Energy Finance

delivering a framework for energy finance

Planck Foundation

Amsterdam Holland

May 2010

Gijs Graafland

"What people need to hear, loud and clear, is that we're running out of energy in America."

May 23, 2001

George W. Bush

Energy Finance

Energy as Output
Energy as Collateral
Energy as ROI
Energy as Fee
Energy as Legal
Energy as Variable
Energy as Rating
Energy as Equity
Energy as Leverage
Energy as Guarantee
Energy as Warranty
Energy as Barter
Energy as Demand
Energy as Pension
Energy as Hedge
Energy as Project
Energy as Social
Energy as Match
Energy as Tender
Energy as Auction
Energy as Exchange
Energy as Transport
Energy as Escrow
Energy as Property
Energy as Leasing
Energy as Factoring
Energy as SCF
Energy as FIC
Energy as CR
Energy as DM
Energy as IB
Energy as TOD
Energy as CDO
Energy as CDS
Energy as IPO
Energy as ETF
Energy as Fund
Energy as Future
Energy as Shariah
Energy as Sovereign
Energy as Gold
Energy as QE

FOREWORD

This paper delivers a framework for both setting up energy politics as for energy finance.
It can be used local, regional, national, supranational and international.

It is written fully out of the economic perspective. There's not a leaf of green/red/blue politics facet in it.
It targets the transition away from the fuel based energy model, a transition that delivers a fuel-free model.

This paper advocates the opinion that rising energy/resources prices mainly caused the Credit Crunch.
Understanding the economic and financial effects of higher energy/resources prices is crucial.

Energy Finance is described as the bridge towards global sustainable prosperity.
The energy finance model components described can be instantly applied by any bank or nation.
All of them certainly delivers both economic/financial recovery and energy transition the same time.

We stopped publishing testimonials as that would take a FTE out of research to handle them.
Some of the old ones can be found on www.planck.org but this list is far from actual.
We also stopped publication of testimonials as we see networking the next phase after development.

Besides energy finance there's also a need for open energy technology that delivers the most output.
A model for this can be found on www.openfoun.org which targets to facilitate energy transition.
Also an advanced blank label demand concentration tool for governments/banks are also described there.

This paper advocates also different views on two controversial items: climate change and global population.
While delivering the needed political and financial tools to change the world.

Anyone in banking will understand the proposed energy finance models within a minute.
They are developed to meet the need of both energy transition and the current status of financials.
Not any new ideology, that we've enough of that already. We just need finance tools. Very effective ones.

Here they are as result of years of independent not sector /party connected research/development.
Usage feedback is always welcome. Both of the energy politics facets, as energy finance facets.

Our next project is the initiation and realization of Open Foundation (see www.openfoun.org).
It will support individuals, companies, (central)banks and governments by offering free data structures.

What's needed? Technology (available), Finance (this research) and Demand (will come automatically).

Let's create fuel-free energy model. The economics of it are better than of the carbon/fossil model.

SUMMARY

Energy Politics is about Energy = Technology
Advocating a fast/massive switch to a fuel-free energy system, to avoid 'hitting the wall in full speed'.
By this preventing companies, banks, pension funds, governments and currencies to collapse.

Energy Finance is about Energy = Currency
Advocating the financial tools that are needed for quick/massive energy transition investments.
By this preventing companies, banks, pension funds, governments and currencies to collapse.

The relation between energy and economy, governmental budgets and currency values is very direct.
Economic history tells us that energy availability/prices drives both economic growth and decline.

The survival of financials is very directly attached to the presence of economic growth.
This is not very well know, but nevertheless very true: loans are the driver of money creation,
If no new loans are issued, the money creation stalls and so no new money is created for interest payments.

The survival of governments and currencies is directly connected to economic perspectives.
No governmental structure nor currency value will survive economic meltdown.
Yet as we use energy for everything, rising energy prices will bring any economy on its knew.

Without change to a fuel free model energy, we break the back of our economies by expensive fossil energy.
Eating out the positive effects of every efficiency improvement, the fossil energy road will bring us down.
The fossil energy model is terminal: what has build our prosperity will break it if we decide to keep it.

