



Árvores artificiais capturam energia do Sol, do vento e da chuva

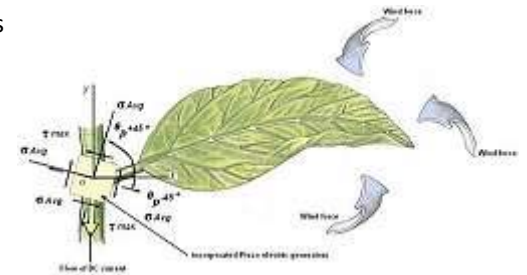
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Saem as células fotovoltaicas e os grandes painéis solares instalados nos telhados dos edifícios e entram árvores e plantas artificiais, tão parecidas com as naturais que facilmente enganam quem olha rapidamente.

Árvores geradoras de eletricidade

Só que essas árvores artificiais fazem mais do que decorar a paisagem: elas são verdadeiras usinas geradoras de eletricidade limpa e renovável, capturando continuamente a energia do Sol, do vento e da chuva. Uma cobertura com as plantas solar-eólicas de 6 metros quadrados será suficiente para gerar eletricidade para abastecer uma residência.

Por enquanto esse cenário não é mais do que um projeto e ainda não é possível comprar essa nova maravilha da tecnologia. Mas a empresa emergente Solar Botanic espera que as suas árvores geradoras de eletricidade tornem-se uma realidade o quanto antes. Segundo os pesquisadores que criaram a empresa, toda a viabilidade técnica já foi avaliada. Agora é uma questão de encontrar os investidores.



Esquema de funcionamento de uma nanofolha, que incorpora sensores nanoscópicos em sua estrutura e geradores piezoelétricos em sua base. [Imagem: Solar Botanic]

Fotovoltaica, termovoltáica e piezoelétrica

A unidade básica dessas árvores solares são as folhas artificiais, que a Solar Botanic chama de nanofolhas. Cada folha possui sensores capazes de capturar a energia do Sol tanto radiante (células fotovoltaicas) quanto térmica (células termovoltáicas). Simultaneamente, quando o vento ou a chuva agitam as nanofolhas, o movimento aciona cristais piezoelétricos instalados na sua fixação ao caule, transformando a agitação mecânica em eletricidade.

Árvore solar-eólica

Mesmo que cada célula individualmente não gere mais do que alguns poucos microwatts, milhares de folhas juntas, formando a árvore solar-eólica, poderão gerar uma quantidade considerável de energia. A empresa Solar Botanic (www.solarbotanic.com) já patenteou diversas inovações incorporadas em suas nanofolhas, incluindo o biomimetismo utilizado, a própria tecnologia das nanofolhas e os materiais e mecanismos de coleta da energia até sua chegada a um cabo para distribuição da eletricidade. Agora só falta o dinheiro para construir os primeiros protótipos.

Using Natures Design - Solar radiation (light & heat)

There is always light... Sometimes bright sometimes diffused...

SolarBotanic Nanoleaves are able to pick up any light, from the visible spectrum to the invisible spectrum, Infrared light - you don't see it, but you can feel it, it's warm; the Nanoleaf is an innovative combination of photovoltaic and thermovoltáic materials that enable the leaf to produce electricity even long after the sun has set.



Wind

There is always wind. Even on a hot day... Even if there is a small amount of it...

SolarBotanic leaves; twigs and branches are moved by the wind they are sensitive to external pressure caused by wind, the incorporated nano piezo generators produce millions and millions of Pico watts day in day out, they join the stream of power.

