

1. "THE URBAN TRAFFIC "

2. " D E S E R T E C " Solar energy for our cities

# 1. The main problem "THE URBAN TRAFFIC "

Can we take the urban traffic into the underground and so we can plant at the ground trees, flowers .....???

Because we think places of nature are very important for the cities and for their inhabitants. So you also will reduce the stress, which occurs everytime in the city, there you can relax. When you take the traffic underground you can sell the ground on the level the traffic was before and so you can invest the money in the underground projects - we think that should be possible because the land in the m2 amount in the city is very expensive. Of course the m2 price of the building substance above is cheaper than in the lower levels. But you also can make a lot of money if you hire the lower spaces – for example parking houses, shopping malls, sport arenas....

Here are some examples where you can see this suggestion on real cities.



<http://www.ired.com/pix/news/mkt.jpg>

Mega Cities like Tokio, New York or Berlin suffer from the highrising population, strong urban traffic and the need of space. The only way to get rid of this problems is to use the underground. "GEOTRAPOLIS" is the japanese answer. In the west of tokio, cityplaners create a city under the city in a level -50m. Up to the year 2020 there should be shops, offices and places for freetime activity - connected to the underground station. And the skyscrapers grow into the underground but also exists in the upper levels.



[www.aist.go.jp/GSJ/olG/Images/tokyu1](http://www.aist.go.jp/GSJ/olG/Images/tokyu1)



A vertical city offers places for living, schools and green areas. And that could give cities more and more quality. But we also know this takes a lot of time and of course money. And this could be one of the best investigation for the following generation of human beings. In stuttgart they began with this step in the year 1999 with the underground main railwaystation - "stuttgart21"



[www.stuttgarter-zeitung.de/media\\_fast/1203](http://www.stuttgarter-zeitung.de/media_fast/1203)

As mentioned before mega-cities suffer from traffic problems, air pollution and the need of space. Architects and cityplanners are working on a solution for an underground ideal city.

MOSCOW - It should grow in the underground. The master of the city planning institute (NIIPI) Sergej Tkatschenko presents on September the 30th the new plans of Moscow. This project isn't only a new step - the main interest is also to finish the actual projects as it is the further building of the underground net, tunnels, parking houses and shopping malls. In future it should be possible, to go through the city by the fastest way, without using the streets above-ground. The target of the project is to reduce the 3,5 million cars which are crossing Moscow day by day.

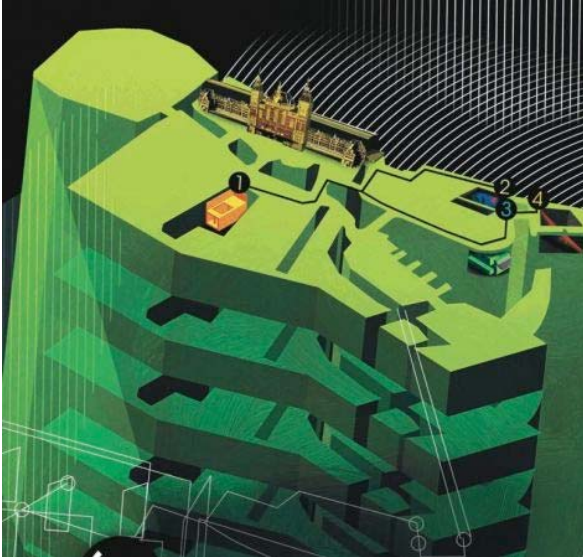
'Underground cities' isn't a new concept. In large urban centers with wintry climate, like Montreal or Toronto or Edmonton, all of them in Canada, significant part of the daily life of people during the long winter seasons is passing underground. Tens of miles of corridors link shops, restaurants, transportation hubs, office buildings, recreation activities, universities, libraries, concert halls, and other cultural centers. In most of Western Europe, however, with its uniquely mild climate, this concept is rather new. The existing metro systems haven't been designed to put the **social life underground**, but only to **make easier the public transportation** after the dawn of the industrial age. The Dutch city of Amsterdam may be planning to build comprehensive underground infrastructures for living, for recreation and for doing business. The plan of \$15 billion, if approved, would take 20 years to become reality.



