82588165515, 427527.80624556146, 427607.03707796126, 427669.1935581916, 427757.5148791438, 427842.6237414481, 427898.3275663442, 427970.85648736224, 428044.4496620107, 428113.2475434608, 428187.4100341353, 428235.0239658085, 428305.1607108693, 428377.5901442153, 428446.6732489528, 428553.7244080484, 428607.29293695017, 428673.8375100787, 428740.4019177898, 428802.60281517264, 428857.76704679645, 428936.68333182775, 429036.30159108934, 429108.0053965857, 429172.1503110227, 429241.9279180883, 429304.05356002983, 429376.6978055409, 429447.88260474015, 429511.09100513085], [6151459.283486451, 6150900.980517143, 6150327.802926979, 6149795.570890085, 6149217.02077768, 6148669.244010154, 6148120.8117959425, 6147537.249560058, 6151458.973650993, 6150899.073965352, 6150349.194289224, 6149769.291619095, 6149209.508874751, 6148674.5250143595, 6148112.627102326, 6147542.247424722, 6151461.586225856, 6150911.353885411, 6150350.087120953, 6149754.00238664, 6149219.168164938, 6148674.50384279, 6148102.949210885, 6147548.721566244, 6151464.13020744, 6150896.032734584, 6150333.742413295, 6149777.427953141, 6149224.08048878, 6148650.523573652, 6148082.477917176, 6147547.862551024, 6151452.773882698, 6150881.466249878, 6150336.25963171, 6149782.7939621145, 6149229.613677615, 6148659.212495938, 6148100.006949379, 6147544.6526160035, 6151447.8317918265, 6150883.37217364, 6150322.572205748, 6149761.33048268, 6149219.080366374, 6148666.938364576, 6148107.58895181, 6147539.66754418, 6151445.568975463, 6150879.934753927, 6150334.615297183, 6149781.496713643, 6149214.486324303, 6148671.3978389185, 6148109.243424333, 6147541.271997652, 6151454.700983545, 6150887.976310396, 6150327.409832237, 6149783.729240575, 6149218.354564498, 6148672.799553962, 6148105.036390741, 6147545.675706917, 6151439.404849931, 6150880.142187134, 6150333.530258175, 6149789.293251732, 6149230.095527289, 6148676.728441788, 6148117.709318014, 6147532.262017602, 6151430.924334208, 6150889.413162087, 6150333.203385411, 6149792.954324303, 6149234.711971602, 6148671.6178787295, 6148097.09813002, 6147531.679803302])

aep\_best\_sol on Genetic Generation 10: 716.4169365876513

Best solution on Genetic Generation 11:

