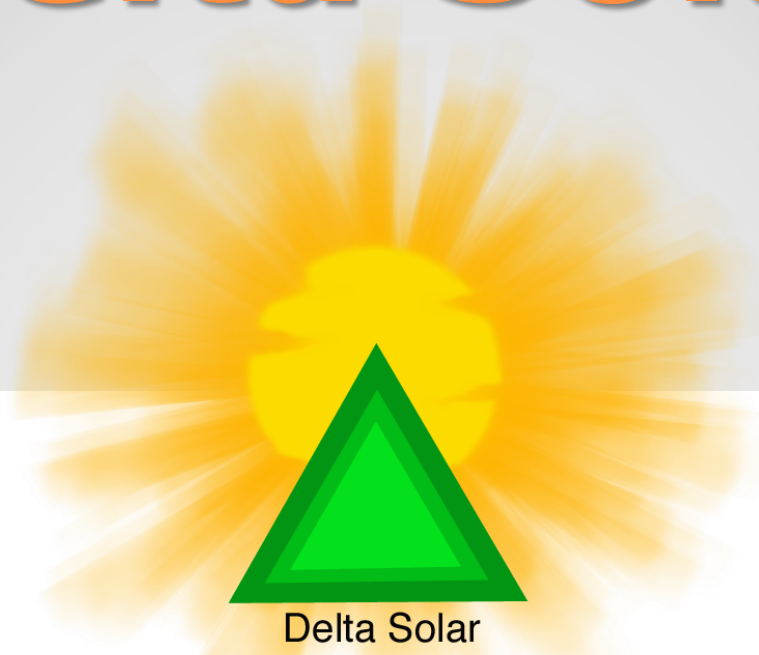


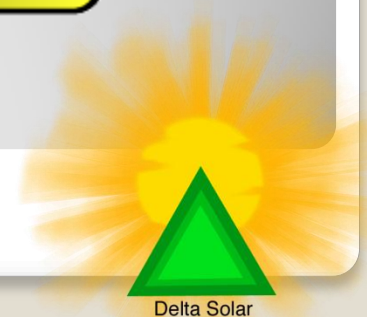
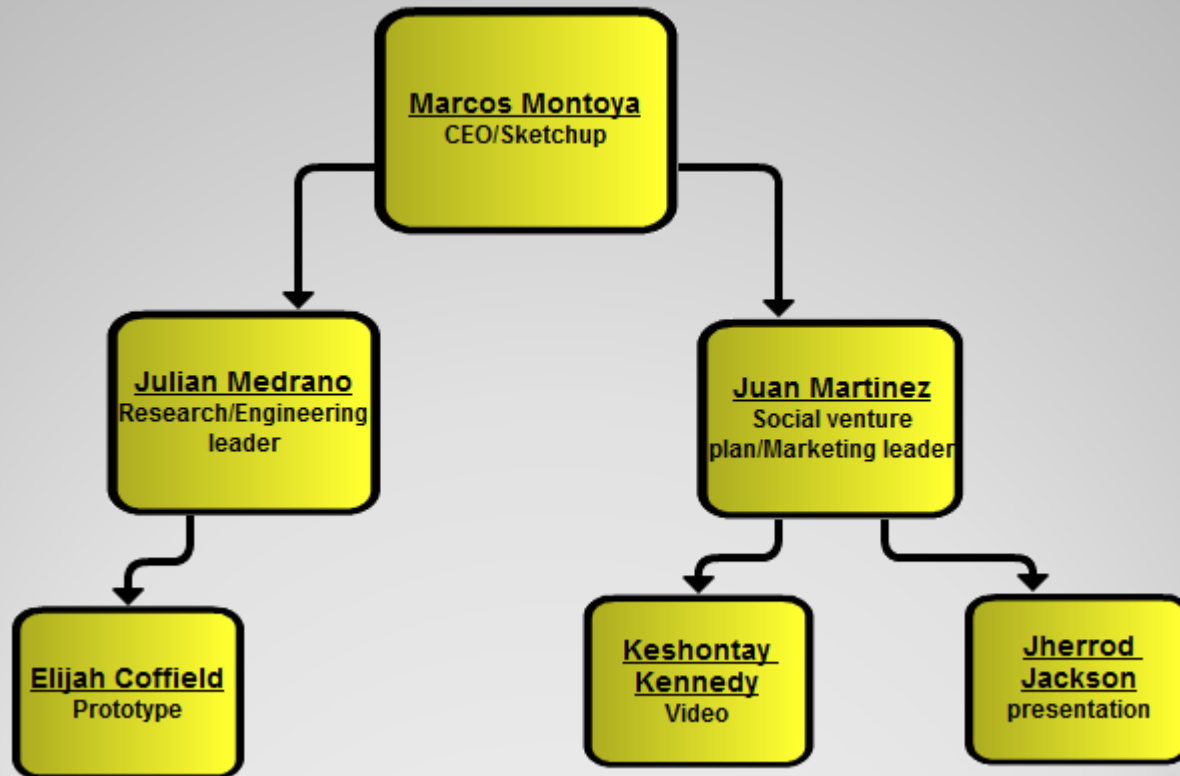
Delta Solar



Delta Solar

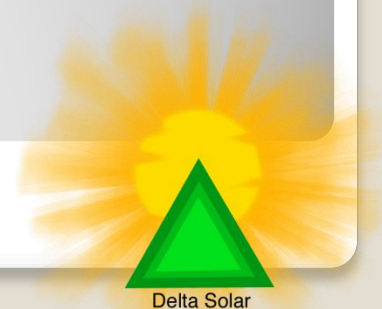
"Lighting the Path"

MANAGEMENT AND ORGANIZATION



Mission Statement

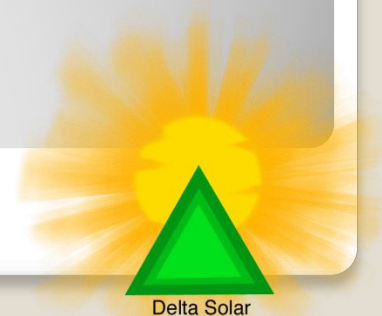
- We strive to provide electrical systems that are not only cost effective and easy to maintain but also provide a necessity overlooked by others.



