

तमसो मा ज्योतिर्गमय
Let there be Light

 Niwesh tech[®] TM
Earth caring energy solutions


Niwesh Tech Private Limited

Earth caring energy solutions

OFF-GRID

SOLAR POWER SYSTEM

Clean, green, affordable, 24x7 electricity for
small homes, medium commercial establishments
large bungalow with multiple air-conditioners
medium scale factories with heavy machineries

 Niwesh tech[®] TM

Manufactured by:

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Made in India
made for the planet

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Niwesh Tech Pvt. Ltd. Brief Introduction


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Our planet, Mother Earth has given birth not just to one species "we the humans" but millions of life forms. It's hence the duty of entire mankind to care for her, because the existence of human race depends on it.

Two women (Mother and daughter, Sasmita S. Akhtar and Nishka Akhtar), in a tiny effort to restore the bleeding Mother, have founded Niwesh Tech Pvt. Ltd.

A Start-Up, dedicated to harvest solar power into clean green electricity and also to make highly energy efficient electrical appliances, made in India.

Think globally, act locally is the mantra of this Start-UP. Though the core area of Niwesh Tech is off-grid pure solar power plant, starting from 4 KW to up to 54 KW (as of now, Niwesh Tech will also make bigger solar power plants of several MW in near future), the prime focus in the initial years would be to invent, develop, create, manufacture solar powered products for the underprivileged, rural and remote areas.

Nature provides enough for the basics of the entire life forms on the planet, including mankind but the reason of destruction of the planet, is not because of human need but greed. Humans have forgotten where to stop. We are all in a race to add that one additional commodity to make our lives easier and more luxurious. We continue to unhindered despite several warnings from nature. Human activity over the last 200 years has brought us to the brink of an environmental disaster. Yet there are remedies we can still follow to minimize the damage.

Solar energy is a renewable source of energy, which is also abundant and easily accessible. By going solar, we can reduce the demand for fossil fuels and limit greenhouse gas emissions. We can use solar power to run our entire home (or commercial establishments, or medium scale factories even at present) and save ourselves from hefty electricity bills as well. Solar power is not only clean, green but also everlasting.

Energy Crisis, due to several factor, like the ever-rising demand (to be increased many folds due to Electric Vehicles) and shortage of resources like coal etc. is going to hit the entire world maybe sooner than we can imagine. Solar power may be the solution to the forthcoming crisis, besides slowing down the climate change.

Niwesh Tech hence, aims to provide a balance between clean, green, renewable energy at an affordable price while educating people on ways to minimize their carbon foot print. While pleading to lead a minimalist life, its focus is providing earth caring energy solutions, which are not only affordable but also of fine quality to last for decades. In the near future, Niwesh Tech also aims at introducing several innovative solar powered products for the agricultural sector as well as for rural transport.

Need for Solar Power

The ever-increasing need for power of modern life has catastrophic effect on environment. Now the Climate Change is real. Any thermal power plant either using coal, gas, or nuclear has its own consequences. Besides, all these natural resources are limited.

Vehicular pollution has crossed the threshold and the air is hardly breathable in most of the cities worldwide, hence switching to Electric Vehicle is more of a compulsion. But while switching to EV will solve the Air Pollution, it will create huge demand for electricity for charging, hence the energy crisis in just few years is bound to hit us all over the world.

Out of all renewable energy, Solar power is the most constant and have no negative impact like Hydro-power Huge Dams. Sooner or later, the only clean, green source of electricity will be Solar Power. It's not the source of the future anymore, rather future is now.

Grid-Tie and Off-Grid Solar Plants

In Western, developed Nations, there is no concept of "Power Failure", and their Grid System is smart, which manages itself as per available power and load. Their connectivity to each other makes them highly efficient. Whereas, in our Nation (India) and in other developing countries, the Grid is not "Smart" means it does not do two-way communication with the household and the power plant.

So, in developed countries Grid-Tie Solar Power Plant is successful, whereas in our Nation, this Grid-Tie System will sooner or later will make the grid fail in peak hour of optimum solar power (which has already started happening in few states in India).

Grid -Tie System has another major drawback that the solar plant will generate electricity only when the utility power (electricity) is available. In case of Power failure, Grid-Tie Solar Plant will not generate electricity. Moreover, the electricity generated by the Grid-Tie system can't be used for domestic or industrial use as the AC voltage is highly fluctuating from 90 to 280 Voltage.