([423980.2878928572, 424030.01140840515, 424092.62642514, 424156.29443654, 424222.88917922287, 424289.25372557866, 424357.72918528295, 424444.53324363485, 424545.25716310454, 424583.061680946, 424659.13588019705, 424730.59788620484, 424809.00889041764, 424875.4162024922, 424943.7924620151, 425010.6431081302, 425080.45308964315, 425140.41748003406, 425219.1010280646, 425285.72475237417, 425349.02219233074, 425442.79739067843, 425512.1069432577, 425570.8539482193, 425664.27447716513, 425710.87519600906, 425794.1508875995, 425862.60602040193, 425919.7908897186, 425980.462796032, 426060.3288481637, 426134.51904645906, 426228.3057396849, 426288.53788850864, 426352.4670871525, 426390.8786669977, 426475.9642855596, 426544.6882689521, 426617.7721326358, 426673.9577257812, 426767.2340651482, 426859.48679619137, 426919.95726586255, 426981.4067979332, 427040.2481947023, 427100.4701010606, 427187.9725093614, 427286.09768107464, 427326.6750166714, 427401.36737877666, 427462.46915948373, 427534.77365883085, 427601.51450310147, 427674.95364690153, 427751.715068881, 427837.9023006344, 427897.3773264924, 427971.350873433, 428037.70890686224, 428118.6004091009, 428183.84358311543, 428230.29699041357, 428301.87561193167, 428377.9414956085, 428449.4417462486, 428549.8287877145, 428602.62222072796, 428680.396611984, 428734.2727838828, 428806.5172761289, 428864.39090432227, 428942.06707818486, 429042.70759614004, 429102.5222858644, 429165.91528842645, 429240.95532936807, 429300.57089428755, 429369.8682959474, 429441.2768325492, 429513.88360798423], [6151452.467229765, 6150906.295329504, 6150325.81472213, 6149790.612014354, 6149217.64866569, 6148666.807987697, 6148114.230556906, 6147532.535534333, 6151464.44965927, 6150904.510900199, 6150353.723288696, 6149762.462001442, 6149212.527955403, 6148668.692244243, 6148111.863909487, 6147544.366436566, 6151460.760643848, 6150904.650145195, 6150346.782930306, 6149757.310440575, 6149216.260423833, 6148678.866319174, 6148103.961109973, 6147546.3564434, 6151463.543434496, 6150895.212147367, 6150336.395836822, 6149774.572243438, 6149223.344041618, 6148651.091364911, 6148083.681200117, 6147545.316942358, 6151456.56706118, 6150878.420474658, 6150331.797233622, 6149778.242584733, 6149225.556972328, 6148665.649278659, 6148095.532383082, 6147538.443701565, 6151452.6833358, 6150876.644042652, 6150318.203904567, 6149760.394473601, 6149224.109462842, 6148666.490444057, 6148109.45444463, 6147536.797695007, 6151448.866924785, 6150875.860243013, 6150339.245486669, 6149786.225384284, 6149210.043770977, 6148673.315926813, 6148113.369702314, 6147534.627582315, 6151460.954913337, 6150883.585747794, 6150332.464842278, 6149776.769713864, 6149217.919102322, 6148673.947052749, 6148102.165992824, 6147550.788587484, 6151442.276407154, 6150875.9625804275, 6150335.59527897, 6149792.066222134, 6149228.106083793, 6148673.669955628, 6148110.948394144, 6147531.556794475, 6151429.389715485, 6150889.264628349, 6150334.901377255, 6149791.560623987, 6149240.007358628, 6148669.936551709, 6148092.467216413, 6147534.081253669])

aep\_best\_sol on Genetic Generation 11: 716.3843031202609

Best solution on Genetic Generation 12:

([423979.59041818435, 424026.64590147673, 424091.40939199267, 424159.105605113, 424229.45665582136, 424293.29100048833, 424357.19549870567, 424446.6958175231, 424550.2223612055, 424583.83575038123, 424660.48310929356, 424735.07026050414, 424807.8075619487, 424880.86431245366, 424937.4316530115, 425005.47566230857, 425080.1450303008, 425138.6022635475, 425217.2724849464, 425291.9482136479, 425350.3037613385, 425436.1282248505, 425513.5197624649, 425565.4624951502, 425665.08120404626, 425711.55194244813, 425799.9974725981, 425856.8471591854, 425913.26957120036, 425983.565741108, 426054.8861045537, 426127.92455728934, 426225.9199404281, 426282.44535516604, 426350.2621019949, 426393.4008930199, 426476.29579855653, 426538.87026140234, 426618.31666399527, 426668.45087763487, 426763.5758610153, 426855.65227194625, 426917.8909591846, 426976.1137179703, 427043.8827074229, 427104.10113869305, 427185.8319374428, 427285.3637314569, 427332.44536305655, 427394.9567850422, 427461.2580213829, 427534.81823875196, 427596.23258941376, 427680.23840005137, 427751.4226505739, 427831.7942251092, 427896.24653132, 427972.1013351209, 428031.51980133867, 428125.28489442373, 428182.7520560391, 428236.1515173796, 428301.7709701147, 428376.2482719597, 428450.27314754785, 428549.02226952, 428607.4102559127, 428675.6919895862, 428737.0628218676, 428811.2334125005, 428870.8229954714, 428936.4698920876, 429040.0607424427, 429108.7557924837, 429159.13069113175, 429239.9246921601, 429304.3054746573, 429366.78301195655, 429434.93384540046, 429511.46318015194], [6151452.082191114, 6150905.330095991, 6150325.590616757, 6149786.9980437085, 6149210.818326771, 6148673.763772128, 6148113.87542354, 6147533.397413515, 6151462.500048972, 6150903.5885558445, 6150359.769864157, 6149766.469504954, 6149211.902708741, 6148672.967542644, 6148110.429401454, 6147538.008907679, 6151465.35402249, 6150906.974812832, 6150344.324124618, 6149760.089431485, 6149223.045997829, 6148674.214852983, 6148102.153730452, 6147546.539076112, 6151457.906197494, 6150896.17366879, 6150333.334300488, 6149773.8967135055, 6149218.820878294, 6148653.257283361, 6148088.6317567695, 6147551.097968717, 6151450.696759611, 6150883.4627779685, 6150324.807464375, 6149773.802641859, 6149225.391029877, 6148664.508762517, 6148099.84000452, 6147537.557628705, 6151455.341486689, 6150876.739095171, 6150321.810722581, 6149757.044688807, 6149223.042037455, 6148671.054008667, 6148113.464345486, 6147535.515759604, 6151454.753426185, 6150872.409810918, 6150338.537409912, 6149779.64739176, 6149216.290939463, 6148671.78720717, 6148114.157219795, 6147540.706733092, 6151456.136460435, 6150890.582590182, 6150332.006289274, 6149781.164351067, 6149224.282482602, 6148670.101907916, 6148105.503878495, 6147554.020211038, 6151448.31838098, 6150881.286067343, 6150336.411647178, 6149788.970692252, 6149231.1191101, 6148673.880111378, 6148116.489550081, 6147534.678586953, 6151423.439842006, 6150889.608691275, 6150330.168989082, 6149785.566942758, 6149244.231947961, 6148674.453227126, 6148086.951251729, 6147535.8503442975])