TARGET MARKET AND NEED

The Colonias:

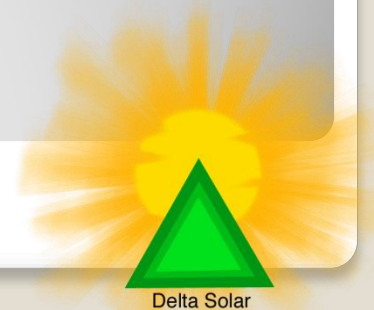
- Usually composed of lower-income individuals
- 95% of population is Hispanic
- Located along the United States-Mexico border



TARGET MARKET AND NEED

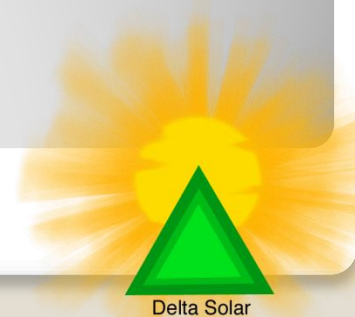
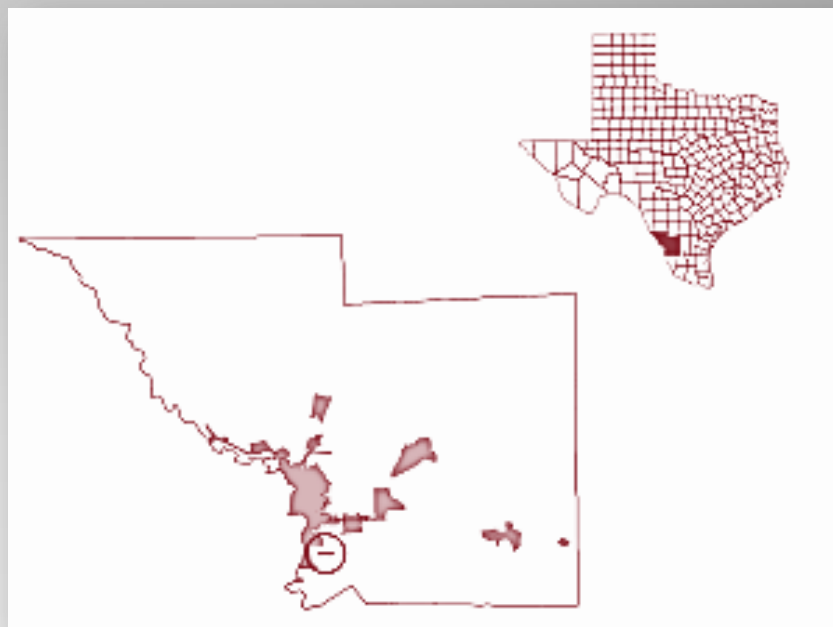
Problems

- Lack of water
- No Electricity
- No waste services
- No Health services
- No Paved roads
- No Plumbing
- Lack of “Clean Titles”



La Presa

- Located near Laredo, TX
- Currently have to pay \$2-3 for electricity (energy comes from generators)
- Population: 508 (2000 Census)

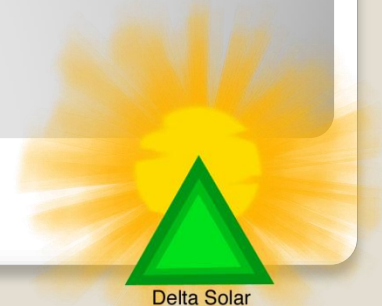


Goal

- We have been hired by TEES
- Design a solution for an off grid electrical station that will power 15 houses
- System must provide 24-hour power and meet La Presa's basic needs