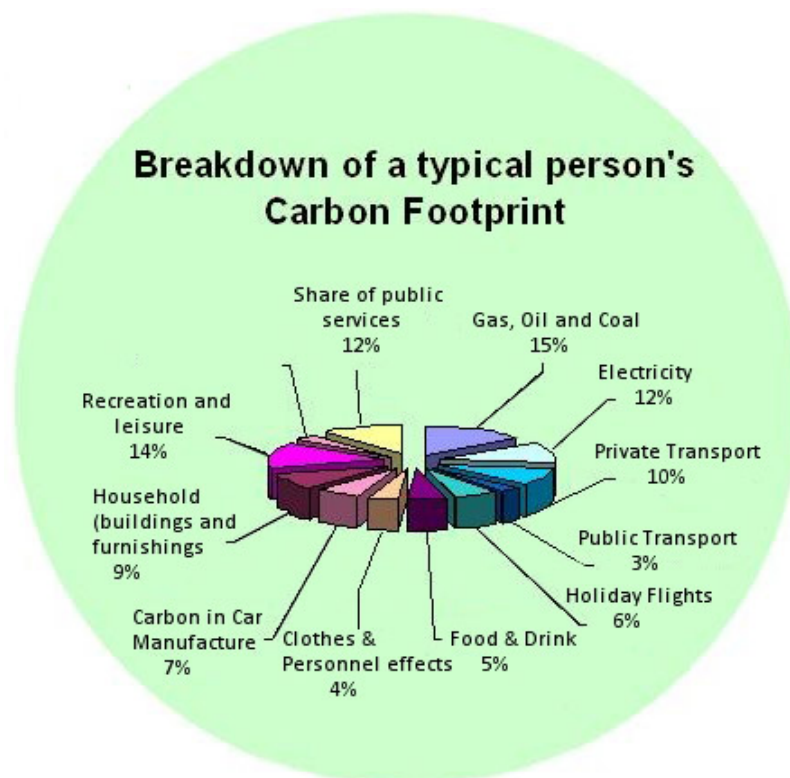
Coming together

Sun, wind and heat come together in the tree canopy, a synergy of natural design and high tech materials, a fusion of dynamic processes and Darwinian laws, providing us with the power we need. We believe in trees and plants and there thermo-photovoltaic qualities

- Triple efficiency.
- Durable.
- Low investment/high return.
- Easy to install.
- Weather resistant: rain, hail, dust, lightning, wind.
- Good monetary values for private homes.
- Various sizes, colors and species
- Aesthetic natural design, in harmony with nature.
- Application for designer gardens, penthouses, balconies
- Wide arrangement of Solar flowers, shrubs (solar shrub fencing) water plants.

Carbon Footprint

A Carbon Footprint is a measure of the impact human activities have on the environment in terms of the amount of greenhouse gases produced, measured in units of carbon dioxide.



In the developed world the average persons carbon dioxide emissions are almost 10 metric tonnes per year. This is called their carbon footprint and comes mainly from their household energy usage and transport requirements car travel, flights and commuter transport. Carbon dioxide is a greenhouse gas which, when released into the atmosphere, acts like a thickening blanket, trapping the sun's heat. Too much carbon dioxide in the atmosphere is causing the planet to warm up. To help prevent global warming, we all need to reduce our emissions and look at ways we can mitigate the emissions left over that we are responsible for. Trees are a natural green machine which absorb carbon from the atmosphere and release it as oxygen. Solar botanic trees are an effective way to produce clean electricity and to absorb the carbon you release into the atmosphere. Today it is more important than ever before to minimise your footprint.