According to the oil industry there is no problem. They don't like the development of alternatives.
In the perspective of the environmental movement energy is bad. They don't like prosperity very much.
Time to stop listen to both these double agendas and to start some independent thinking.

Those two papers (Energy Politics and Energy Finance) can save the future of both you, your children.
For free included: the rescue of your financials and currencies (savings and pensions).
And as also free bonus: prevention of governmental collapse (and all the nasty things that comes with that).

The choice: building a fuel-free future starting today, or repeating all the trouble of the 20th century again.
Building a future with Sustainable Prosperity for ourselves and our children based on 21st century realities.
Or starting with the currency + government collapse of the Weimar and the totalitarian waste after that.

New realities in high prices for energy, water, resources and food, plus in huge geographical changes in purchasing power will have significant prosperity effects. Economies that are mainly driven by cheap energy and former glory will 'slow down' severely by high energy prices and there other cost levels.

We need data structures that facilitates the changes needed for global prosperity the 21st century.

Yesterday.

20TH CENTURY WEIMAR WARNING

ECONOMIC COLLAPSE LEADS TO GOVERNMENTAL COLLAPSE LEADS TO CURRENCY COLLAPSE

ENERGY FINANCE

Energy Finance is about Energy = Currency
Advocating the financial tools that are needed for quick/massive energy transition investments.
By this preventing companies, banks, pension funds, governments and currencies to collapse.

ENERGY as OUTPUT

From out the perspective of a financier new energy investments are very interesting: a) they are fuel-less by design, nature supplies the 'fuel' for free, by this the business model is mainly capital driven, that's something financiers understand and is a home game for them and b) both the asset and the output can be collateral for the financier: this means that amortization and interest payments are safe and solid in this type of investment. No earlier investment model in history has given that. Not by some proven to be phony CDO insurance that not capable to deliver when it's called, but covered by the general economy and its endless energy demand. Free insurance by the market. Output that have a rising market price. Output that will turned into cash without any extra needed action. By the signing of the finance contract the collateral already is signed. Banks will use own or third party cleaning houses to redirect the output income to them if the debtor doesn't pay. The facility can be covered with insurance. The payments are handled by the grid operator, so the grid operator act (if necessary) as free payment collector. Absolute certainty on receiving the payments, regardless the well-being or attitude of the debtor, is every financiers dream. When bankers starts to understand Energy as Output, they will change the direction of their capital streams very much towards new energy investments. If banks, pension funds, central banks and governments start to understand the concept, the new energy industry will become demand driven funded. Energy as Output will be the main driver to a massive capital flow towards new (fuel-less) energy facility finance. The Energy as Output model needs transparency of a central registration point like the land registry is for property. This could be an extra record adding in the land registry, this could be the grid operators database, this could be both (to ensure the ownership of the installation and the beneficiary of the energy output). Energy as Output is a concept capable of generating a massive energy transition investment wave.

ENERGY as COLLATERAL

Renewable energy investments are very attractive to the financial industry: they are the only investments where a) both the facilities and the output can be used as collateral, collaterals can be traded for values above 100% of the investments, the operation is very simple (and can be covered by insurance), the operation needs no fuel, so has no cost price wild card and by this all the operators (debtors) are almost of virtual importance and the operation. From a financiers perspective there are not better investments models than fuel-less energy facilities. Certainly if the the other finance tools are implement also. But the output (energy) as collateral is the first and huge tool. Giving any fuel-less energy investment not the coverage of near-dead COD insurancers, but the coverage of real general market demand for its output. A collateral that performs also in economic decline (or even collapse) as the fuel-driven energy plants than have a huge downside (as they must buy fuel for every second/minute/day/week of operation). Coal fired plants (now the cheapest in operation) will all go bankrupt due to to tight supply and lower energetic value and by this fuel-demand. A collateral that also increase in collateral value each month (no other collateral delivers a value increasing). Investing in fuel demanding power generation is something only bankers with no sense of the current status of both global energy resources and global energy demand will do. The same knowledge-deficit ones that bought CDOs after everyone with market knowledge want to sell them. Energy as Collateral is a concept capable of generating a massive energy transition investment wave.