Texas Engineering Experiment
Station



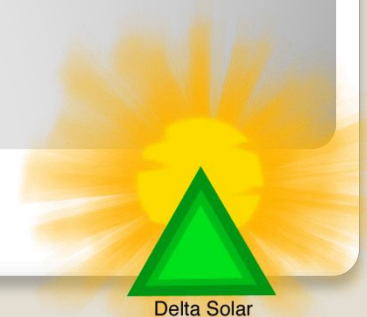
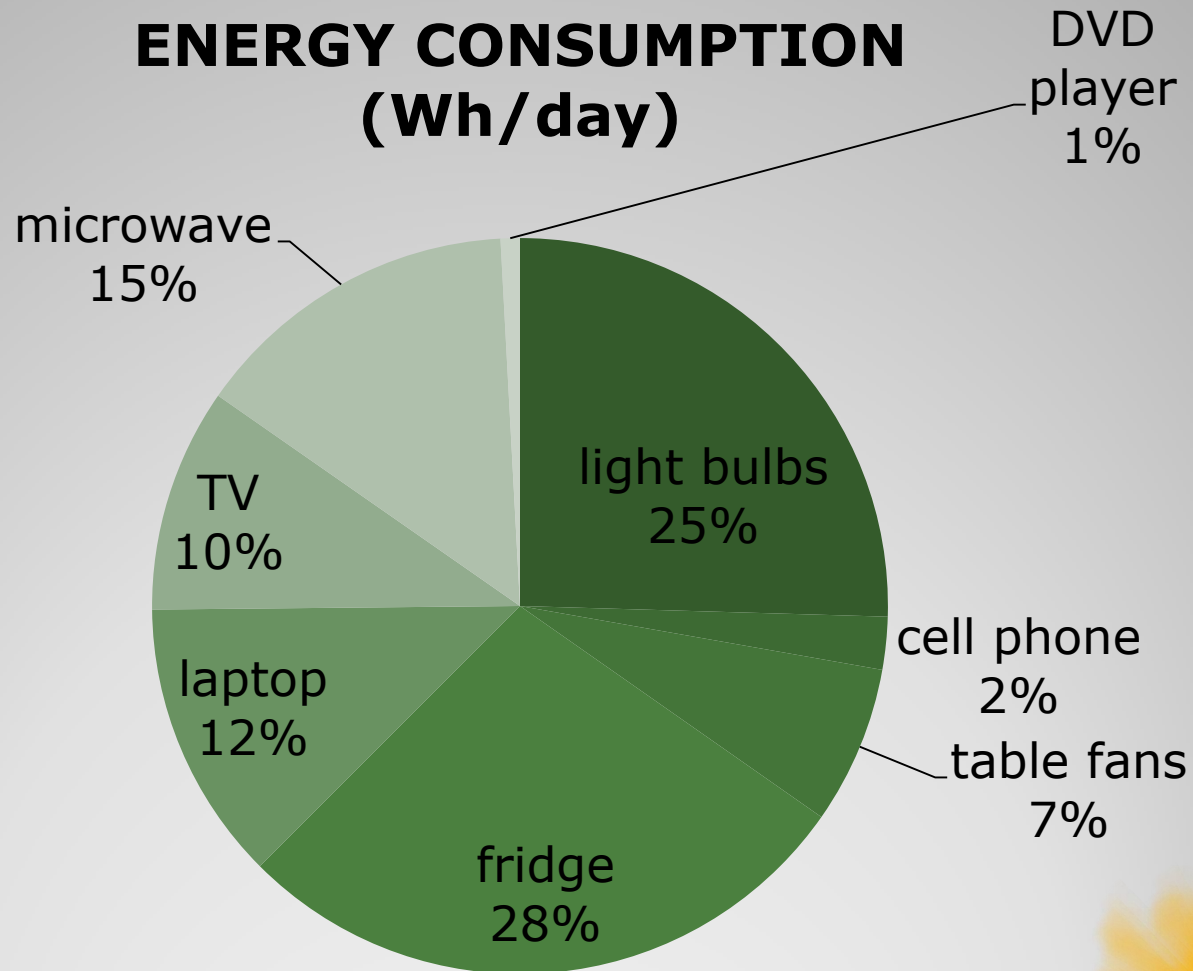
Load Calculations

Load Description	Qty	Power Rating (W)	Operating Time (hr/day)	Energy Consumption (Wh/day)
compact fluorescent light bulbs	10	11	6.00	660
cell phone / charge	2	20	1.50	60
table fans	3	10	6.00	180
Vestfrost fridge/freezer	1	60	12.00	720
laptop	1	80	4.00	320
TV	1	60	4.25	255
microwave	1	750	0.50	375
DVD player	1	11	2.00	22
Daily load (watts)				2,592
Monthly load (watts)				77,760
Monthly load (KW)				77.76
Pricing-Austin (\$.04 per KW)				\$2.88
Pricing-La Presa (Currently) (\$2.5 per KW)				\$194.40



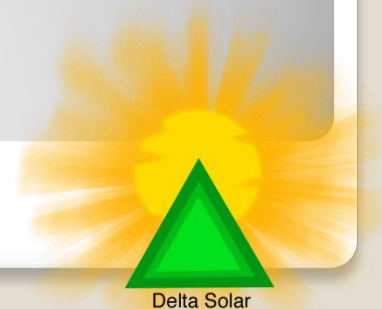
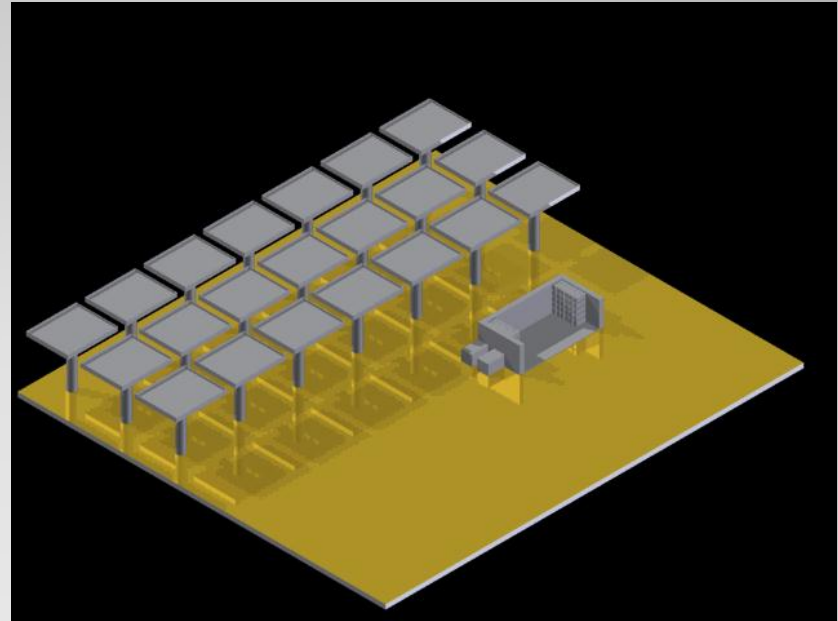
Energy Consumption

