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How does this end?

Do more with less grid energy.

Smarter use of resources [incident sunlight].

E Squared—an integrated approach using energy efficiency and renewable energy to reach a sustainable position, in business and in life.

Efficiency first—and renewables assuming the reduction fraction not achieved by efficiency

Energy Efficiency

X

Renewable Energy

The challenge is to find the right combination for a particular user on a particular site. Done right, E squared enhances productivity.

Do more with less energy.

Reduce the carbon intensity of the energy you use.

Use your onsite resources [incident sunlight] in a smarter way.

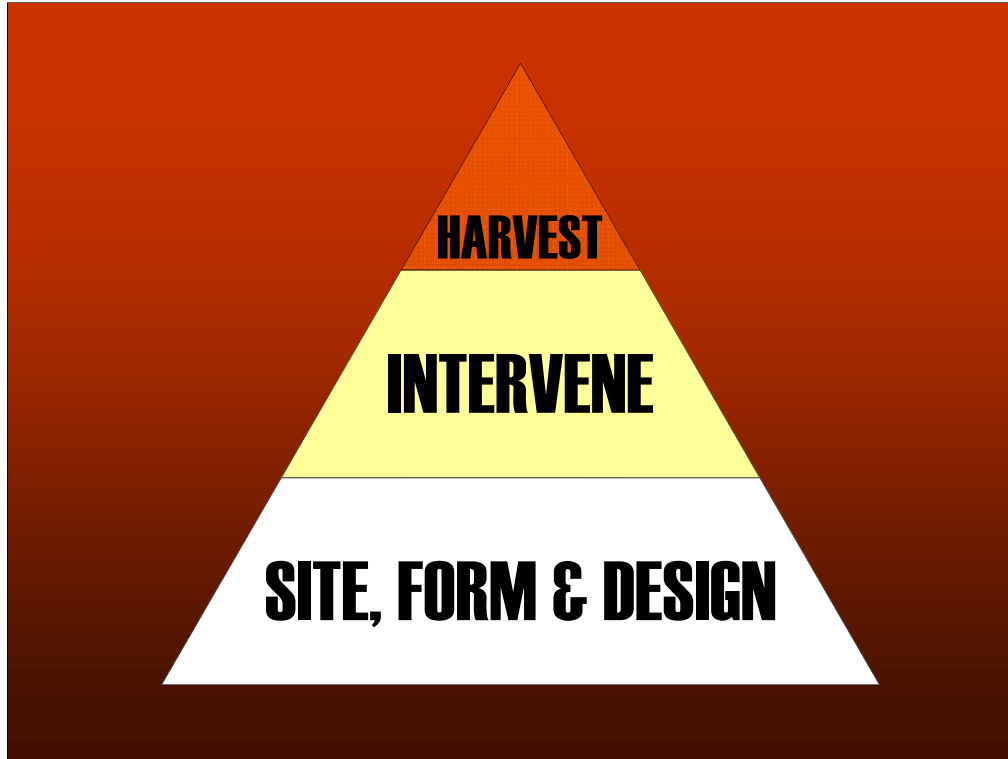
A pharma operation we looked at recently showed us their average employee uses \$8,700 in energy to produce \$1.2M in revenues. 10% reduction equates to roughly \$200/employee per year. You want to make sure that productivity is not hampered by energy efficiency—that you do it in a way that enhances productivity.

Once you get past the low hanging fruit, often the least intrusive path is to introduce distributed generation into the mix. And the perfect renewable energy for the Northern California climate is solar.

The Menu

Method	Net \$ /MWh	GHG Reduction Potential	Notes
Do Nothing	(\$185)	Nada	Short term perspective.
Energy Efficiency		.33MT/MWH reduced.	Do more w less, not a replacement
Buy Offsets	\$50		No real estate value add
Solar	\$155	125 SF rooftop/MWh	Smarter use of resources
Solar Thermal	\$23	25 SF rooftop/MWh	DHW for end users
Fuel cell	\$170-\$200	100% nat gas—25% worse than PG&E grid.	Includes maint, 3x plate replacement, fuel cost and carbon offsets
Wind	\$130	N/A	Minimal onsite resource, primarily ornamental

