



Solar Project for CAP Canals and Waste Management

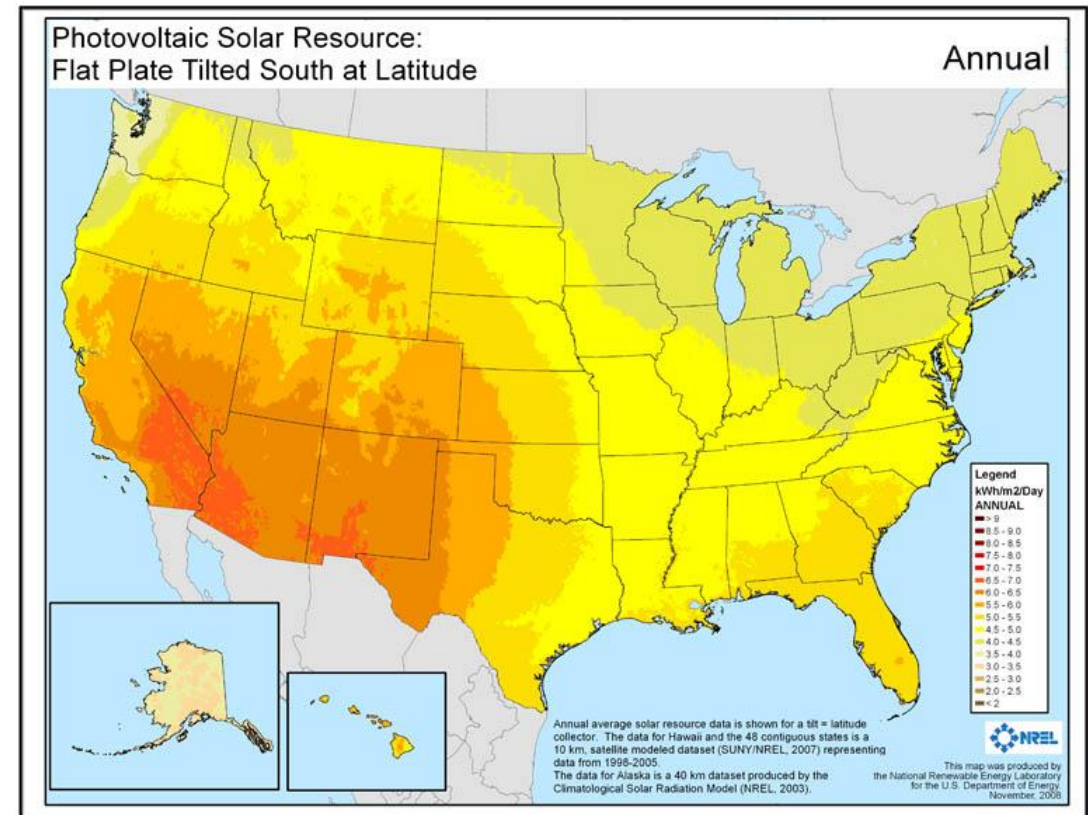
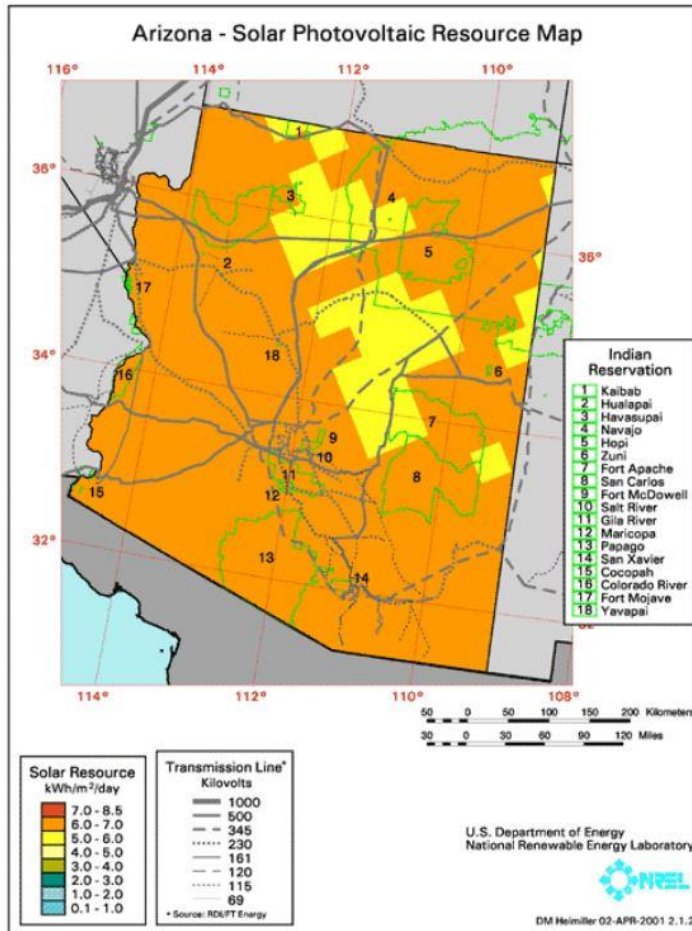
SINGULAR