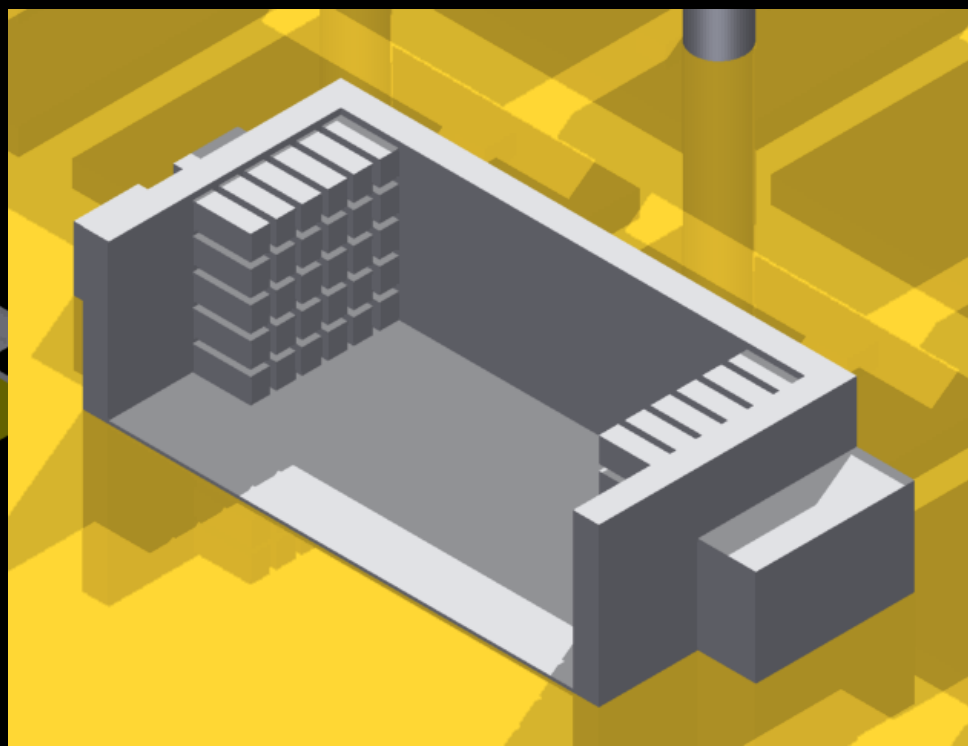
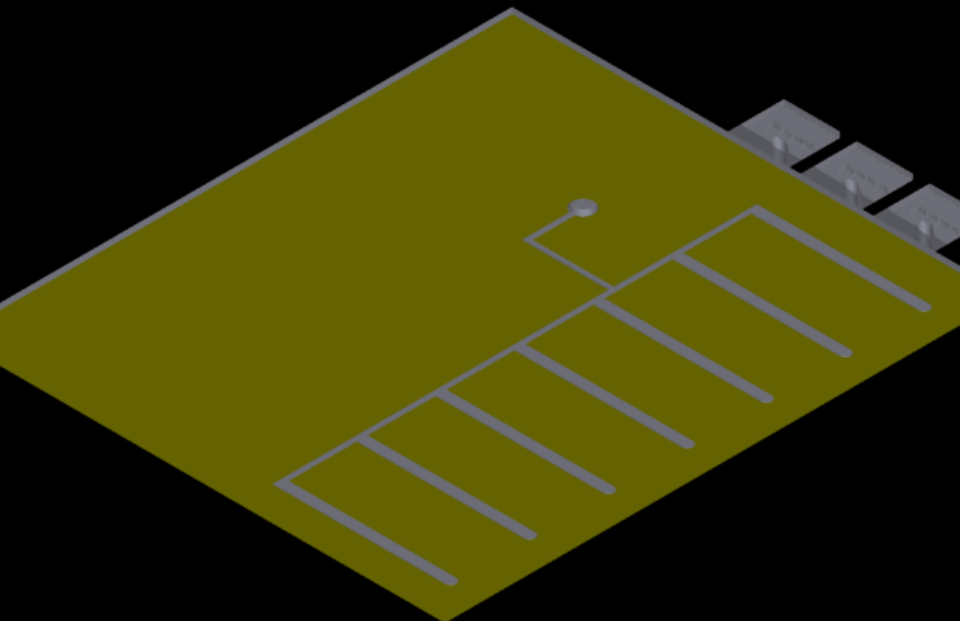
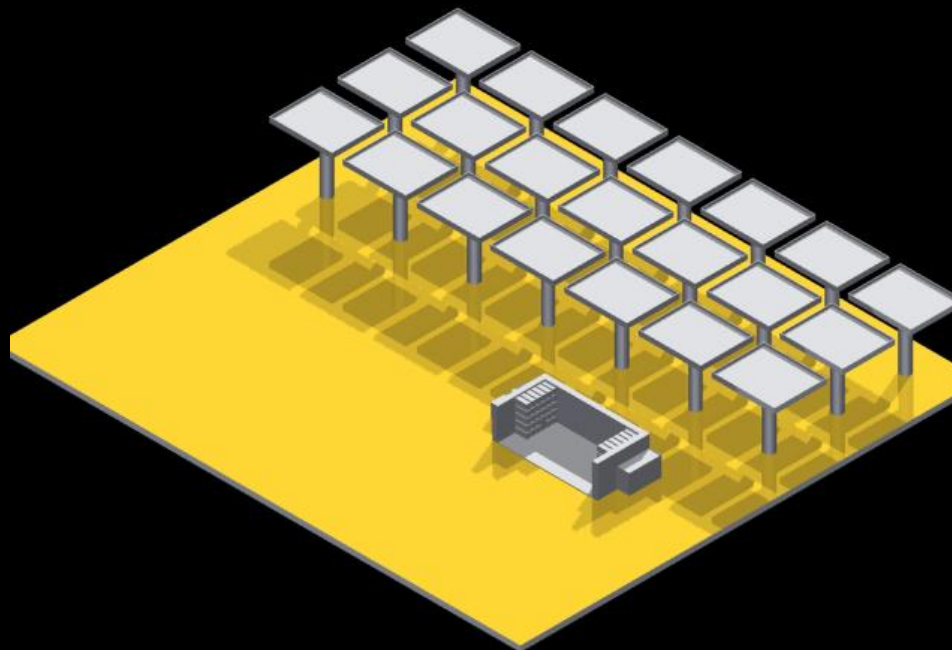
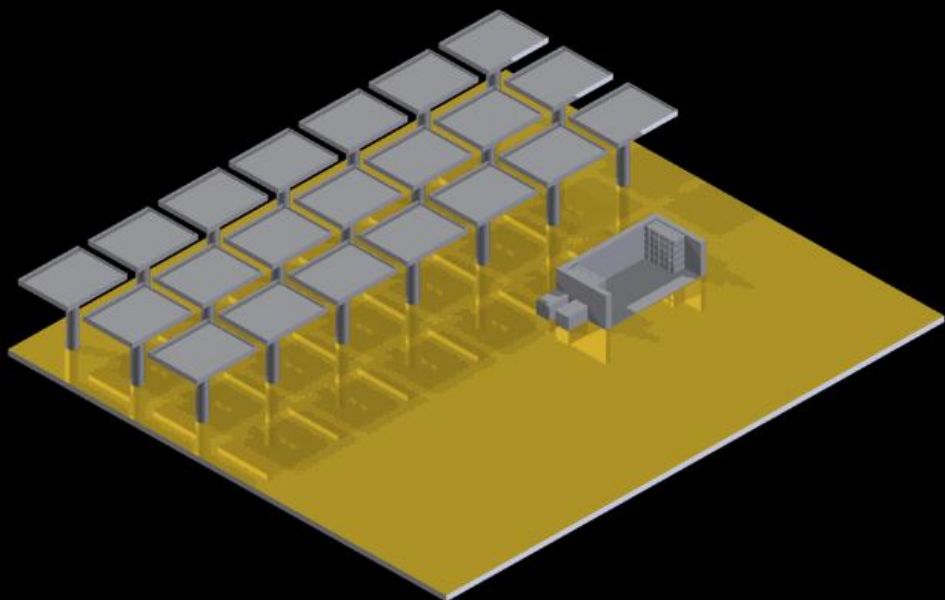
ENERGY CONSUMPTION (Wh/day)



