

Harvesting Energy Using Solar Panels

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Why Use Solar Energy?



- Saves energy
 - Laptop used 5 hours a day uses about 65 kWh in one year
 - Cell phone (always on) uses about 11 kWh in one year
 - Estimated 350 million laptops in use
 - Estimated 4.2 billion cell phones in use
 - If all were charged by solar, could save **68.95 billion kWh annually**
 - Enough to power about 6 billion homes for a year!

Why Use Solar Energy cont'd

- Power available anywhere
 - No access to outlets, i.e. emergencies, traveling, etc.



Advantages to Solar



Sunlight is free and *unlimited*



Low running cost



No green house gas emissions

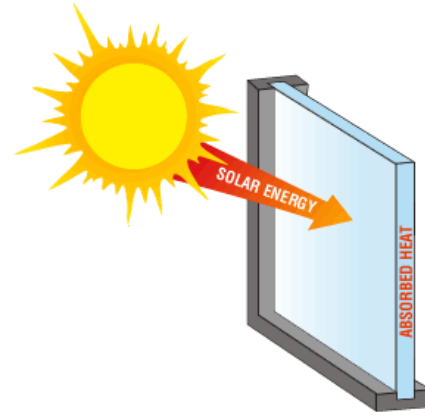


Easy maintenance (few moving parts)

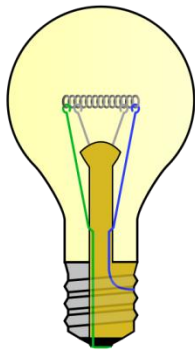
Disadvantages of Solar Panels



Can't be used at night



Can't be charged through glass



Can't be charged by light bulbs



Some solar panels are bulky and heavy

Limitations of Solar Panel Use

- Light Intensity Matters
 - Clouds, height of the sun in the sky, shadows from obstructions all drop the light intensity drastically
 - i.e. harder to charge in the winter than summer, and can't charge on days with bad weather
 - Minor angle differences result in much lower light intensity, panel should be pointed directly at sun

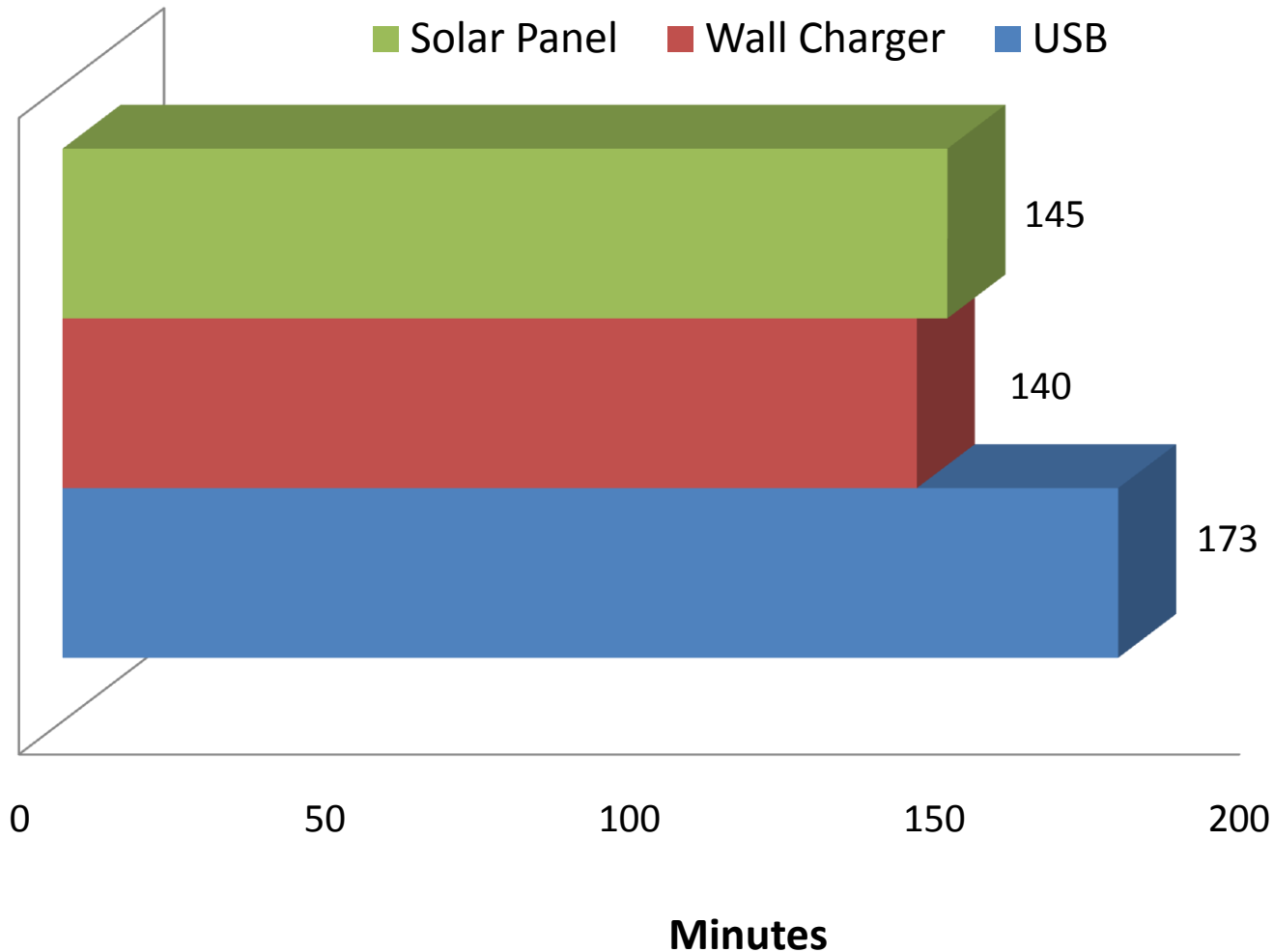


Other Ways to Use Solar

- Charge mobile devices in a place of business or home powered by solar energy
- Charge mobile devices in a solar powered car



Charging iPhone 3GS with Different Sources



How Does Solar Compare?

Conclusion

- Solar power charges mobile devices just as efficiently as other methods, in optimal conditions and is available when other power sources are not
- Solar power is a very eco friendly and sustainable resource
 - If all portable phones and laptops were charged using solar energy for a year, it would save 89.64 billion lbs of CO₂ emissions, based on average 1.3 lbs of CO₂ per kWh, which equates to:
 - Driving about 115 million cars for 200 miles
 - Running about 218 million air conditioners for 30 hours
 - Running about 409 million electric dryers for 8 hours