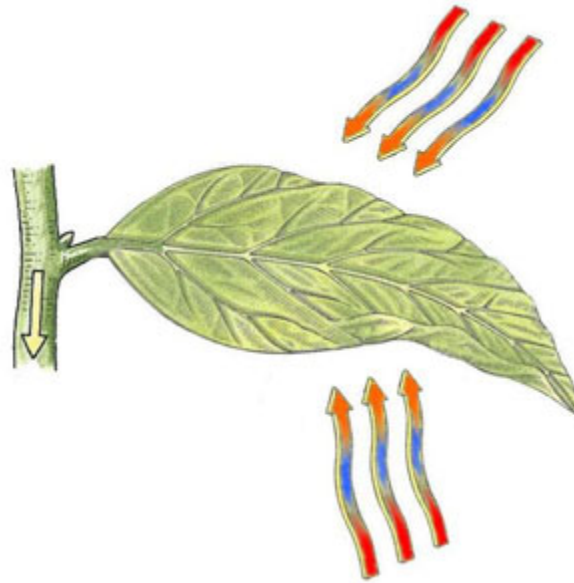
Nanoleaves

Sun, wind, water, earth and life touch our living senses immediately always, everywhere and without any intervention of reason. They simply are there in their unmatched variety, moving us, our moods, memories, imaginations, intensions and plans.

To capitalize on the wealth of designs and processes found in nature, engineering and technology gave us the ingredients, creative thinking, and unique solutions made it possible to bring all this together into a natural looking leaf - the Nanoleaf.

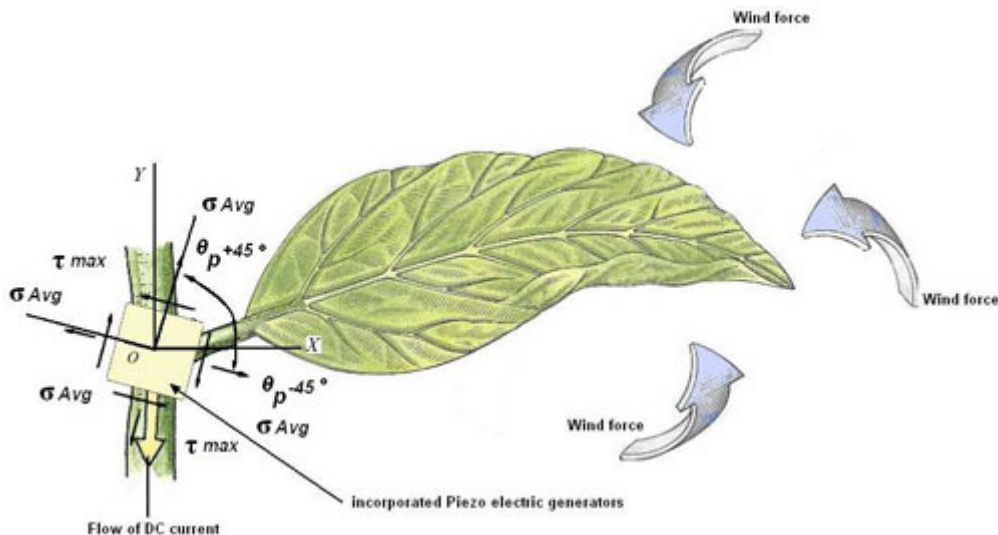
To complete the tree for multi energy exploitation, the petiole twigs and branches are incorporated with Nano piezo-electric elements. A Nanoleaf is thin like a natural leaf, when outside forces, like the wind pushes the Nanoleaf back and forth, mechanical stresses appear in the petiole, twig and branches. When thousands of Nanoleaves flap back and forth due to wind, millions and millions of Pico watts are generated, the stronger the wind, the more energy is generated.

Our Nanoleaves only reflect a small part of the sunlight that strikes them, mostly the green light, and the rest of the spectrum is efficiently converted into electricity.