Product Description

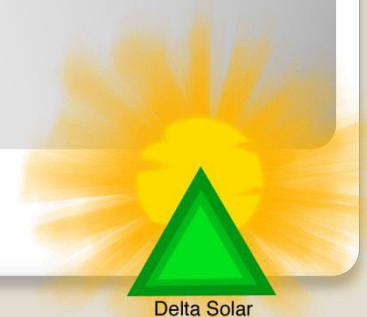
- System will consist of:
- 134 polycrystalline solar panels-280W
- 60 Gel batteries
- 1-50KW inverters
- 2-20KW generators
- Multiple circuit breakers
- Underground wiring





Research and development

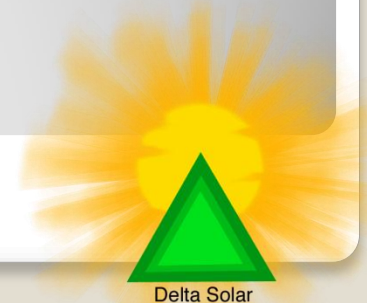
- No permit is required for installing an off-grid system outside of Laredo city limits.



Budget

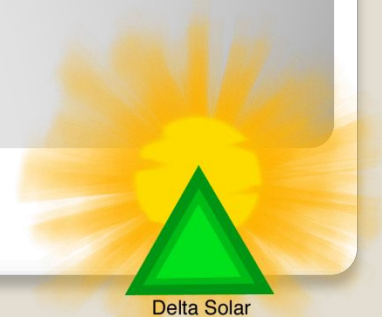
- Final Budget:
\$190,000-\$280,000

Parts List	Cost(unit price)	Qty	Total price
8GGC2-DEKA	\$ 275.00	60	\$ 16,500.00
Suntech STP280(palet 21)	\$ 12,543.00	7 packs of 21	\$ 87,801.00
Generac guardian	\$ 4,405.00	2	\$ 8,810.00
Morningstar TS-MPPT Charge controller	\$ 565.50	27	\$ 15,268.50
PV Inverter Satcon 50kw power gate plus	\$ 17,500.00	1	\$ 17,500.00
Extra Hardware/Parts			\$ 50,000.00
Total			\$ 195,879.50