[http://s3.hubimg.com/u/798138\\_f520.jpg](http://s3.hubimg.com/u/798138_f520.jpg) - Montreal underground

Why should some European cities design expensive underground living and working spaces? The case of Amsterdam is rather unique, but similar reasons can be found in more than one city on the continent. It's the unique blend of history and the need of more spaces for ever-growing number of residents. Unlike most North American urban areas, many European cities exist for many hundreds of years, and some for many thousands of years. The strategy of erasing those structures that have become unnecessary or malfunctioning and building from the ground up will destroy the unique architectural heritage, which for many is one good reasons people live there or come to see it. For large parts of the Netherlands an additional factor makes difficult making radical urban changes: the low land compared to the high sea level.

In the case of Amsterdam, the construction company Strukton, owned by the Dutch railway, is proposing building an underground city six floors deep under the famous canals of the old city. During the construction process they will be drained section by section while construction takes place and then refilled with water. Strukton is also working on a metro hub under the Amsterdam central station for a new subway line linking the north and south of the city. The old center of Amsterdam is built on marshland and many of the houses along the canals are still supported by wooden poles, so the new underground city will be built in the clay under the canal water.



Back to the general issue of building underground cities in Europe (and elsewhere where the climate is mild, but the population is dense); going deeper and deeper will certainly open a new dimension in urban planning. Even in cities like New York going deeper may be the last option left for reconciling the needs of many millions of people with the comfort of the 21st century.

*planing steps for a underground city:*

Underground reservations and existing facilities/tunnels have been divided into the following categories on the basis of their main purpose:

1. Costs
2. Community technical systems
3. Traffic and parking
4. Maintenance and storage
5. Services and administration
6. Unnamed rock resource (does not yet have a designated purpose)

*The reservations in the Master Plan are divided into the following four planning levels:*

- Project plan
- Needs specification
- Provisional space requirement
- Space requirement Underground

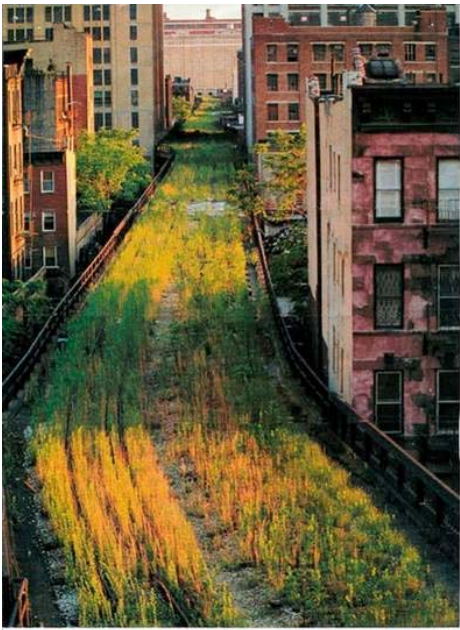
An interesting and build example of abandoned land use is the **High Line New York**.

What is the High Line?

The High Line is a public park built on a 1.45-mile-long elevated rail structure running from Gansevoort Street to 34th Street on Manhattan's West Side.

DO we have OTHER types of "abandoned" land use to "recycle" ?

We think a good possibility would be to regenerate for example the coal mining areas of the ruhrgebiet – which is already done.





[www.concierge.com/images/ ideas/starchitecture](http://www.concierge.com/images/ideas/starchitecture)

What was it used for?

The High Line was a freight rail line, in operation from 1934 to 1980. It carried meat to the meatpacking district, agricultural goods to the factories and warehouses of the industrial West Side, and mail to the Post Office.

Who owns the High Line?

The High Line, south of 30th Street, is owned by the City of New York and is under the jurisdiction of the Department of Parks & Recreation. It was donated to the City by CSX Transportation, Inc. which still owns the northernmost section (30th Street - 34th Street).

The land beneath the High Line is owned in parcels by New York State, New York City, and more than 20 private property owners.

Why preserve and reuse the High Line?

The High Line is a monument to the industrial history of New York's West Side. It offers an opportunity to create an innovative new public space, raised above the city streets, with views of the Hudson River and the city skyline. It also offers a hopeful model for industrial reuse for other cities around the world.

Who designed the High Line?

In fall 2004, FHL and the City of New York jointly selected a design team for the High Line through a six-month design competition. The team of James Corner Field Operations, a landscape architecture firm, and Diller Scofidio + Renfro, an architecture firm, includes planting designer Piet Oudolf and experts in the fields of horticulture, engineering, lighting, public art, cost estimating, maintenance planning, security, and other relevant disciplines.



graphics8.nytimes.com/highline.slide.1.jpg

What happened to the tracks?