Off-Grid Solar Plant means that one can use the electricity generated by the solar plant for domestic as well as industrial use as a stand-alone unit without need of power supply. The Off-Grid Solar Power technology is in its infancy and most of the company dealing in Off-Grid Solar Plant don't have the technology to run heavy induction-based loads like Air -Conditioners, or heavy machinery.

Niwesh Tech has developed in-house Off-Grid smart Solar Power System that runs almost everything like Air-Conditioners, Washing Machine, Microwave oven, Induction plate etc. for domestic use. For Industrial use, our Off-Grid Solar Plant also runs welding machines, heavy motors, Heavy cutters, etc. purely on Solar Power.

Understanding solar power and energy conservation

Till few decades back, harvesting solar power and generating electricity was a distant dream. Now its reality. Not only Air Conditioners but even factories can run on pure solar power that too off-grid. In fact, the core area of Niwesh Tech is off grid Solar Power Plants which can run even heavy machinery purely on solar power, even without battery in the day time.

But still, we have a long way to go when it comes to achieving high efficiency in solar panel. At present most of the good Mono crystalline panel have 17 to 20 % efficiency. In common man's language 1 square meter area has the potential of 1000 watts in proper sunlight by 100% efficient solar panel, in peak time. Whereas so far one panel taking 1 square meter is hardly 90 to 130 watts that too with the best solar cells. So, harvesting solar energy itself as of now is not so efficient.

Besides solar radiation varies from place to place. Fortunately, India is one of the world's best areas for harvesting solar energy as per the global solar radiation map. Still, since the efficiency of the solar panel is not very high even today, it's very precious as being clean, green, energy.

So, it's important to place the solar panel in south direction with 18-degree inclination (the degree of inclination varies from place to place), where proper sunlight is available without any obstruction or shade to get maximum output from the solar panel.

Our Solar Power Systems are highly efficient, but unless we use high energy efficient appliances, the goal of having a better environment where our planet can heal again cannot be achieved.

Application of Niweshtech Off-Grid Solar Plants

Even now, the demand of electricity is rising and our grids in India are on verge of their self-life, sooner than we can possibly imagine, energy crisis is bound to hit us hard. China is a proper example.

Due to non-functioning of solar projects (off-grid), including most of the solar street lights, people at large are hesitant to switch to solar. The only use of grid-tie solar plants is being used for residential purpose mainly to reduce the electricity bill.

Our off-grid solar plants starting from 3.5 KW to up to 54 KW are truly off-grid and our own improvised MPPT technology and high frequency inverter makes it possible to run heavy induction-based load absolutely without grid power and even without battery in day time (though small basic battery pack is required to keep the system stable.)

Here are some practical applications of our off-grid solar plants.

1. Domestic Use



Not many people can foresee the upcoming energy crisis, but even today people are choosing to switch to solar power even if its grid-tie to save on electricity bill. Whatever may be the reason, either to save the electricity bill or to be self reliant, our off-grid solar plants are way ahead in comparison to grid-tie system. In the day time the entire load will be on purely solar power, hence the electricity bill will be reduced by more than half.

In the night time, one can use utility power (our systems are deigned to take solar inputs, utility inputs as well as battery packs.) In case of power failure during the night, the system will switch to battery power. Hence there will be no need of additional inverter.

Technical feasibility

Our Systems are high frequency converter technology, hence it runs every induction based load, including air-conditioner, microwave oven, induction plate, fridge etc. The entire load of the house can be run on our solar power plants.

Economic viability

As a matter of fact, our system of 3.5 Kw out put is good enough to power an entire floor including one air-conditioner. If we calculate the electricity bill saving, in domestic use , in juts three years , the entire cost of the plant will be recovered.

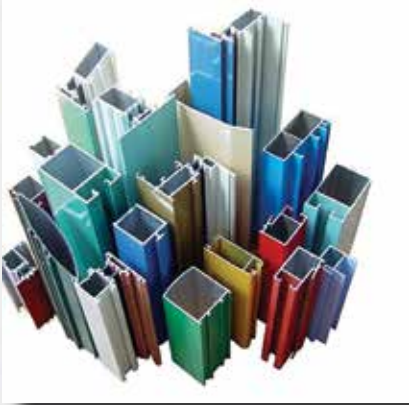
For an independent villa, our 6KW out put plant can run three air-conditioners simultaneously. Which will make the recovery of the investment in just two years.