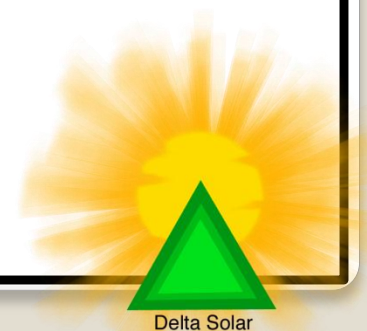
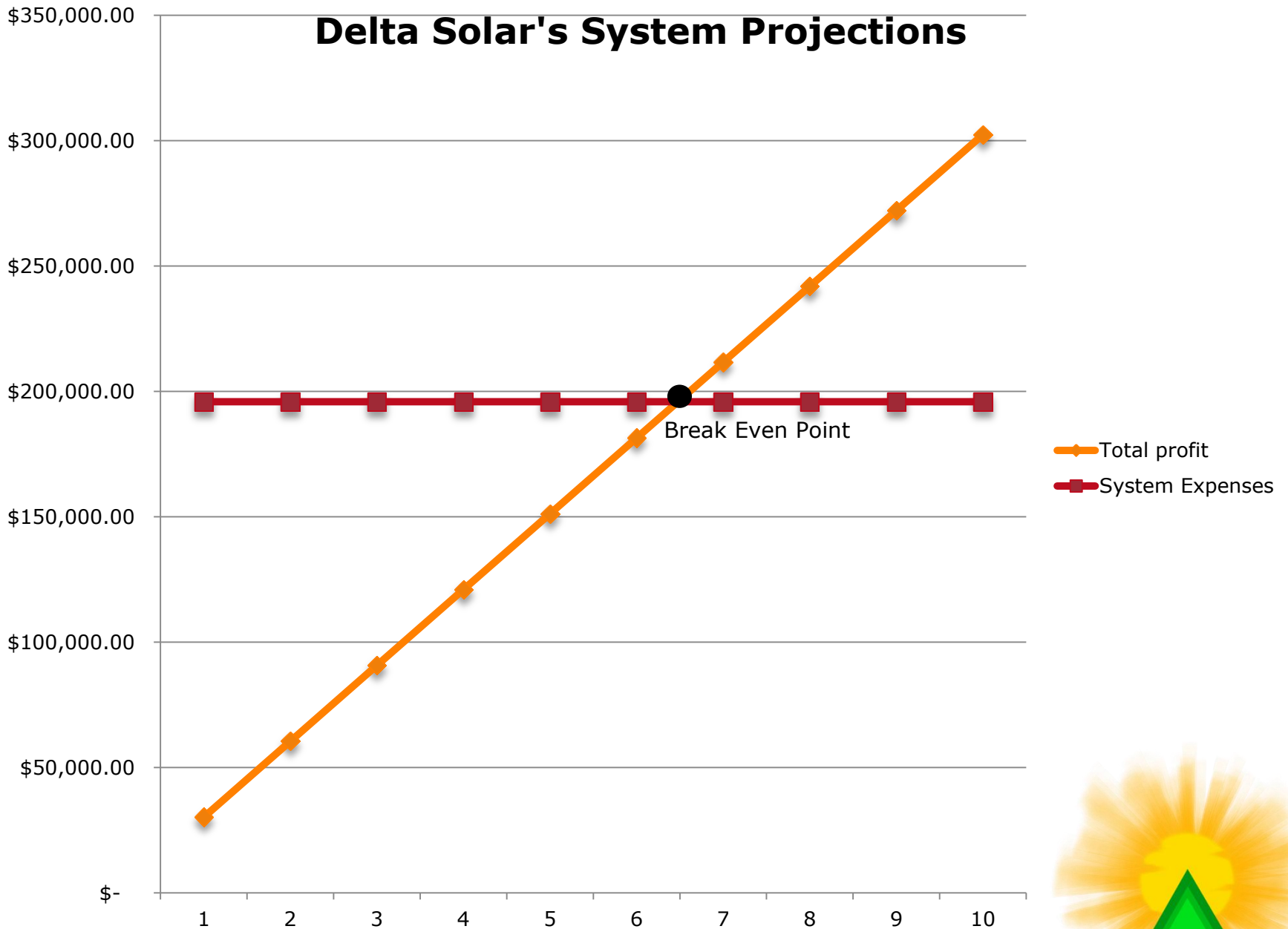