Before construction began, all the rails were surveyed, tagged and stored at the northern end of the High Line. Many are reincorporated into the landscape as part of the design.

How is the High Line's design different from other parks?

The public space blends plant life (reminiscent of the quiet contemplative nature of the self-seeded landscape and wild plantings that once grew on the unused High Line) with long, narrow "planks," forming a smooth, linear, virtually seamless walking surface. The public environment on the High Line contain special features, including a water feature, viewing platforms, a sundeck, and gathering areas to be used for performances, art exhibitions and educational programs.

For more information [www.thehighline.org/design](http://www.thehighline.org/design).

The High Line New York is a great marketing strategie for a degenerated area.

With this project now and in future many skyscrapers with **high living quality** will be build up in this area.

It's an **increase of people and quality**.

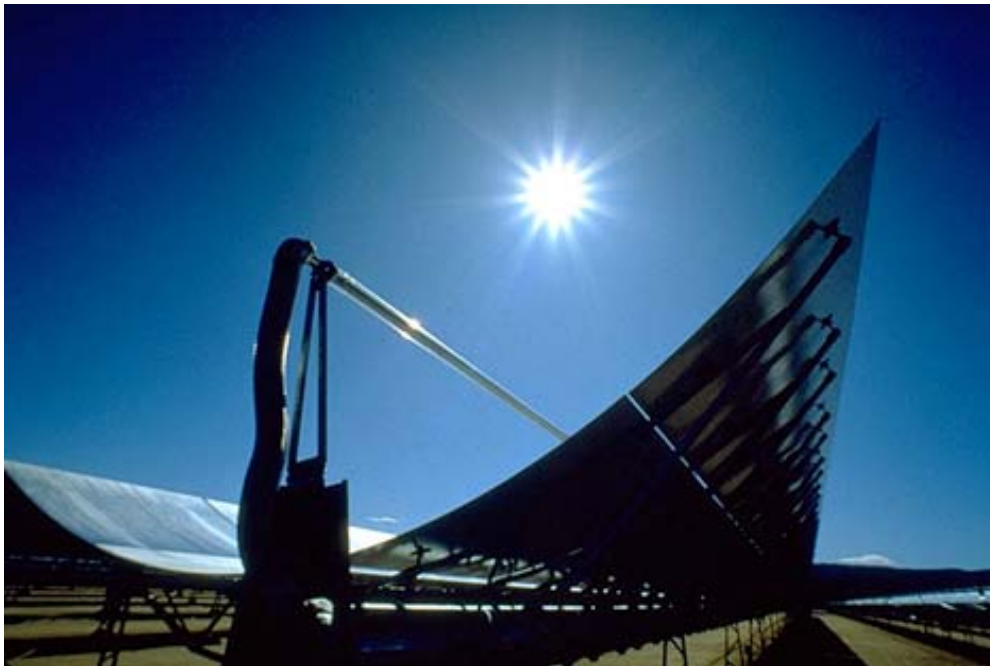
When we are looking at the better qualities in our cities, here we can lead over to another important topic - solar energy.

## 2. " D E S E R T E C " Solar energy for our cities

"Desertec" - is a interesting and exciting vision of siemens.

They plan a solarproject in the desert sahara with a dimension of 300 x 300 kilometers and it will be large enough to supply the whole world with the needed energy.

„Thats not a vision, it can became real in the next years“, says Münchener-Rück-Vorstand Torsten Jeworrek.



[www.welt.de/multimedia/archive/1219398465000/00594/solar\\_full\\_DW\\_Wirts\\_594550g.jpg](http://www.welt.de/multimedia/archive/1219398465000/00594/solar_full_DW_Wirts_594550g.jpg)

### Solarparc in La Solana (Spain)

The phoenix Solar AG creates a Solarparc in La Solana (Spain) its about 200km in the south of madrid. It lanched in April last year. The Parc has got a performance of 6,5 Megawatt and it is eco-friendly energy.