Singular is intellectual Property of the Living Earth Ecological Institute

Solar Energy at Arizona

- Arizona has one of the bigger solar potential in US.

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<http://www.nrel.gov/gis/solar.html>

The Inspiration

- Narmada Project in India with 1MW and 750m built over the irrigation canals.

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Why Over The Canal

- Building solar over the canal effectively utilizes plenty of available space .
- The shadow provided by the solar panels helps avoid the following:
 - CAP loses 75,000 acre feet of water per year by evaporation
 - Excess of algae can affect the quality of water and complicate the treatment
- Generates energy reducing the operation costs to maintain the pumps along the canal.

A closer look at the proposed site

- 12197 E Shea Blvd Scottsdale, AZ 85259



Place where the structure can be installed

Access points

- 12197 E Shea Blvd Scottsdale, AZ 85259



Access

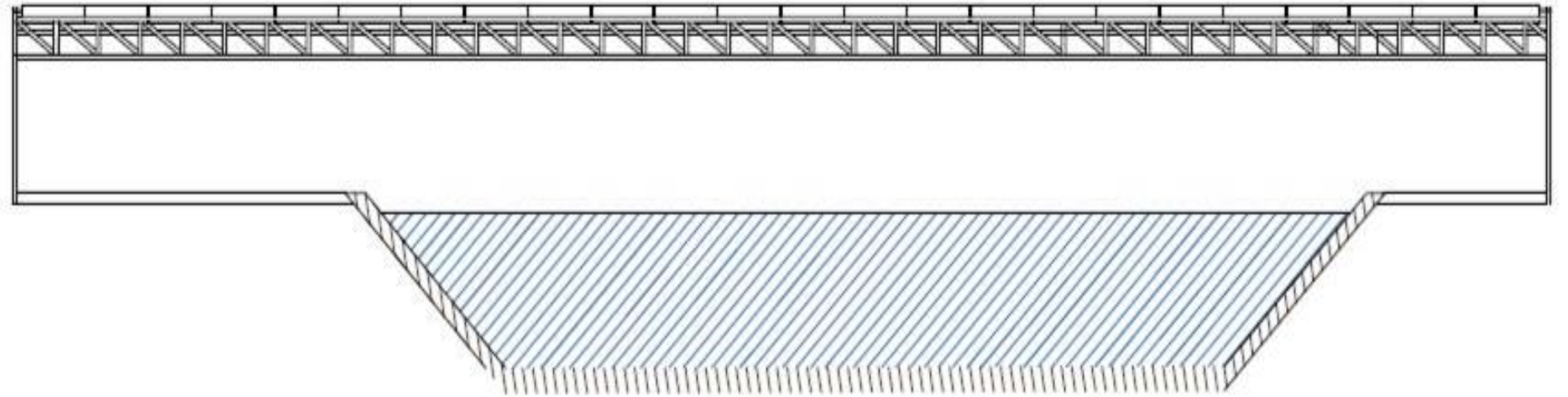


Why Here?

- The canal has a North-South direction, ideal for the design of the structure, thereby reducing the costs of the project.
- No obstructions to the canal.
- Easy access from different points.
- Accessibility to the grid.