Concern

Would the cost of battery being consumable be very high? Not really. Firstly during the daytime, battery is not used at all as like in hybrid plants and our efficient MPPT solar charging uses pure DC current for fast DC charging , which rather enhances the battery life.

Besides, if one is using the grid power during the night , battery will be used only during the night in case of power failure.

2. Aluminum Fabricators



This is a huge industry today and has become indispensable part of construction industry. This workshop needs cutter (2500 watts) and other tools (mostly below 1000 watts).

Technical feasibility

Not all the tools are used simultaneously, so our 3.5 KW (24 Volt battery system) can be sufficient for such workshop.

Economic viability

As a matter of fact, the place for such workshop needs to be located in such place where one can get commercial electricity. Thus, the cost or rental of such real estate is much higher. With our off-grid plant, one can establish the workshop anywhere, where cost or the rental is cheap, as the grid electricity will not be required.

This way, our plant will pay back just within 18 months and after that for next 25 years (we use panels of 30 years life), the electricity would be free. This will reduce the cost of the fabricator and thus the fabricator using solar power can offer better price, which in turn will increase the business.

Concern

What if there is no sun for few days in rainy season and the workshop needs to run 365 days? In such scenario, there are two technical possibilities. One is to increase the number of panels and second is to increase the battery pack, or both. Since this sector is highly profit making by the fact that raw materials are bought by weight, but sold by measurement, resulting in high profit. Thus the additional cost of panel and batteries will be recovered by running 365 days.



3. MS / GI/ SS Fabricators



This is a huge industry today and has been indispensable part of construction industry. Besides, in every small place even for agriculture sector a welding shop is must. The welding workshop needs to run Welding machine, cutter (2500 watts) and other tools (mostly blow 1000 watts).

Technical feasibility

Not all the tools are used simultaneously, especially when welding machine is used the cutter is not in use, so our 5.5 KW (48 Volt battery system) can be sufficient for such workshop. The welding machine to be used with our solar plant has to be Inverter Welding machine.

Economic viability

Welding machine is hard to run even on diesel generator. Our solar plant run an inverter welding machine at ease. Moreover the place for such workshop needs to be located in such place where one can get commercial electricity. Thus, the cost or rental of such real estate is much higher. With our off-grid plant, one can establish the workshop anywhere, where cost or the rental is cheap, as the grid electricity will not be required. This way, our plant will pay back just within 18 months and after that for next 25 years (we use panels of 30 years life), the electricity would be free. This will reduce the cost of the fabricator and thus the fabricator using solar power can offer better price, which in turn will increase the business.

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4. Wooden furniture factory



Be it rural or urban area, wooden furnitures have been integral part of human civilization. even today most of the carpenters use at least electric wood cutter. In this industry at a factory scale almost all electric tools are now available to fasten the production.

The heaviest load of this sector is not more than 3000 watts. This sector is also ideal for solar power, since the final finishing is always done manually. The need for electricity is limited to initial start of any furniture , hence during the day time, or off-grid solar plants will provide sufficient power to run the entire factory.

Technical feasibility

Not all the tools are used simultaneously, just like any other factory. So for a medium size furniture factory our 5.5 KW out put off-grid solar plant should be sufficient. If the unit is large , by putting two 5.5 KW plant will meet the entire requirement.

Economic viability

Furniture making is a profit making industry , but for the speed of carpenters. By using solar electricity and the right electric tools, the speed of production will increase phenomenally and hence the plant will be absolutely worth the investment. For any furniture factory, keeping the quantity and speed of the production by using solar powered electric tools, the cost of the plant will be recovered within one year.

Concern

For a furniture factory , there is hardly any concern. If the factory needs to run till late night, we can always provide custom solutions for sufficient bright lights, where manual work can be done.



5. Dairy Farms



Dairy farms from small scale to medium scale are almost in every part of our nation. Even if its just a basic dairy farms , for the comfort of the cattle and also to increase the productivity, at least air-coolers are required. Hence the dairy farmers are forced to put their dairy in a place where electricity is available. This also causes wastage of otherwise either fertile or of more valuable land.

Technical feasibility

Starting from running any number of air-coolers directly on solar power, without any plant, battery or electronic devices, we at Niweshtech can offer customized solar solutions for lifting the water to overhead tank for air-coolers, and drinking water for cattle. We can also make solar powered fodder machine. Even the butter making and ultimately making ghee by electric machine is very much possible.

Economic viability

Dairy farms are never loss making business. With our customized solar solution, the Dairy farmers will be free to setup their dairy at any non-fertile land and save on setting up cost.