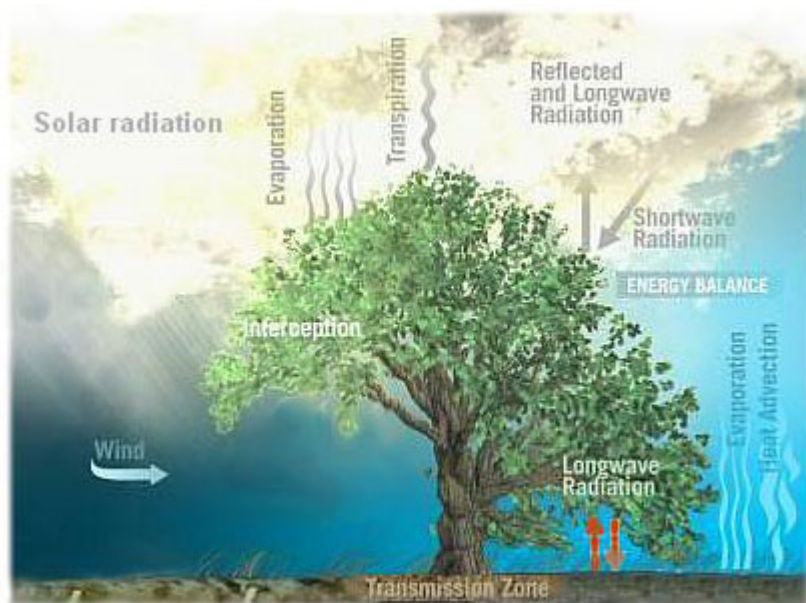


Besides converting the visible spectrum of light, our Nanoleaves also convert the invisible light, known as infrared light or radiation, we can't see it, but we can feel it - it's warm - that's why we call it radiation. Due to the unique combination of photovoltaic and thermovoltaic in our Nanoleaves it converts this thermal radiation into electricity, even hours after the sun has set.

The more wind there is, the more Nanoleaves are moved. Wind that is moving thousands of Nanoleaves in a tree canopy are causing mechanical strain in the petiole, twigs and branches. Nano piezo-electric elements incorporated in the petiole twigs and branches are the tiny Nano piezo-electric elements that will generate millions and millions of Pico watts as these thousands of Nanoleaves flap back and forth due to wind. The stronger the wind, the higher the "flap" frequency, and therefore the larger the watts generated in the petiole, twigs and branches.



With the progress in nano technology, the photovoltaic, thermovoltaic and piezo electric materials are becoming more efficient and combined in one system it will give our products more efficiency and we believe that soon, SolarBotanic will be a mainstream green energy provider, more reliable/cheaper and above all better looking.



Triple Efficient Energy

We understand that energy efficiency is more important than ever.

We also believe that the visual character of the landscape greatly influences us and leaves a lasting impression on how we feel.



That's why we offer the unique properties of our Triple efficient SolarBotanic Trees.

We have developed the first multifunctional renewable energy systems that actively converts Light, Heat and Wind into useable electricity, day and night, and we are continuously looking for ways to make them as efficient as possible, from the materials we use for our Nanoleaves like nano- Photovoltaic (to convert the visible light into electricity), Thermovoltaic (to convert thermal differences into electricity) and Piezovoltaic (to convert mechanical movement into electricity) up to our durable tree structures, we've got it covered when it comes to energy efficiency.

Latest nanotechnology for our leaves

The Nanoleaf is a combination of high Tec materials brought together in a leaf design to convert all 3 energy sources; Light, Heat and Wind into electricity, our trees are a quantum source of power and an excellent electricity provider.



SolarBotanic products

Will be multifunctional, efficient, renewable energy systems. Within our collection, you'll find a host of special options and features designed to bring energy efficiency and beauty to your home.