ENERGY as ROI

Energy as ROI is a finance concept for fuel-free (renewable) energy that has so much upside that it has the capability to attract most of the liquidities that are available in the market. Why? Because it delivers a ROI that rises in value (kWh) instead of declining (currencies). Do the math: finding a better ROI will be hard. Investments by the 'Energy as ROI' model also delivers banks and pension funds a hedge for not yet hedged currency positions (the rise of energy prices, compensates the decline of currency based assets). They will use it as much as needed to cover unhedged exposure in currencies. For pension funds (and of course also for banks) it delivers a model for passive/riskless increasing profits/assets. For central banks it delivers a much much much more attractive model than foreign currency assets (declining) or gold assets (rising in value, but dead in terms of income, even negative in terms of income due to storage/protection costs). Central banks should convert their foreign currency assets into Energy as ROI based energy investments (could have the same geographical spread if that's what they want). Central banks should end all the gold leases to third parties (as these give 0.0 % security: we all know the status of financials) and invest the freed liquidities in energy investments by the Energy as ROI model. As bonus they drain the massive liquidity waves that disturbs financial markets very much, as much of these massive liquidity wave are backed by gold leases. Gold leases are bad for the own currency (fake security) and for other currencies (that are bashed by gold leases back liquidity waves). Energy as ROI is so powerful that it certainly will change both pension funds and central banks to a total new business model. There will be a before Energy as ROI and a after Energy as ROI business model and those two will be quite different. The valuation of Energy as ROI for the profit reporting of financials is simple: received ROI is profit. The valuation of Energy as ROI on balance sheets of financials is something the BIS should regulate, otherwise we'll suffer a lot of new Enron alike damage by fancy accounting/auditing methods in the future. Energy as ROI is a concept capable of generating a massive energy transition investment wave.