Whatever maybe the investment for such custom solution , it will pay back within 18 months..

Concern

For dairy , there is hardly any concern as far as monsoon or cloudy weather is concerned. It makes more economical sense to use solar power for heavy loads, when available instead of using battery for this sector. Due to high humidity, fans and lights will be required, which does not require much battery pack.



6. Agricultural Sector / irrigation by tubewell



Many educated people, who does not have much connection with rural India, might believe that there is no scarcity of electricity anywhere in India, but the fact is agriculture is most neglected sector in our nation. Irrigation by tube well is the only way for which electricity is scarce and that too comes almost in the middle of the night.

Technical feasibility

Even if the conventional bore well / tube well water pump is to be used our 7.5 KW system will run the tube well for almost 10 hours everyday.

We can also offer our own (under development) energy efficient pump which will run only on 6 KW.

We are also developing 4KW pure Solar/DC pump which will run purely on Solar power and will not require any battery or electronic interface.

Economic viability

The cost of the solar tube well can be shared by a small group of farmers, hence it will be highly affordable.

Concern

For this particular sector, the advantage is that tube well irrigation is not at all required in Monsoon. Hence there is no concern as far as agricultural irrigation sector is concerned.

7. Small and medium scale labor intensive industries



The best of part of Solar energy is that it provides at the peak time. Not all industries are capital intensive which needs to run 24 x 7 (for which as of now because of the battery cost solar plants many not be economically viable).

In sectors like, leather industry, garment fabrication, small zip manufacturing and so on , where the factory needs to run only in day time, Solar power plants are ideal. Such industries have been looking for off-grid solutions for quite some time in India.

Technical feasibility

Almost any machinery of any wattage can run on our customized solar plants up to 54 (effective 50) KW.

Economic viability

The cost of the such off-grid solar plant will not be very high as it will be designed in such a manner that the heaviest single load will be considered first and then for other smaller requirements , individual 6 KW plant will be used. In industrial sector recovery of the cost will be much faster (less than 18 months).

Concern

For this particular sector, the advantage is that not much power will be required at night so , basic battery pack will be sufficient. For uninterrupted power supply, for industrial sector, we would recommend additional 50 % solar panels , to be used during cloudy or rainy season.



8. Hospitality sector / Eco-Resorts



Though Covid-19 hit the hospitality sector the worst, nonetheless its quite a large sector. Technically any dinner or small resorts (not centrally air-condition) can be powered by our off-grid solar plants, which will be highly economically viable, but there is one particular small resort sector that is in dire need of off-grid Solar power.

Luxury Adventure tourism (or so called Eco-tourism) is on rise. Most of these resorts are in natural surroundings, and various national park . Most of these places don't have electricity and diesel generator is used for power. Such resorts will not only save loads of money that is being spent on diesel , but will also save the natural habitat from emission.

Technical feasibility

Yes, everything including air-conditioners can be run on our off-grid solar plants.

Economic viability

The cost of the such off-grid solar plant for resorts (since resorts are not centrally air-conditioned) will not be very high as it will not have single load which will be higher than even 3.5 KW (that too only electric cooking range takes that much wattage). Only multiple 6 KW plant will be used as per requirements.

In this sector cost of the plant will be recovered in just two tourist season.

Concern

To make the air-conditioners run throughout the night, just proper battery packs will be required to run the resort 24 x 7.

9. Education / Private School and Colleges



Since the liberalization, education sector can safely be called "industry". There is mushrooming of private schools, colleges, engineering college , medical colleges , private universities etc all over the country.

Fortunately, even in Delhi , there are norms like minimum area, vertical limit for schools. That makes almost every educational institution a very promising sector for off-grid Solar plants. Since there will be sufficient space to put the solar panel, Its quite possible to convert any educational institution (not the centrally air-conditioned classrooms kind of institute).

Technical feasibility

Yes, everything including few air-conditioners can be run on our off-grid solar plants.