Solar Panel Design – Front View

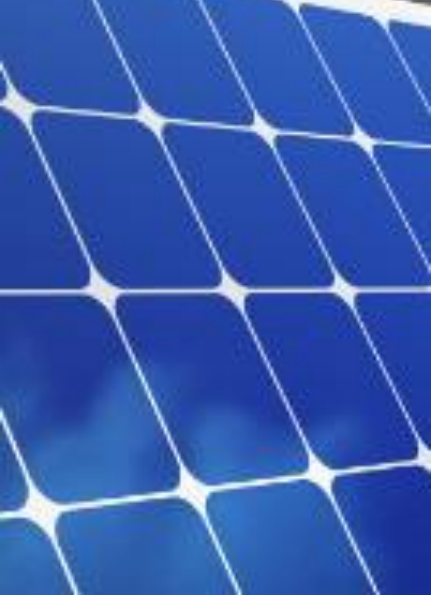
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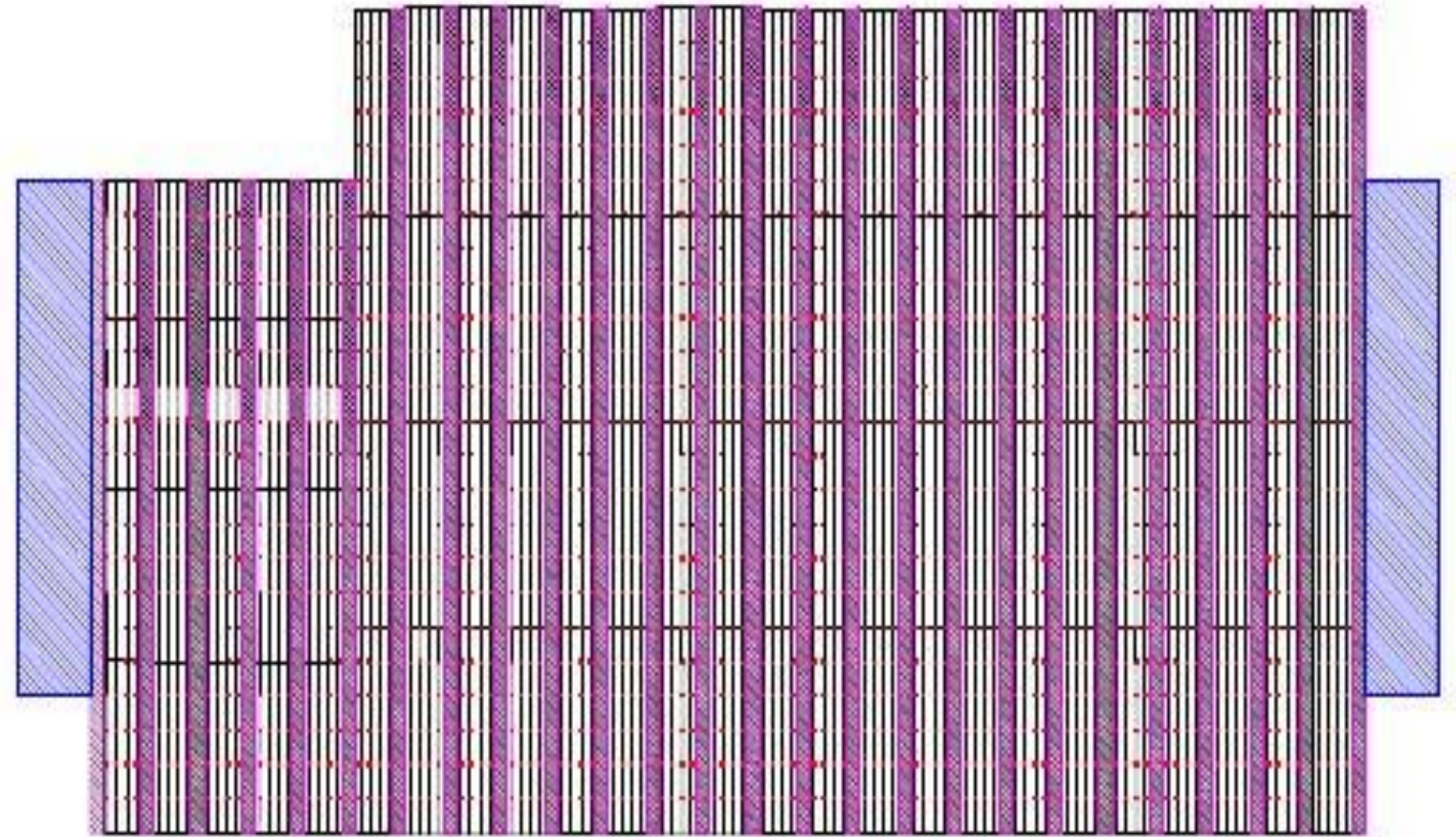
Solar Panel Design – Top view of Steel Structure