"Angaben der Phoenix Solar AG 1.580 Kilowattstunden (kWh) pro Kilowatt Spitzenleistung und ist somit um rund 50 Prozent höher als an einem günstigen Standort in Süddeutschland. Die 40.320 kristallinen Module liefern auf einer Fläche von rund 21 Hektar einen Jahresertrag von rund 9,8 Millionen kWh, womit rund 11.000 Personen bzw. 70 Prozent der Einwohner der Stadt La Solana mit Strom versorgt werden können. "



## **cars with electric engine**



We think its a good idea to create energy and we should pursuit this way.

The next step in future which is already actual is, that more and more people are using cars with electric engine. And they are not producing no CO2 and we hope the air and the climate can recover. And also the price of electric cars will decrease if we push this eco-friendly invention.

### **We think it`s a possibility for the future.**

*„Der Weltenergiebedarf ist die Menge an Primärenergie, die weltweit verbraucht wird. Zur Zeit liegt der Wert bei 107.000 Tera-Wattstunden (TWh) pro Jahr. Der Weltstrombedarf macht mit zirka 18.000 TWh pro Jahr rund 17 % davon aus. Zum Vergleich werden in Deutschland jährlich 4.070 TWh Primärenergie und 550 TWh elektrischer Strom konsumiert.*

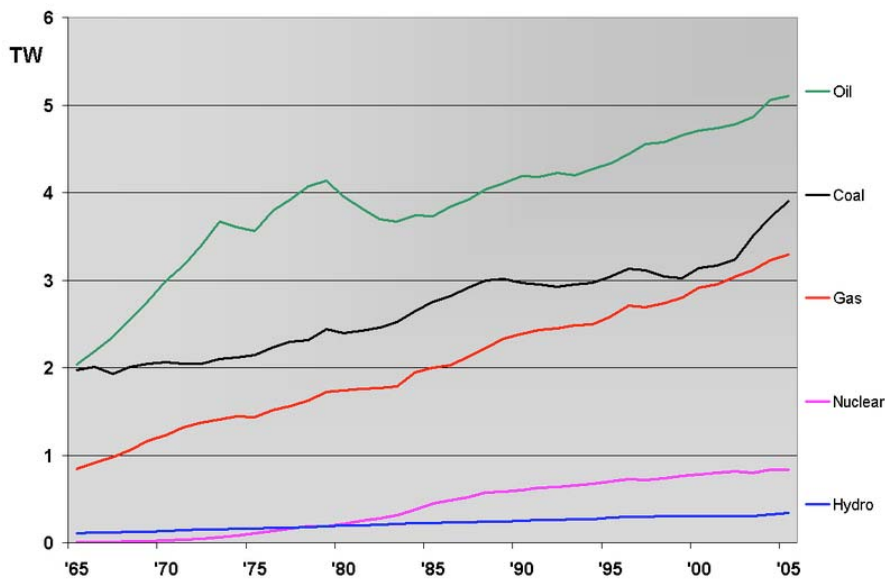
*Der Weltenergiebedarf steigt derzeit stark an. Bis 2030 wird eine Bedarfssteigerung um etwa die Hälfte auf 160.500 TWh, bis 2060 in etwa eine weitere Verdoppelung auf 321.000 TWh prognostiziert. Hauptgrund ist, dass sich voraussichtlich bis dahin der Lebensstandard in aufstrebenden Entwicklungs- und Schwellenländern - allen voran China und Indien - stark dem Lebensstandard in den westlichen Industrienationen angeglichen haben wird.*

*Derzeit werden rund 85% des globalen Energiebedarfs durch fossile Energieträger gedeckt. Die Gründe hierfür sind sowohl technologischer, als auch ökonomischer Natur. Nach Einschätzung des Copenhagen Consensus Centers wird der Verbrauch an fossilen Energieträgern, ungeachtet der derzeitigen Bemühungen der Klimapolitik, in den kommenden Jahrzehnten noch steigen. Nach vorsichtigen Schätzungen wird sich der Weltenergiebedarfs bis 2050 mindestens verdoppeln. Dies ist ein bedeutender Grund dafür, dass fossile Ressourcen bis weit in dieses Jahrhundert eine große Rolle bei der Deckung des Weltenergiebedarfs spielen werden.*