aep\_best\_sol on Genetic Generation 12: 716.3621206452955

Best solution on Genetic Generation 13:

([423972.8613133289, 424019.76150647324, 424093.7399822815, 424154.4353094258, 424225.0361306164, 424289.9553138607, 424362.8746595581, 424451.33520981204, 424556.4051195438, 424590.151945561, 424663.80063719105, 424735.4963147262, 424805.6963387314, 424876.2297044846, 424939.1640746143, 425012.0170642942, 425079.9998891955, 425134.517415766, 425212.4369845615, 425289.7470332434, 425353.48194717173, 425441.4041828539, 425517.1632018803, 425563.37152994465, 425664.6462765437, 425715.7089292185, 425801.60305869585, 425859.88220569014, 425918.6889845823, 425977.6326975559, 426050.61515928747, 426125.00801154535, 426226.962704704, 426283.8645152254, 426344.78898017935, 426394.43234482245, 426469.3907809543, 426544.2299500939, 426611.3655526393, 426670.4835927768, 426762.00778025767, 426852.6228253527, 426917.9186117533, 426975.7963583393, 427043.3660182683, 427104.2959361682, 427185.1108369753, 427290.1803754354, 427338.67204073863, 427397.43313727825, 427455.7289967634, 427537.04088022833, 427592.40579524863, 427683.66415365186, 427746.8005118019, 427831.63989679515, 427898.9413066915, 427966.3655811631, 428035.46047535236, 428123.1915354326, 428176.41183320776, 428231.05084851827, 428296.0613660208, 428369.4309367486, 428443.68850615044, 428552.82434801426, 428612.1839918103, 428669.71395652014, 428733.2515090627, 428809.02981248643, 428863.934475075, 428936.75982560567, 429035.3440047645, 429106.8071877421, 429163.3793223845, 429234.4476570545, 429308.70375211124, 429365.49215738114, 429438.96784663765, 429508.7034960625], [6151450.141756468, 6150899.293017179, 6150322.971653329, 6149786.270882017, 6149208.591216889, 6148678.9886314655, 6148111.63718795, 6147536.707758718, 6151466.412774049, 6150900.3728979435, 6150360.354879999, 6149764.503944498, 6149210.329200827, 6148671.127298526, 6148105.245523177, 6147531.150834279, 6151470.870555886, 6150907.350185126, 6150349.606014589, 6149754.711917906, 6149226.429903926, 6148667.321993175, 6148104.919970452, 6147543.109584231, 6151462.698164127, 6150893.269367279, 6150339.049203052, 6149770.921313754, 6149219.090154343, 6148657.674873441, 6148092.273098824, 6147546.438993207, 6151453.443090202, 6150882.088684668, 6150324.169111667, 6149771.691456365, 6149225.594734316, 6148660.361956743, 6148103.400991471, 6147541.902838538, 6151449.271530437, 6150871.775335774, 6150324.762857844, 6149753.836913853, 6149216.339471829, 6148666.976120655, 6148107.28298271, 6147533.747384253, 6151453.697636827, 6150878.92702497, 6150343.52137348, 6149779.857161344, 6149215.0242517, 6148673.149322939, 6148116.604807138, 6147539.936751447, 6151461.7473389, 6150892.46766735, 6150338.352691898, 6149775.115373334, 6149230.086247678, 6148673.769950807, 6148100.113216491, 6147550.70043425, 6151448.454681783, 6150883.529928053, 6150339.469909717, 6149794.977550123, 6149226.087237097, 6148673.975699896, 6148111.357909689, 6147532.795078203, 6151430.401350626, 6150890.237455125, 6150334.798579955, 6149782.255556206, 6149247.452518194, 6148674.805748288, 6148093.689465559, 6147536.165177845])

aep\_best\_sol on Genetic Generation 13: 716.3585974438947

Best solution on Genetic Generation 14:

([423977.6443734304, 424022.8549745079, 424089.7275694241, 424154.5752281089, 424228.5589253611, 424289.3187819694, 424365.0198256249, 424446.1644511803, 424559.4923830187, 424595.1192142625, 424664.23496251245, 424734.6269992465, 424803.4071254204, 424870.8056170318, 424936.11443551583, 425018.46298786305, 425079.5957576267, 425137.6920742953, 425205.5454062064, 425289.969707452, 425352.8134522372, 425440.73049248016, 425518.3264646289, 425565.93849866086, 425661.2860349673, 425709.3122233684, 425801.89114251954, 425866.74052777095, 425919.3224041856, 425977.18316621054, 426049.8957356677, 426123.5550942719, 426233.3338988146, 426288.58483522816, 426347.56170667487, 426397.7939268811, 426467.0840700285, 426548.2041099019, 426609.6302981445, 426670.7795266227, 426766.8617094233, 426858.0383940818, 426912.2567326874, 426981.05368892866, 427039.4197178537, 427097.7295967506, 427190.78203277907, 427285.83608206705, 427338.2950069312, 427402.4171954172, 427455.035472704, 427535.79770868697, 427589.2199775964, 427679.5617830422, 427742.9472344409, 427831.29606892884, 427901.3490662, 427961.4665174838, 428033.00591922255, 428126.5918491313, 428181.1785894576, 428237.9239391903, 428301.2036887457, 428369.49787344626, 428442.34919491963, 428556.7859958123, 428615.54787649994, 428672.52770299814, 428738.6242423598, 428812.8119505184, 428869.4590455511, 428942.9035119394, 429038.0555809104, 429101.7910415345, 429169.1245813205, 429239.39556193387, 429304.12644210906, 429371.32216285623, 429438.9364909528, 429509.1424256169], [6151456.057504457, 6150893.56225728, 6150321.198602933, 6149788.639921244, 6149211.00812468, 6148677.002364818, 6148105.255537123, 6147532.178278746, 6151463.148137249, 6150905.300359527, 6150354.398793836, 6149766.127083926, 6149209.608364709, 6148673.102597363, 6148103.072319972, 6147537.823016364, 6151468.06225094, 6150910.226051476, 6150354.052666358, 6149751.411651129, 6149222.563212573, 6148665.200576678, 6148104.9341749, 6147549.8365710955, 6151464.177933126, 6150896.47638195, 6150340.821184147, 6149769.413778651, 6149214.926213637, 6148656.939617336, 6148091.605698325, 6147549.091655868, 6151457.91990949, 6150883.42385022, 6150322.976858716, 6149766.91939019, 6149221.013747285, 6148658.576432417, 6148097.477067407, 6147545.23835245, 6151449.985517963, 6150875.800855197, 6150329.368413675, 6149751.277068835, 6149218.152963126, 6148671.615006062, 6148101.435938058, 6147535.177355038, 6151455.393301428, 6150873.800036264, 6150339.098888459, 6149784.311030663, 6149216.435243218, 6148668.178434746, 6148111.105447482, 6147545.141722145, 6151460.072686265, 6150892.53082019, 6150335.680822835, 6149772.147727695, 6149223.728544143, 6148674.123473754, 6148101.097301601, 6147545.3302034475, 6151448.626943919, 6150886.828935597, 6150336.734465981, 6149801.488137939, 6149226.94434439, 6148671.6683341805, 6148117.67158477, 6147538.491410328, 6151426.79160162, 6150886.010953925, 6150333.6808367, 6149788.113361303, 6149241.035967067, 6148677.078053282, 6148089.605077652, 6147538.692851477])

aep\_best\_sol on Genetic Generation 14: 716.3697705371749

Best solution on Genetic Generation 15:

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aep\_best\_sol on Genetic Generation 15: 716.3955284918676

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