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SOUTH

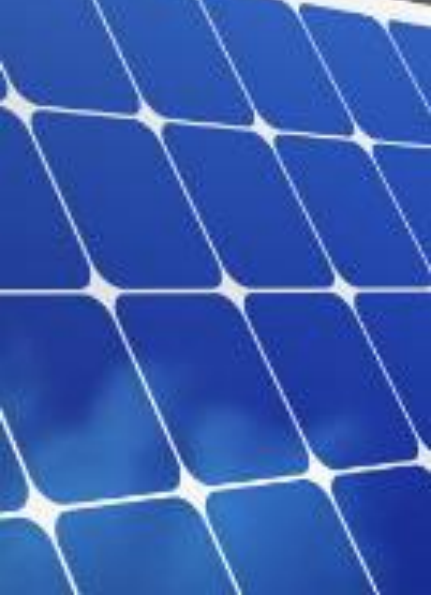


NORTH

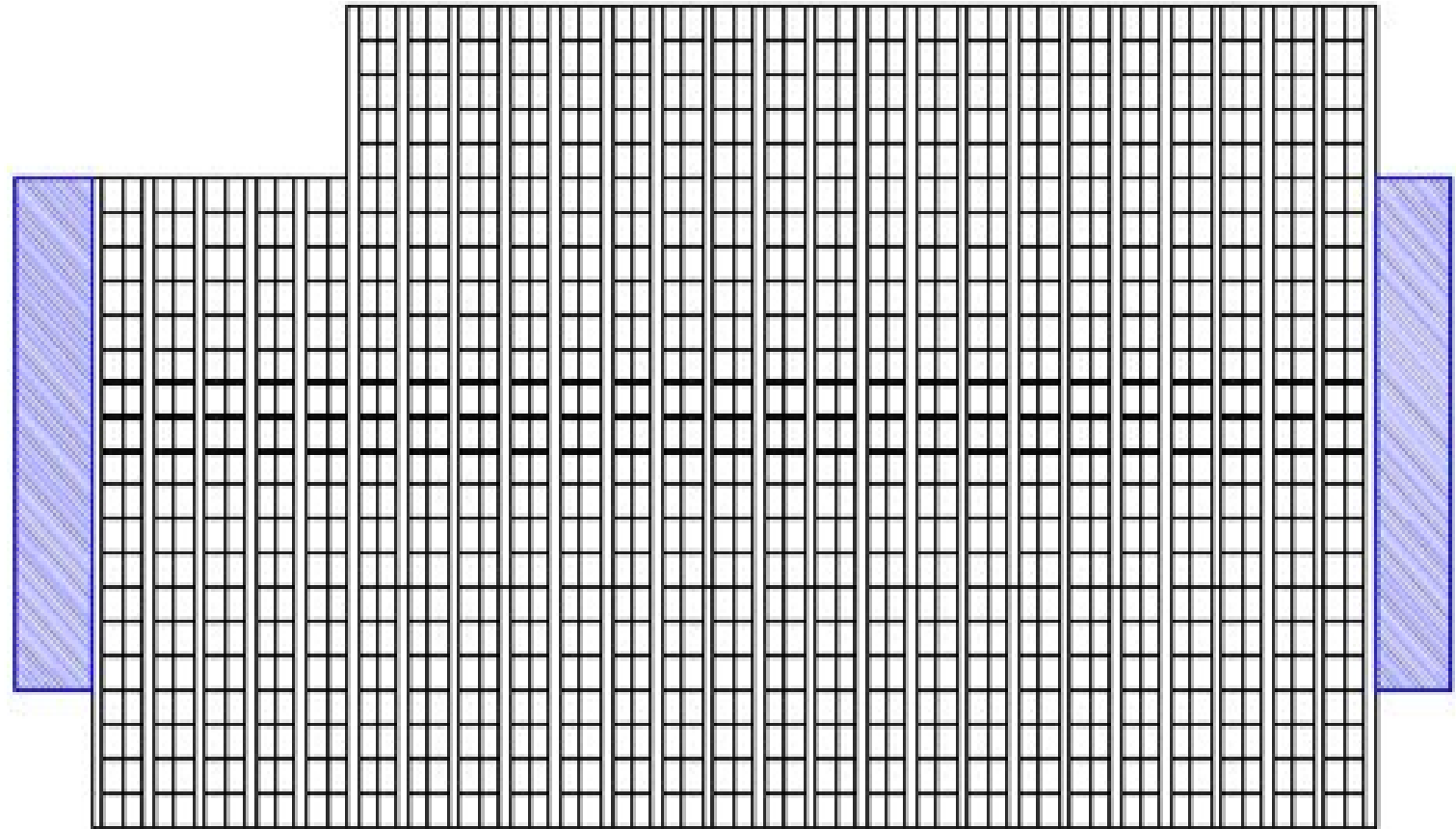
Solar Panel Design – Top view with Panels