FINACIALS

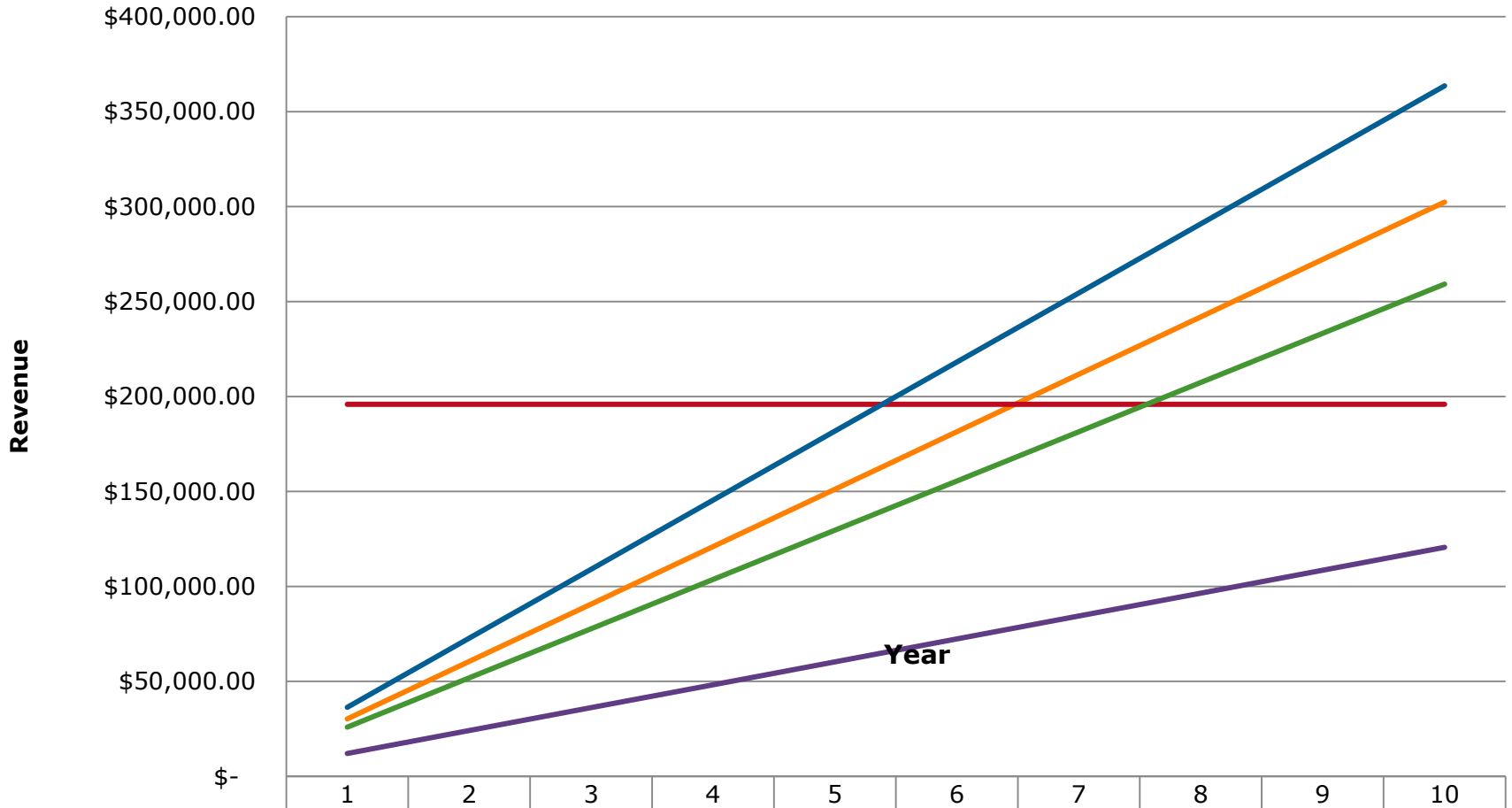
- 6 year plan
- \$2.25 per KW
- \$168 per month
- Break even point: 6.4 years



Delta Solar's System Projections



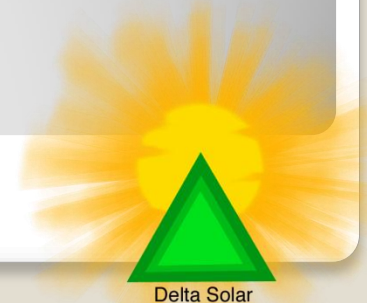
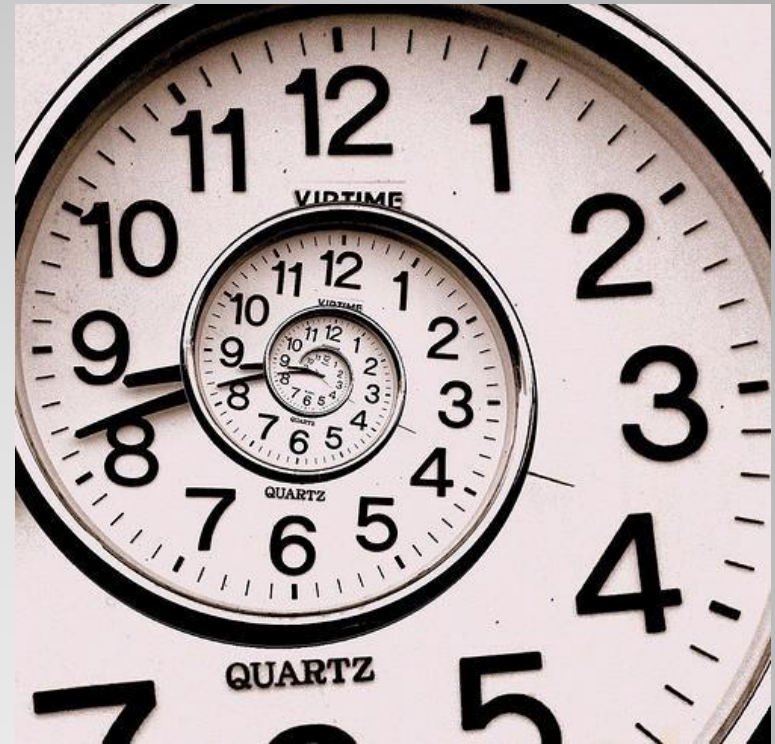
Payment Plan Options