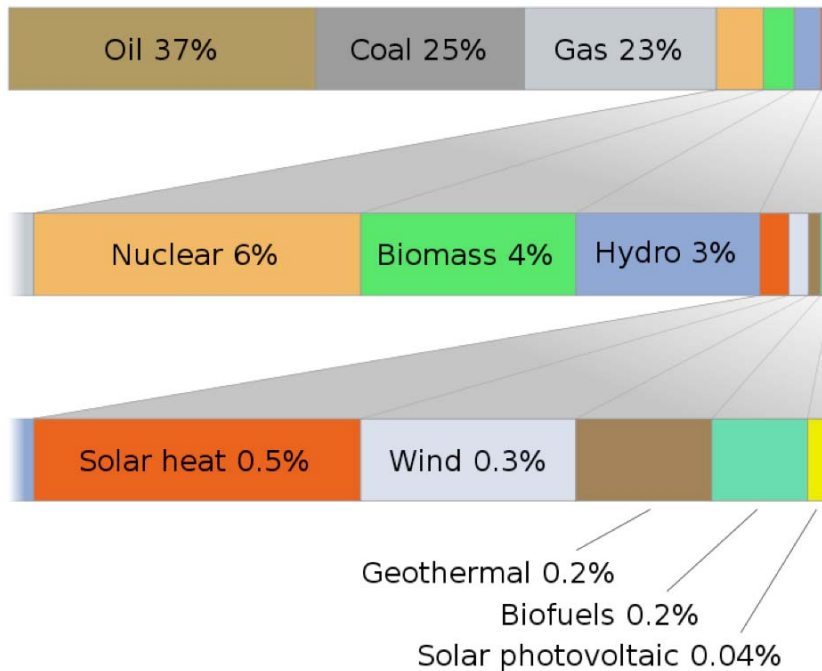
*Durch die begrenzten fossilen Ressourcen kann der wachsende Energiebedarf nicht annähernd*

gedeckt werden. Weltweit werden deshalb Fördermaßnahmen aufgelegt, um neue Energien zu erschließen; dennoch können erneuerbare Energien selbst bei Fortsetzung der bisherigen Wachstumsraten nicht gleichzeitig die Abnahme fossiler Energieträger ersetzen und die weitere Steigerung der verfügbaren Energiemenge bewirken. Daher werden Szenarien wie oben genannt auch zunehmend kritisch gesehen.“

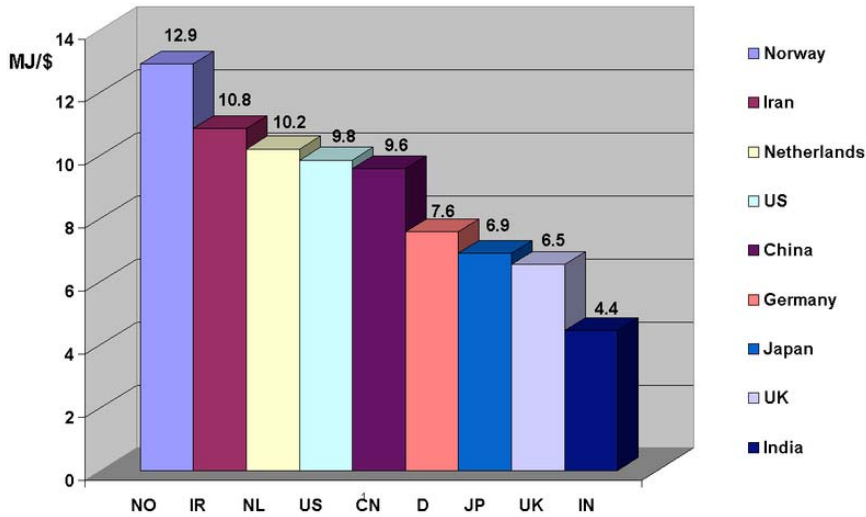
<http://de.wikipedia.org/wiki/Weltenergiebedarf>