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SOUTH



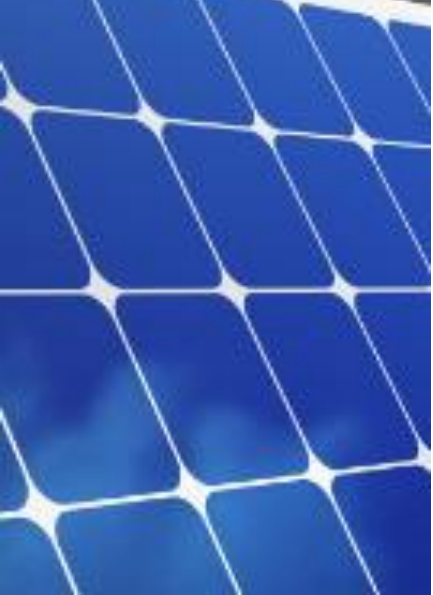
NORTH

General Information

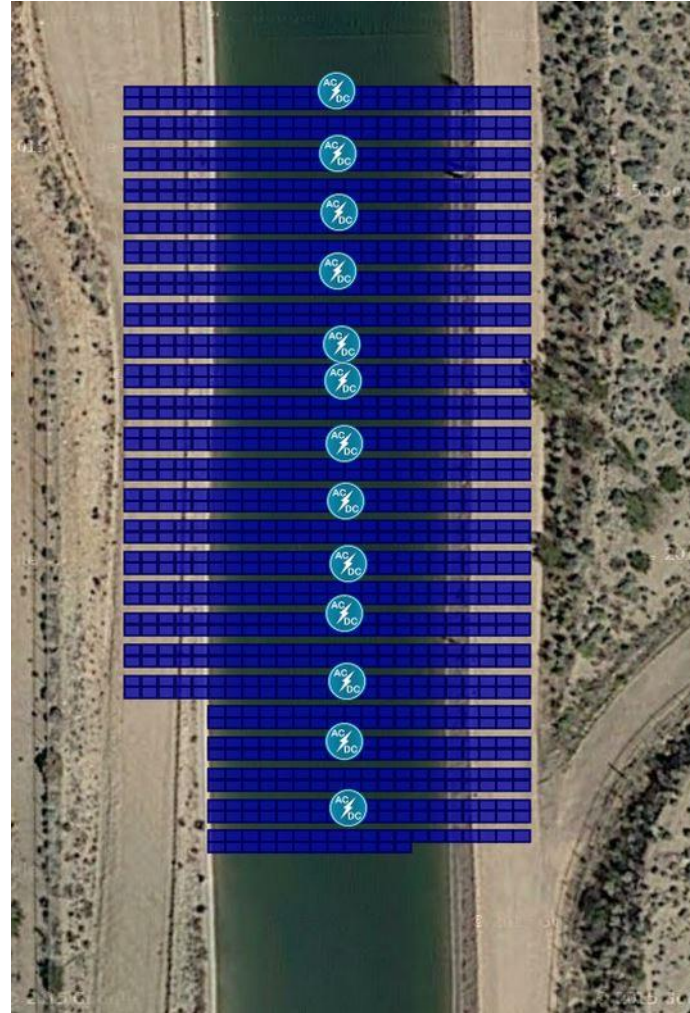
- Power installed: 373kw and an area of 2501.27 m² will be covered;
- 67.3 meter length of extension of the canal will be used;
- The height of the structure will be 10 feet to facilitate the maintenance and to make a pathway for people who want to enjoy the shade provided;
- The type of steel is corrosion resistant because the solar panels cover the canal, which is exposed to vapor from the water;
- The material used will be galvanized steel or common steel which will be painted as part of the maintenance.



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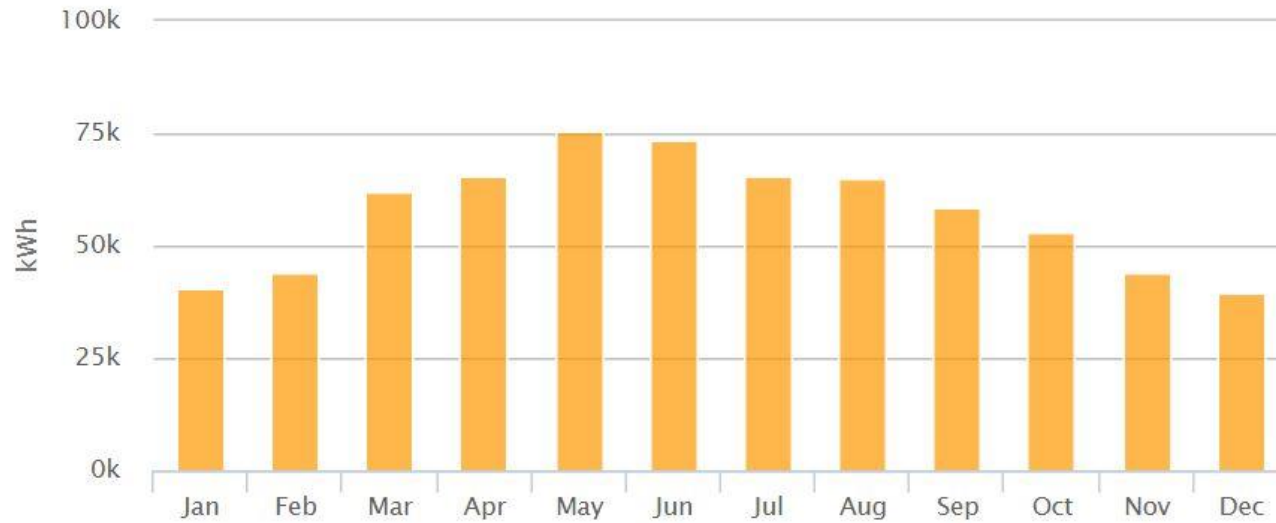