	1	2	3	4	5	6	7	8	9	10
6 year plan	\$30,240	\$60,480	\$90,720	\$120,96	\$151,20	\$181,44	\$211,68	\$241,92	\$272,16	\$302,40
System Expenses	\$195,87	\$195,87	\$195,87	\$195,87	\$195,87	\$195,87	\$195,87	\$195,87	\$195,87	\$195,87
5 year plan	\$36,360	\$72,720	\$109,08	\$145,44	\$181,80	\$218,16	\$254,52	\$290,88	\$327,24	\$363,60
10 year plan	\$25,920	\$51,840	\$77,760	\$103,68	\$129,60	\$155,52	\$181,44	\$207,36	\$233,28	\$259,20
15 year plan	\$12,060	\$24,120	\$36,180	\$48,240	\$60,300	\$72,360	\$84,420	\$96,480	\$108,54	\$120,60

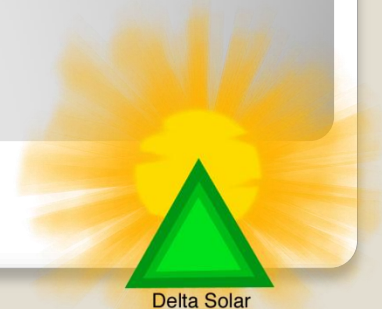
If we had more time...

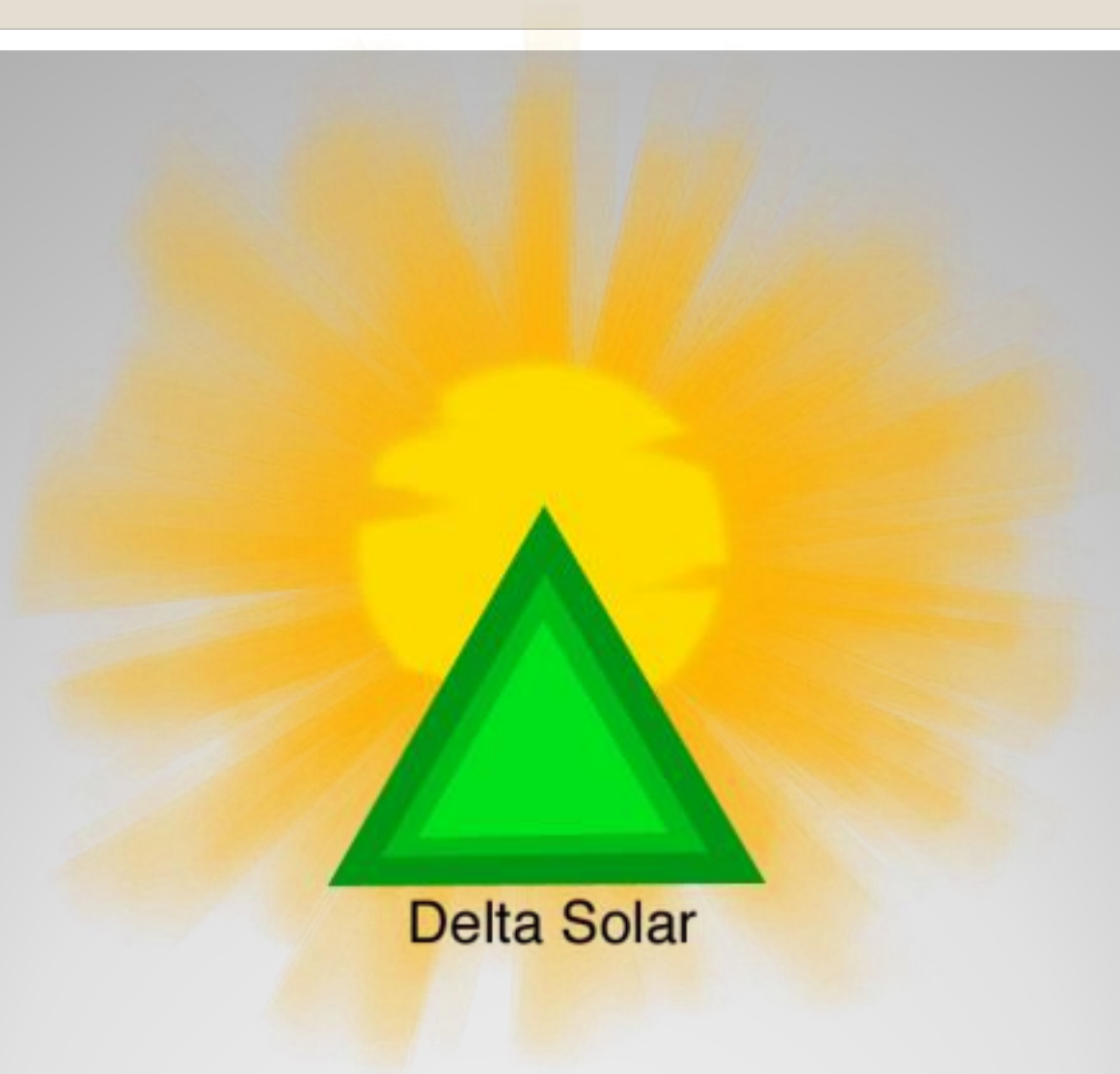
- Refined the design
- Meet more people who know specifics about La Presa
- Researched more solutions to the problem
- Gotten more information in the field of electricity



If we had a bigger budget...

- Hot swap systems (portable battery system)
- Smart-grid system
- Solar tractors
- Hire a lawyer for contracts and zoning laws





Delta Solar