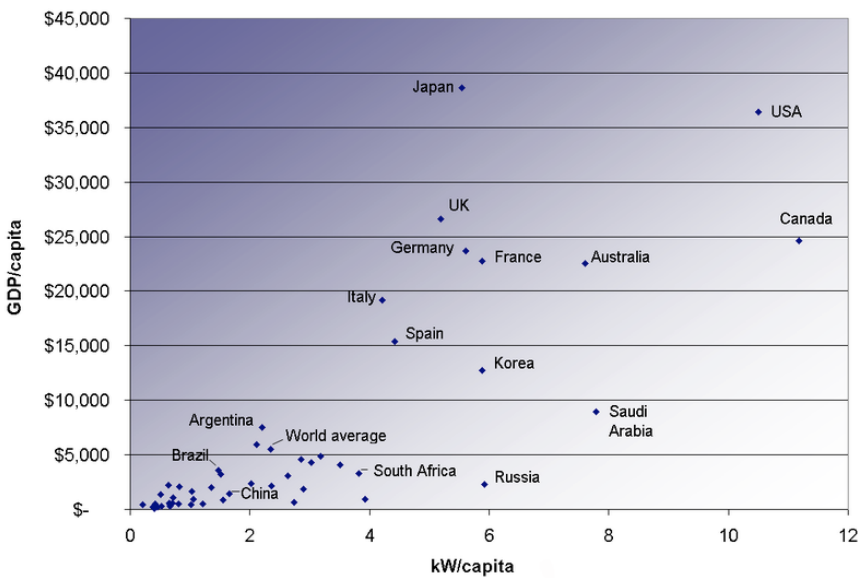
Rate of world energy usage in terawatt (TW), 1965-2005



Global energy usage in successively increasing detail



**Energy intensity of different economies** The graph shows the ratio between energy usage and GNP for selected countries. GNP is based on 2004 purchasing power parity and 2000 dollars adjusted for inflation.

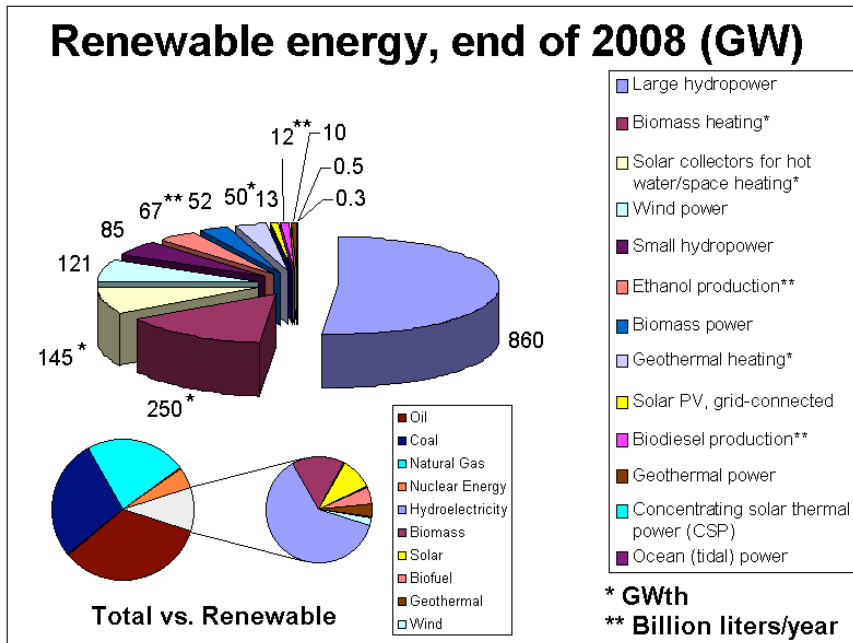


**Energy consumption per capita versus the GNP per capita** The graph plots the per capita energy versus the per capita income for all countries with more than 20 million inhabitants, the data more than 90% of the world's population. The image shows the broad relation between wealth and energy consumption.

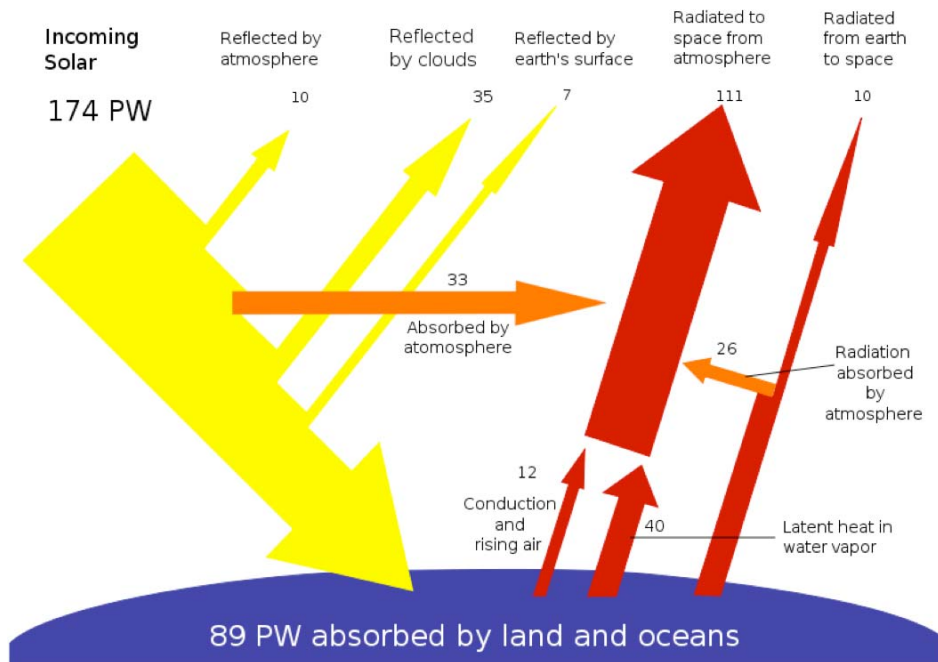
The Solarproject in Spain:

Die 40.320 kristallinen Module liefern auf einer Fläche von rund 21 Hektar einen Jahresertrag von rund 9,8 Millionen kWh, womit rund 11.000 Personen bzw. 70 Prozent der Einwohner der Stadt La Solana mit Strom versorgt werden können.

1 ha = 100x100m = 10.000m<sup>2</sup>



Renewable energy sources worldwide at the end of 2008 Source: REN21



Solar energy as it is dispersed on the planet and radiated back to space.

**For Innsbruck** at the time 128.000 inhabitants , that means we need a solarproject with a size of 244ha = 2.440 000 m<sup>2</sup>

= 24.4 km<sup>2</sup> = ca.480 soccerfields

Thats quiet a lot but when you think this area will be set up in the desert?????

You can send the energy around the world without losing energy -

but first you have to change the energy from AC to DC.

As we mentioned first for the whole world we will need an area of 300x300kilometers....

and when we need in the year 2060 the double amount of energy, we hope the technology of the solar panels would be better and better - because there will be more in the future and they can test and develope more.

*„Laut Schätzungen wird der derzeitige globale Ölverbrauch bis zum Jahre 2020 um 50 Prozent steigen, allein in den USA um 33 Prozent. Seit 20 Jahren nehmen jedoch die globalen Öl-Reserven kontinuierlich ab. Während der derzeitige jährliche Verbrauch etwa 27 Milliarden Barrel (ein Barrel entspricht 159 Liter) beträgt, werden nur sechs Milliarden Barrel neu entdeckt. Geht man von einem geschätzten Bestand von knapp 1.000 Milliarden Barrel aus (in die bereits künftige Erschließungen eingerechnet sind), dann reichen die globalen Erdöl-Vorkommen noch rund 40 Jahre.*

*Eine technische Norm existiert bisher nicht, doch kann der von der Europäischen Union mittelfristig angestrebte Flottenausstoß von 120 g CO<sub>2</sub>/100 km als Richtschnur für einen Grenzwert dienen, was einem Kraftstoffverbrauch von maximal 5 Litern Benzin bzw. 4,5 Litern Diesel auf 100 Kilometern entspricht sowie einem Energieverbrauch bis zu 0,44 Kilowattstunden (kWh) oder 1,58 Megajoule (MJ) pro Kilometer.“*

4,5Liter Diesel = 0,44Kilowattstunden

23.000.000.000,0Liter Diesel = 2 250 000 000 Kilowattstunden = 2,25Terawattstunden = the anual energy amount we can get out of diesel.

1Liter Öl = 30MJ

1Liter Diesel= 35MJ

27 000 000 000 Liter Öl = 23 000 000 000 Liter Diesel when we compare with the amount of energy

From the solarparc in Spain we get the facts that 21 ha = 9,8Mill kWh

9,8GigaWh = 21ha

2250,0GigaWh = 4821ha = 48,21km<sup>2</sup> with this area of solarpanels we can replace the anual amount of oil

35,00 - 40,00km<sup>2</sup> maybe with a better technology in the future

(out of the reasons we mentioned before)

In summary we have learned a lot and this facts we have listed can be developed more and more all over the world.

Heal The World

Make It A Better Place

For You And For Me

And The Entire Human Race

There Are People Dying

If You Care Enough

For The Living

Make A Better Place

For You And For Me...

Michael Jackson, Heal the world