Overhead view





Monthly Production



- Annual Production: 661.5 MWh

Month	kWh
January	41,479.0
February	43,333.6
March	56,000.5
April	62,230.1
May	72,463.6
June	72,774.7
July	64,990.5
August	61,053.8
September	56,266.0
October	49,162.5
November	42,553.8
December	39,175.8

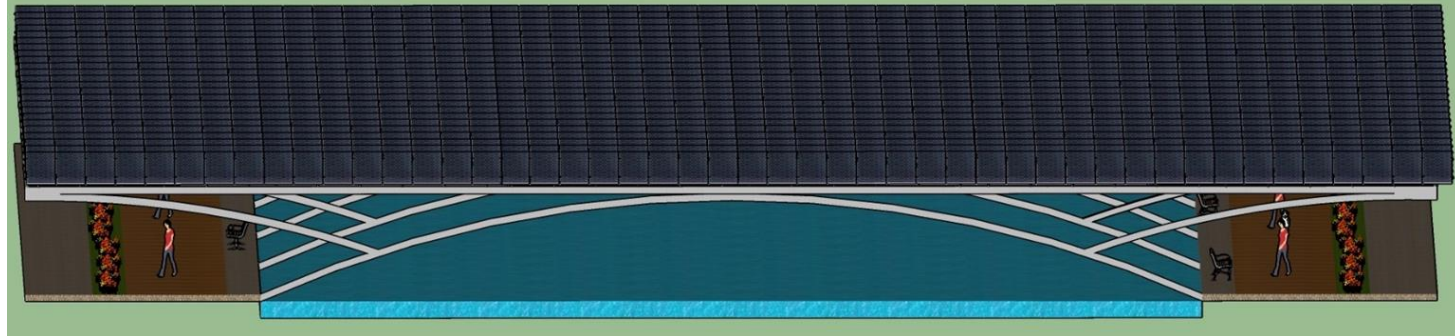
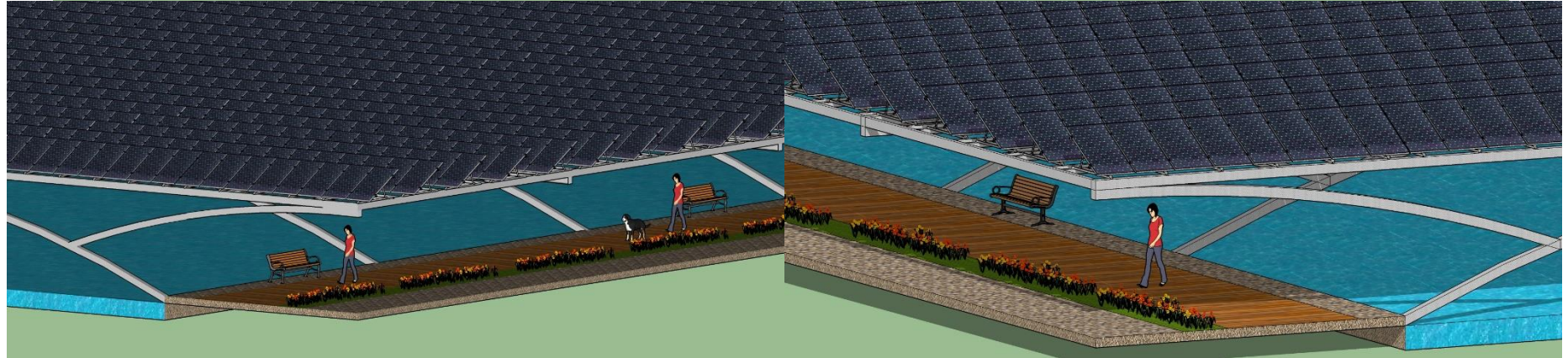
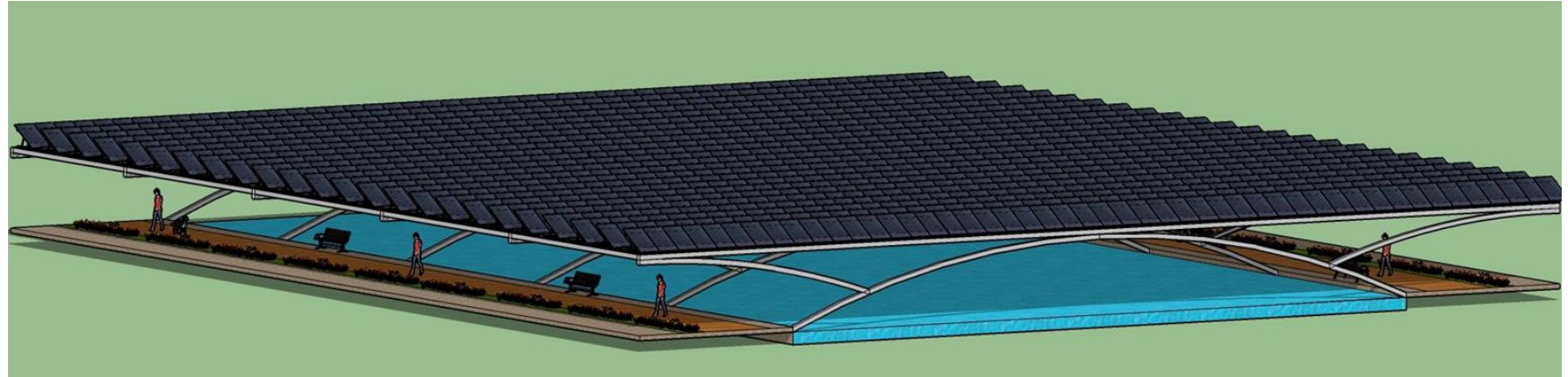
HeliosScope Data