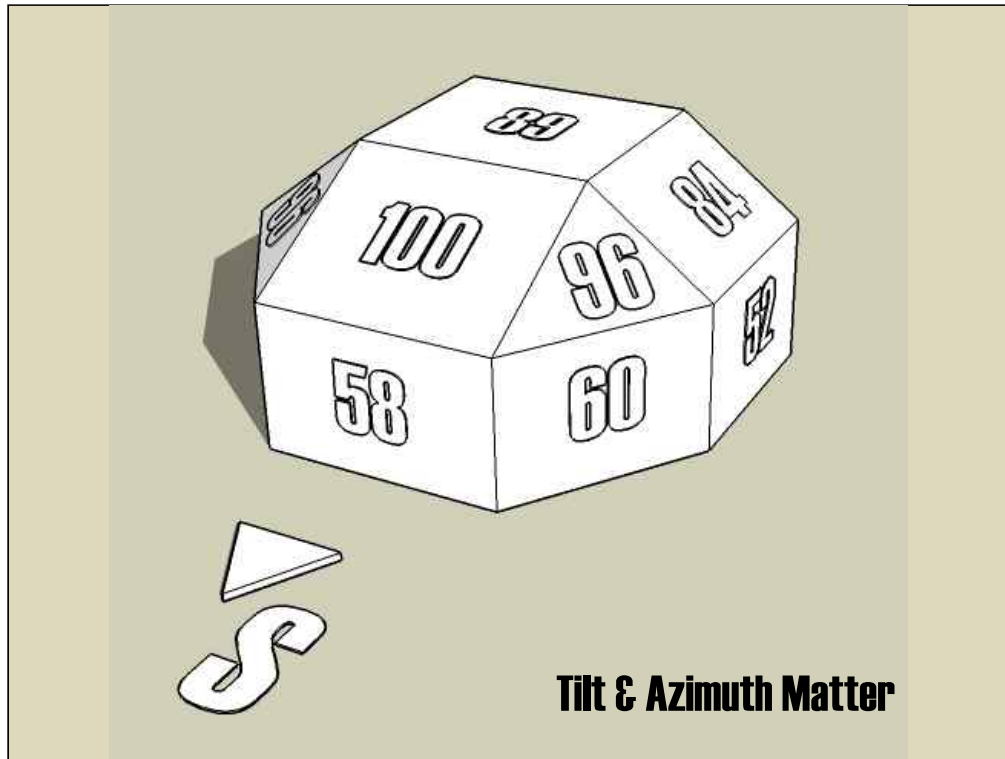
Bloom Box CO2 emissions 800lb/MHW, PG&E [LGOP 2010] 635.67lb/MWH



When you are curating your corporate real estate portfolio, this is how to look at it--

Is the building designed to work with the incident resources, or against them?

How do you redirect or intervene to get more of your desired resource—light, air, views, landscape, and less of the undesired—wind, heat, dirt and flotsam?

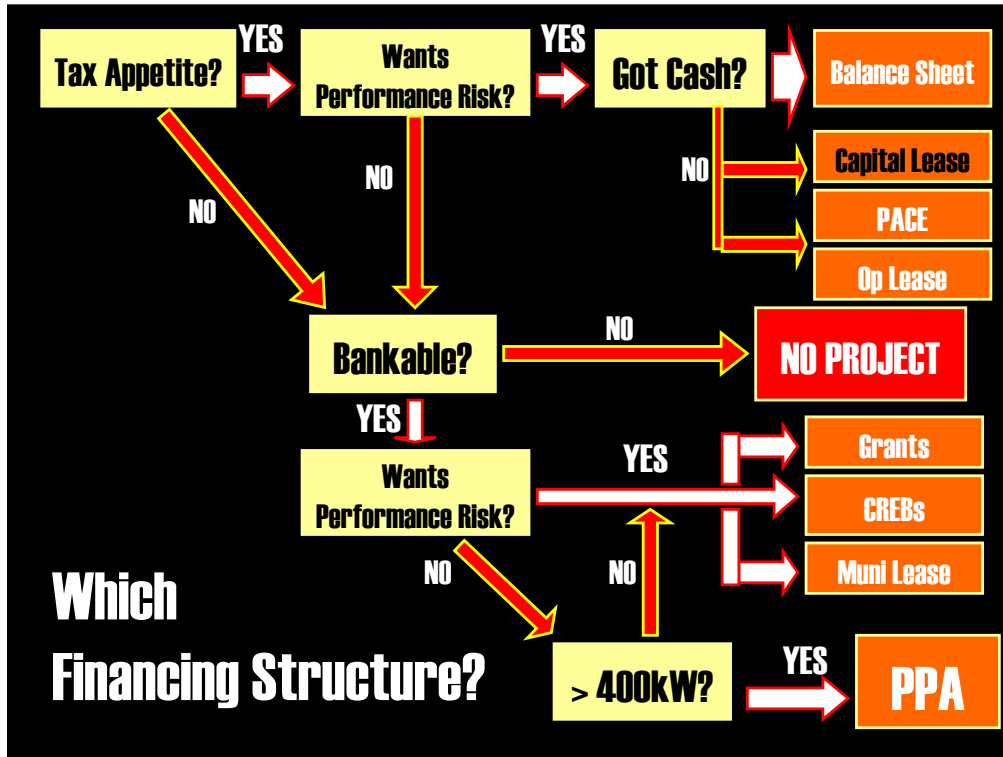


There is a relationship between tilt, azimuth and shade. The numbers represent percentage yield from arrays oriented differently.

