

Site Evaluations for the Feasibility for Potential PV Installs in the Dominican Republic

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- Conducted a site visit to Dominican Republic
- Evaluate potential sites study abroad program
- Program based on service projects
- With a focus on using alternative energy technology to improve quality of life
- Seven sites were visited
- Sites were evaluated based
 - general need for supplemental energy
 - potential for cultural exchange
 - costs of installations
 - technical merits or potential for learning
- Pugh Chart was created to rank sites
- Trip planned for spring break of 2014.



Dominican Republic info

💡 use **89.61% less** electricity²

The per capita consumption of electricity in Dominican Republic is 1,297kWh while in The United States it is 12,484kWh.

💰 make **82.11% less** money²

The GDP per capita in Dominican Republic is \$8,300 while in The United States it is \$46,400²



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Dominican Republic info (cont)

- ⚠ Total installed electricity capacity (2010): 5,518 MW¹
 - Fossil fuels (coal, fuel oil and natural gas): 86%
 - Hydro-power: 14%.
- ❑ Distribution networks cover 88% of the population, with about 8% of the connections thought to be illegal.¹
- ❖ Distributors' gross margins amount to a loss of US\$1.76 billion³
- Results in scheduled and unscheduled blackouts in order to cap costs³
- Average of 25.6 electrical outages a month (more than one blackout per working day)⁴

Site Visits



Site 2: small village, very bad roads, far away from the camp, building construction was poor, great need for electricity



Site 3: in town site, no official electricity, nice site for a simple PV install, good working relationship with camp



Site 7: close to the camp, already done a fair amount of work done, lots of trees, poor structures



Site 4: new main community build, great roof for a PV, power could help whole community, many people stealing power



Site 5: unknown power needs, 40 volt drop from the transformer, wants PV installs, needs remove or top the trees

Site Visits – Site 1



Elder is forward thinking, bio digester doesn't look very well.

Off the grid already, Hydroelectric 10KW system that was generating 220 volts at about 100 amps put in by Cornell about 16 years ago. Needs repair.

About 15 minutes from the camp. To get to the village requires you to go down over 200 steps.

They also had a small PV system that was recently stolen.

Site Visits – Site 6



small town on the side of a hill just been hooked up to the grid “mayor’s” home had inverter that did not work and two batteries not hooked up. The roof was flat and was facing south with great exposure. There is new church which has a tree that would block the sun but is right next to the flat roof house and could possibly share power with the church. Used common freezer for whole town.

Evaluation – Pugh Chart

Rubric for Pugh

a.) need for supplemental energy - how much does the site actually "need" supplemental energy?										
b.) potential for cultural exchange - how much opportunity does there exist for cultural exchange?										
c.) costs of installations - what is the expected cost of installation?										
d.) technical merits - how much could the students learn from the install?										
a). need			b). exchange			c). costs score			d). merit	
doesn't have	4		great	4		0 to 1K	4		great	4
stealing now	3		average	3		1K to 2K	3		average	3
has it	2		minimal	2		2K to 3K	2		minimal	2
self sufficient	1		none	1		More than 3K	1		none	1



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Evaluation – Pugh Chart

	Sites	Selection Factors				Score
		need for supplemental energy	potential for cultural exchange	costs of installations	technical merits or potential for learning	
1	Majaguita	1	4	4	4	13
4	El Callejon	3	3	2	3	11
6	Mata Deplatano	2	3	3	3	11
3	Hipolito	3	3	2	2	10
2	Angusto	2	3	2	2	9
5	Haitian Community Center	2	2	3	2	9
7	Pinar Quemado	2	3	1	3	9

References

- 1 - <http://www.reegle.info/policy-and-regulatory-overviews/DO>
- 2 - <http://www.ifitweremyhome.com/compare/US/DO>
- 3 - http://www.bcpsecurities.com/textos/update3/BCP_Securities_Report_on_Dominican_Electricity_Sector_Egehai_and_Aesdom_and_Itabo_September_15_2010.pdf
- 4 - http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2012/04/24/000158349_20120424091546/Rendered/PDF/WPS6049.pdf



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Site Visits

Site Visit
Dominican Republic



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Site Visits – Site 1



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Site Visits – Site 6

Site Visit
Dominican Republic



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