How can this project improve the local landscape?

- Creates a friendly space that provides shade where people can enjoy being in close proximity to the water.
- The pathway can be illuminated, enabling people to use the space during the night.
- Makes the area an active and beautiful place to gather. It builds community.
- Improves the landscape connecting nature with the neighborhood while it produces energy.

Proposed Design





An electric charging station can be built near the project for electric vehicles travelling along the She Blvd. route to Ft. McDowell or Payson. We are proposing to start an electric bus line that can run to Fountain Hills and the Ft. McDowell Casino. This can be a prelude to what the future of public transportation can look like in Phoenix.

Possible locations for a charging station



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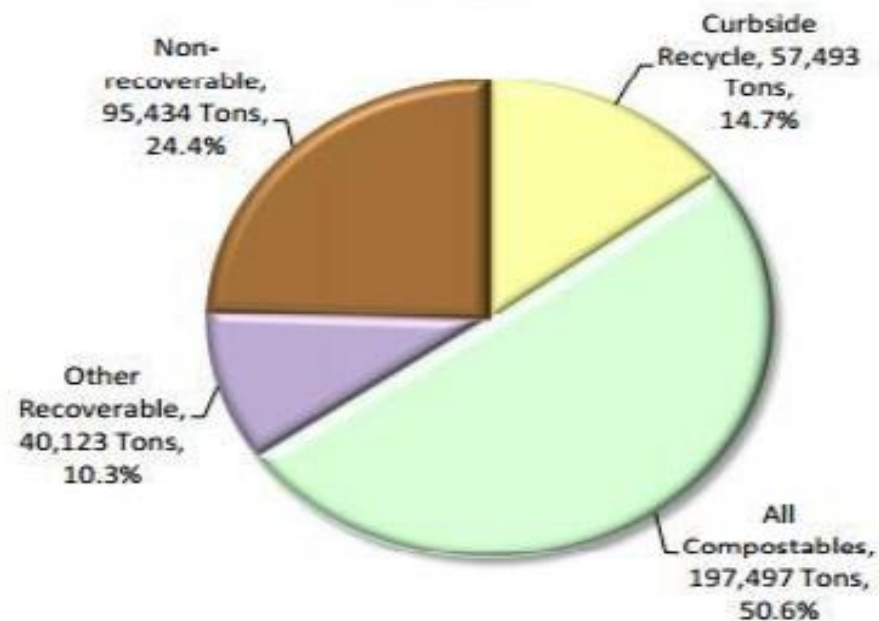
Waste Management



The composition of residential garbage of Phoenix

- Nearly two-thirds (65.3%) of the residential garbage consists of material that can be diverted through standard recycling and composting programs.
- About 57,500 tons of material that could be recycled through the existing curbside collection program is being disposed annually. This is approximately 15% of disposed residential garbage.