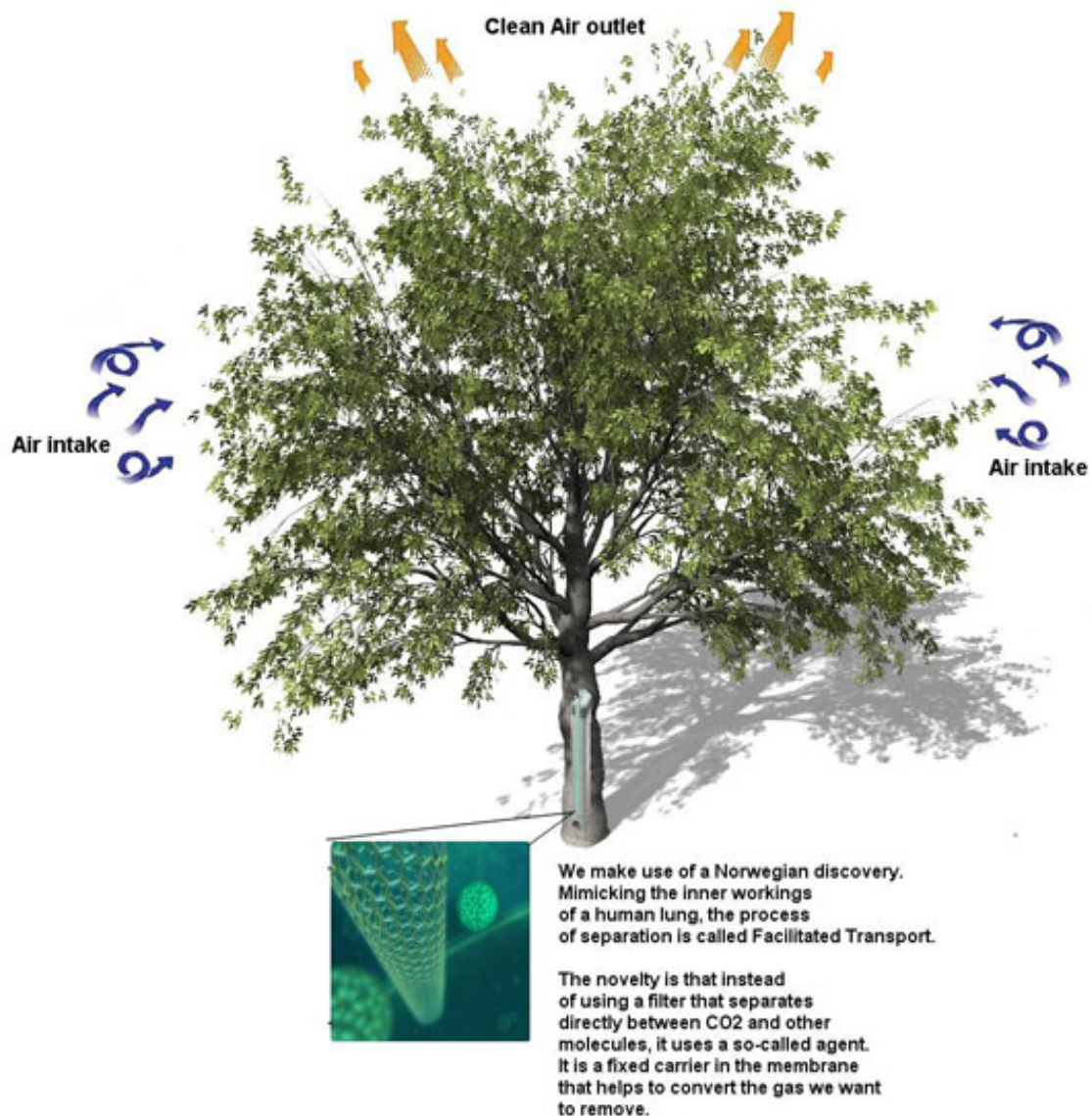
SolarBotanic products will be top-quality multi energy collectors with maximum power output day and night that are installed by our contractors. The SolarBotanic energy trees range from 2.000 to 12.000 kWh per year power output, so you can find the right tree, shrub or plants with the right features at the right price.

This unique and efficient product that will make use of nature's perfect design features will be sold exclusively by SolarBotanic and officially appointed dealers only. Products will be available in broadleaf and needle trees, shrubs, flowering plants and water based plants, each includes specific features and options for a true natural product, and are specially designed for maximum energy efficiency in every climate.