Economic viability

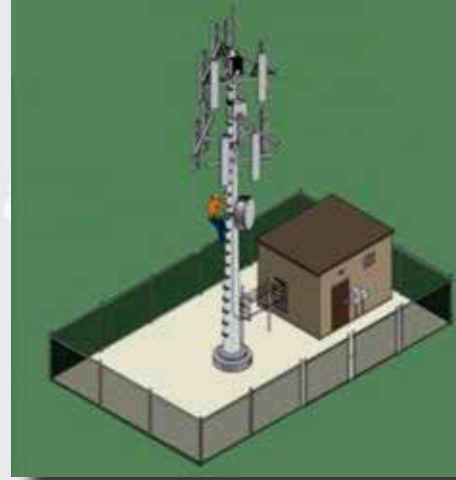
The cost of the such off-grid solar plant for non- air-conditioned classrooms will not be very high as it will not have single load which will be higher than even 3.5 KW. Only multiple 6 KW plant will be used as per requirements. In education sector, since the electricity bill is very high, the cost of the plant will be recovered in just 18 months.

Concern

Day time running educational institution has no concern at all. Rather one plant will be used for night time lights and guard room , which will run on battery power.



10. Mobile Signal Towers



Mobile towers are here to stay. Not only in cities but even in remote areas, need for mobile towers is ever growing. Not only for mobile phone but also for Internet, this has become a basic necessity. Mostly in cities , these are placed on Independents private houses rooftop and for power back up huge generator is placed.

In remote areas , mobile companies struggle to find place where electricity is available.

Technical feasibility

In fact Off-Grid solar plants are boon for mobile towers. Even in cities , these are placed on roof top of at least 250 Square meter property, which gives enough space for solar panels. This particular load is sensitive electronic load which also gets damaged due to the fluctuating voltage of grid power.

Our Off-Grid solar plants work like Online ups with constant current of 230 pure sign wave, which will also increase the life the equipment used in such towers.

Economic viability

More than just being extremely economically viable, our plants will increase the life of sensitive equipments used in such towers. Even including the battery pack for the 24 x 7 uninterrupted power supply, our plant will be highly economical and will ease the installation of new tower as no longer the grid power will be required.

Concern

As far as mobile tower is concerned, there is no concern at all. Most of these equipments are electronic load, and our UPS function will make the equipments last much longer.

11. Government / Defense



Our boundaries with neighboring countries are mostly in Himalayan region. Starting from Ladakh to Arunachal Pradesh, Our forces especially ITBP and BSF live in extremely harsh condition. In winter transporting even basic essential to these camps by helicopter is giant task.

Our brave force fights against the nature all the time. Needless to say that their power requirements is mostly meet by diesel generator. But transporting diesel in these terrain is not an easy task.

Our off-grid solar plants are ideal for these bases. Not only the camps and bases of ITBP and BSF , but also our operational Army bases in remote areas need off-grid solar plants.

Technical feasibility

Though the nature might be cruel in higher Himalayas, but the sunlight in higher Himalayas , where our border lies is almost 365 days a year. Most of our border can be said to be in cold desert, but is also ideal for harvesting solar energy. So, providing as much power as needed to these bases and camps are absolutely possible since there is no dearth of space there for putting up panels.

Economic viability

For defense, there is no question of economic viability though, it is to be noted that once installed, at least for five to seven years there is no worry not even the battery would need to be replaced.

What about if one needs to run the entire load also at night?

All our plants are designed to take solar input, utility / generator input and battery inputs. For night time, its up to user to avail either the grid power or the battery pack. We recommend Lead acid battery being the most Eco-friendly and fully recycle-able. As the night load battery pack will be designed. Yes by using the correct value of battery pack, one can avail 24 x 7 electricity. Since the battery will be charged by solar power during the day time, Its fast DC charging , which also enhances the battery life.

Will the plant run in rainy season, or cloudy weather?

First of all, Mono crystalline PERC panel that we use, contrary to popular belief, are not "Sunlight" panel, rater they are "Daylight" panel. Of course, during the proper sunny time, the efficiency of the panel is at peak, but even in cloudy weather the plant will work, though not at full capacity solely on solar.

Our plants are designed to take more Solar Panel input than the output power, for example our 5.5 KW plant can take up to 7 KW solar input, so that even in cloudy weather the plant will be functional.

Besides, all are plants are designed to take solar, grid and battery as input. So, if the solar power is less, the plant will use the battery power and will give full output. In absolutely no grid power scenario, thanks to our enhanced high Ampere MPPT, the charging of the battery by solar is really fast. So, by keeping sufficient battery pack, its possible to run the plant 365 days a year.

Warranty?

The panels come with a 25/30 years warranty. For the whole plant we offer one-year standard warranty. But we can also offer 10 years extended warranty as well.

Still doubtful ?

What if the plant does not work as promised? Don't worry, we got you covered. We offer 90 days money back guarantee (as per terms and condition).