Figure 1. Citywide Garbage Recoverability, Summer 2014



The composition of residential garbage of Phoenix

- Compostable yard waste (30.1%, 117,746 tons)
- Food waste (14.5%, 56,466 tons)

More than 174,000 tons of material disposed annually

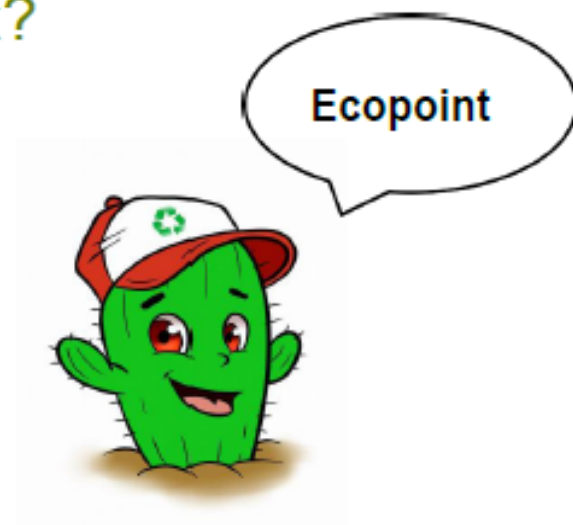
Organic	47.1%	183,885
Compostable yard waste	30.1%	117,746
Food waste	14.5%	56,466
Non-compostable organic	2.5%	9,673

About 2,7 % is recycled (est 2,792 tons)

Proposal: Ecopoint

- An installation which allows the integration of the management of waste.
- How does it work?

Companies, Population,
Schools, Public Institutions



Collector



Processing Industry

("Recycytus" is intellectual property of the Living Earth Ecological Institute, TM pending)


Proposal: Ecopoint

Objectives



Avoid the waste

Easy access to the population



Incentive for the population

Diminish the cost of transportation



Improve the recycle process



Ecopoint

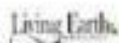
**HI
I AM
RECYCTUS**



What goes in which bin?

Help save the environment and
you could win a gift

1. Take a picture with Recycytus
2. Register in the CHLUE
3. Post the photo in the Facebook or Instagram with the hashtag #ILoveRecycytus



CHLUE



- ☐ M&M's Riddle bags
- ☐ Any genuine bank
- ☐ Diamond ring and heart
- ☐ Cash



- Newspaper
- Magazine
- Kind of Squatted paper
- Booklet
- Cartoon
- Brochure and other paper



Plastic Bags



Coasting roll
Front End



Mineral Soil
 Small Wetland
 Trees, Shrubs, Forbs, and Grasses
 Water plants, Lilies, Pines and Shrub
 Tidal and Brackish
 (Continued)



Supplies from our catalog:
Napkins, Plates, Teacups
Cups, Glasses



1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 26



Environmental education and Incentive

What goes in which bin?

Help save the environment and you could win a gift

1. Take a picture with Recyctus
2. Register in the CHLUE
3. Post the photo in the Facebook or Instagram with the hashtag #ILoveRecyctus

Living Earth

CHLUE



- Milk bottle tops
- Any plastic bottle
- Flattened card/cardboard
- Cans

NO THANKS ❌
- Plastic bags
- Plastic wrapping
- Plant pots
- Furniture or toys
- Food Packaging



- Newspapers
- Magazines
- Rinsed and Squashed paper
- Junkmail
- Catalogues
- Brochures and office paper

NO THANKS ❌
- Books
- Wallpaper
- Padded envelopes
- Food Packaging



- Plastic Bags

NO THANKS ❌



- Cooking oil
- Fuel Oil

NO THANKS ❌



- Rinsed food
- Dead flowers
- Grass, Garden Prunings and Hedge
- House plants, Leaves Plants and Shrubs
- Twigs and Branches
- Cuttings

NO THANKS ❌
- Soil
- Large branches
- Liquid oils and fat
- Liquid such as milk, yoghurt or cream



- Styrofoam containers
- Napkins, Tissues, Sanitwipes
- Used gloves

NO THANKS ❌



- Batteries

NO THANKS ❌



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Let's Innovate!

Phoenix, the City of the
Future