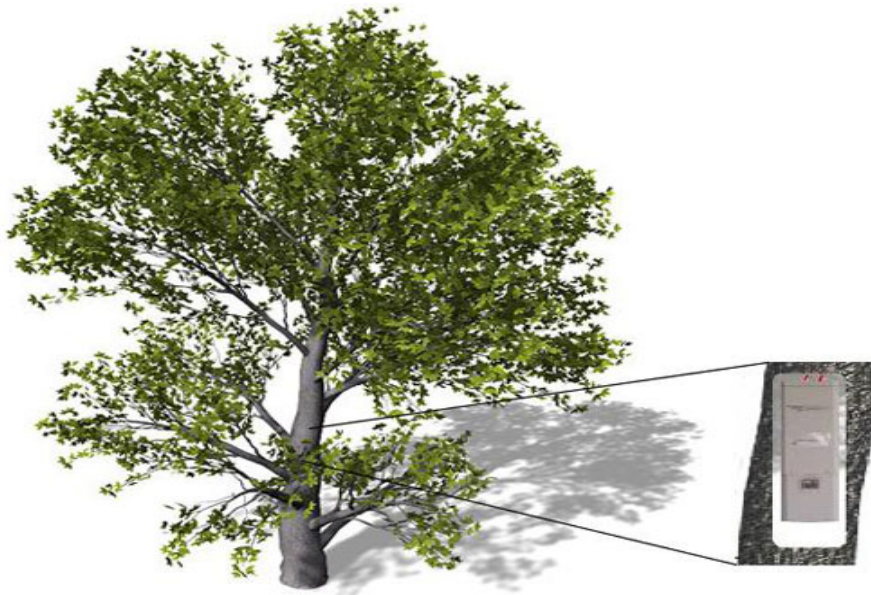
Designed according to nature, that allows this product to be installed within cities, rural communities, and places of natural beauty and island communities, for use in new and existing residential projects without causing a negative impact. Each product with its unique features is designed to be well-matched with certain types of local scenery.

SolarBotanic products are designed and engineered for use in all areas and to withstand extreme weather conditions, they will comply with safety regulations that vary from area to area. Every SolarBotanic product is engineered for superior performance, maximum power efficiency and long-lasting beauty.

Air Filter



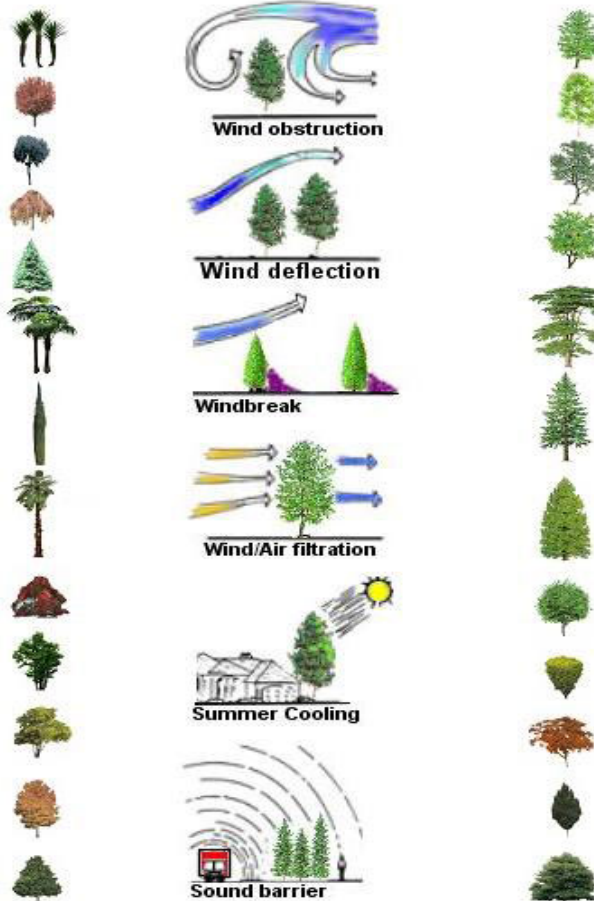
Inverter



Solar Botanic tree with a internal 8 kw Advanced Energy Systems inverter. The inverter secured and mounted within the main tree trunk that is not exposed to direct sunlight and inclement weather conditions.