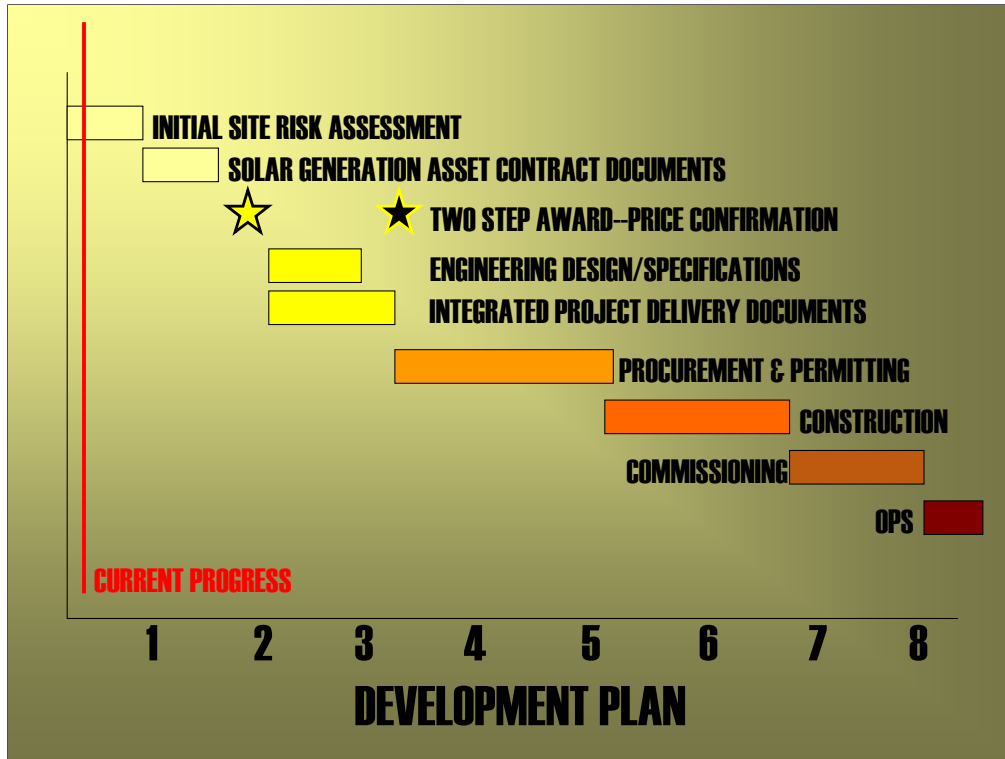
Maximum yield is achieved by a true south orientation, and tilted at latitude—for here it is a 9 in 12 pitch.

For instant feasibility—there are a number of options to get to your best fit solution.

What is the math?



Solar deployment is incentivized through federal tax policy. Structuring the capital stack for a project requires an understanding of the value of tax equity and the ability to avoid stranded depreciation.



Solar, thanks for CA AB2473, enjoys non-discretionary permitting status. Installations can be accomplished in a matter of months, not years.

Tilt Angle, Degrees	Modules Installed	Irradiation kWh/SF/yr	Max Power, kW	Energy Produced, kWh/yr	kWh/module/yr	kWh/SF
0	2726	161	640	873,000	320	16.8
5	2303	165	541	736,230	320	14.2
10	2021	168	475	659,600	326	12.7
20	1598	171	375	521,860	327	10.0
25	1457	172	342	495,670	340	9.5
30	1363	171	320	462,690	339	8.9
35	1269	170	298	427,770	337	8.2

Energy and power produced from a 52,000 SF harvestable area, azimuth 225, cSI module.

Tilt and azimuth, energy requirements, and the harvestable area are the variables a solar designer controls for. You can fit more capacity in going flat, but your yield is driven by tilt and angle. Here is the production table for a North San Jose project we performed feasibility, design, and proposed on the construction of.

About those Subsidies

\$200/MWH



Note that the federal subsidy is less than the value of benefits—renewable energy, avoided distribution capacity adds, avoided local health impacts, and a more reliable, multipoint generation portfolio.

All we need is a level playing field. If you charge the coal industry for its real economic costs, we don't need incentives to compete—we will win on a level playing field.