Benefits

The added value of Trees



A Stunning New Development Provides Renewable Energy From Artificial Trees to Power Cars and Homes

Using cutting edge materials and proven technology to harvest energy from the sun and wind, the company has been granted patents and has patents pending covering Biomimicry, Nanoleaf Technology, Energy transfer materials and process, and has moved past proof of concept criteria as required by investor groups. SolarBotanic has received approaches from different Government bodies who will provide advanced Research and Development facilities and interested investor groups. The company is now looking to select final business partners for investment, R&D, manufacturing, distribution and marketing from organisations with relevant specialist knowledge and sector understanding.

More powerful than wind farms, more efficient than solar panels and more practical and aesthetically pleasing than both. SolarBotanic is a company which harvests the energy of the sun and wind by incorporating established science into an innovative nanotechnology. (www.solarbotanic.com)

World economies are dependent on a diminishing resource of environmentally unfriendly fossil fuels. The search for clean alternative energy is a major political, economic and social imperative. Existing sources of renewable energy, solar panels, parabolic sun collectors, wind and tidal turbines are inefficient, expensive and environmentally insensitive.

SolarBotanic's method of energy capture is both clean and renewable and with a wide spectrum of applications. The human population of the world has trebled in the past fifty years from over 2 billion to 6 billion and will increase to about 12 billion in the life time of many of those living today. The farm animals needed to feed the human population has increased even more rapidly and by 2100 will exceed 100 billion.

Both human and farm animal populations depend on fossil fuels for their energy needs. The result is global warming which is having a destructive effect on many eco systems and seems likely to reduce the quality and quantity of human life. It is against this ominous background that the search for renewable energy has intensified in the hope of avoiding the catastrophes which lie ahead.

SolarBotanic has significant answers to some of these environmental questions.

Technology

SolarBotanic has designed artificial trees and plants which are so lifelike that to most casual observers they are living trees and plants. In fact, each tree or plant is a powerhouse of renewable energy harvesting the eternal profligate power of the sun, wind and rain.

The essential element in this technology is SolarBotanic's artificial leaf (Nanoleaf) which captures the sun's radiant energy in photo voltaic and thermo voltaic cells converting the radiation into electricity. Simultaneously as the wind blows the layers of voltaic material in the stems, twigs and branches are moved, compressed and stretched, creating electricity.

Thus as the sun shines, the winds blow and the rain falls, millions of micro circuits are activated, each making its contribution to the electrical energy of the tree. An average tree with a canopy of about 6 sq metres can create enough energy to provide for the needs of an average household.

SolarBotanic trees can be used to service a single household or they can be used in situations where natural growing groups of trees would previously have been used, such as along motorways, in suburban streets or parks where they can make a significant contribution to the national electrical grid.

In areas where wind turbines are not welcome the Botanic trees can be used in groves, capturing both wind and sun. SolarBotanic woods of oak, ash, beech or sycamore have the advantage over real deciduous trees in not losing their leaves in winter but continue creating energy.

In deserts, where hydroponics allow the cultivation of fruit and vegetables, SolarBotanic trees and plants both shade the growing tunnels, and provide electricity to circulate water and cool the interior. Conversely in cold regions SolarBotanic trees can provide cheap heating and lighting for crops which would not otherwise be viable.

The Future

At this stage the company has been granted patents and has patents pending covering Biomimicry, Nanoleaf Technology, Energy transfer materials and process, and has moved past proof of concept criteria as required by investor groups. SolarBotanic has received approaches from different Government bodies to provide advanced Research and Development facilities and interested investor groups. The company is now looking to select final business partners for investment, R&D, manufacturing, distribution and marketing from organisations with relevant specialist knowledge and sector understanding.

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