ENERGY as FEE

By the start of the financial crisis almost all banks where short on liquidities. At that time all the Central Banks of the world have an allotment based liquidities window. They decides each month the amount of liquidities they want to deliver to the market and divided that in allotments. Banks could tender an interest percentage for a specific allotment and the highest interest tender on a specific allotment got that allotment. After collapse of the inter banking loan system (after the Lehman collapse) all the Central Banks of the world switch from allotment based Quantitative Easing to the so called 'open window' based Quantitative Easing. Every bank could demand any liquidity amount against a fixed and openly published Central Bank interest rate one just one condition: they have to hand over collaterals (even Greece treasury bonds are accepted for one 100% of their nominal value), by this the banks can even get full nominal cash for toxic smelling assets. So liquidities are not the problem for banks any more. The current problems of the banks are more in turnover, costs (too high overhead costs due lower turnovers), loan qualities (a strong increase of loan arrears and defaults), less off-balance placing possibilities and by this all in the by regulators (based on Basel II) required Tier-One (equity) ratios. In short: liquidities are not the problem, but Tier-One is. The Energy as Fee concept addresses this Tier-One equity demand issue. If banks get a contract fee at the percentage of the requested Tier-One on each energy transition investment finance, the will go really wild on energy transition finance. So wild that the concept of 'Energy as Fee' needs to be regulated within the concept, otherwise it will be abused more than any finance model is abused ever. What type of regulation? First the signing fee must be not in currency, but in kWh. Fee models based on cash will be abused by quick buck parasites, with a no wider horizon than the next bonus payment. Therefore the signing fee should be activated only as profit as the kWh came free, than the banks are forced to search for maximal kWh return also in all the energy finance requests. The Energy as Fee model is very open. Every manufacturer of renewable energy technology and every project developer in renewable energy technology can offer an Energy as Fee deal to any bank. And any bank certainly will be interested. By this openness it's very important that the BIS (Bank of International Settlements) make an Energy as Fee amendment on Basel II (also known as: the International Convergence of Capital Measurement and Capital Standards as described on http://www.bis.org/bcbs) for the accounting method of Energy as Fee deals for both the results, as for the balance sheets. The best way to regulate signing fees is to allow them on the balance sheets, but not allow them directly in full in the results. And of course banks than will sell their Energy as Fee deals as soon as possible to get these profits fully at once into their exploitation results and as cash in on their balance sheets. This is way auditing and regulation is so important. Without that the financial world becomes one big casino where lies put on full colour print become temperately semi truths. The financial world must not fight auditing and regulation, but endorse it, to save their future and to clean themselves from bad people and prevent bad directions. Sustainable Prosperity is something the financials should endorse. The coming massive energy transition investments (partial guaranteed by State Guarantees and also partial funded by Quantitative Easing) will give them a huge windfall that prevent them from collapse and give them time to adjust to era where economic growth due to high energy and resources prices will be scarce. The smart bankers will see this, the stupid ones will go into can-artisted conglomerates, that will be forced into receivership by good auditing and regulation. Destroying other peoples financial by financial dishonesty will become illegal again. Serving other peoples money in exchange for a reasonable fee will become main practice again. As it should been always. The deregulation of the last 30 years has no future: it leads to financial/economic/governmental collapse. If you not have the right fundamentals to build on, any thing will just grow till it collapse under its own weight. This is because to make apples you must work (limitation for too much apple production), but for money creation (due to our current 'money creation by loans' system) there's no work involved: it's just typing a new figure into the system: there is no effort limitation that controls over production. Regulation is therefore needed. And yes the cowboy/parasitic section within the banking sector of course will not like regulation. Smart bankers will emerge that have the right mix between smartness and wisdom. Wise bankers: that we have missed 30 years in a row very much. Nevertheless the signing fees will give the banks income to cover loses on their current portfolio. It pushes energy finance severe. A wise banker wants to make money. For his/her bank. For his/her Sustainable Prosperity. Hit and run will be outdated, out-phased and declared illegal. The signing fee is good to cover the loses caused by the casino cowboys. Banks there perspectives will no longer be narrowed to the next quarter, but to several years. The signing fee contributes to that. Everybody will go for the best energy investments if auditing and regulation is back in function. Signing fees will drive banks towards new energy investments. With quality. Sustainable in value. Economic Sustainable. The concept of signing fees will not re-do the housing bubble and rare things like stated income covered loans. Energy finance will be different. As it is designed to serve us all and not a few at expense of the rest of us. Signing fees as needed: they empower demand and create a demand delivering industry. Energy as Fee is a concept capable of generating a massive energy transition investment wave.

ENERGY as LEGAL

Energy harvesting facilities their main purpose is producing electricity and delivering that to someone (direct users or to the grid or a combination of these two). Thereby all facets of energy facilities can have different owners. The facility can have a different owner than the building of land it's build on. The outcome can be sold to someone. The main purpose of legal is ensuring the location of the investment. For example: a housing project can have different owners, but have one roof based PV energy harvesting facility. It's import that in the land registry this energy harvesting unit can be registered as isolated part of the property. If this is possible (in Holland it is) than a sale of a building doesn't effect the energy facility location, nor it location rent etc. This insuring of locations is very important for the finance of the business case: without good split ownership by location insuring legal, financing energy harvesting facilities on not fully owned objects/soil is not possible. Legal makes it possible to have difference parties as land/building owner (property ownership legislation), facility owner (rental legislation), facility beneficiary (power output legislation). Energy is Legal is a very valid statement. Energy as Legal is about legal tools to building one single energy case with different market parties and insure the specific rights of all these parties (for each other, to each other, in protection to each other). It's about insuring location rights and output rights. Separation and insuring rights is something that's crucial for giving Energy Finance any traction. Good finance is based on a good legal foundation. Location rights by legalize/register the split of ownership and output rights by legalize/register the rights on output. Energy as Legal makes it possible to divide the rights of landlords and buildingowners, from those who own the energy facility, from those who has taken the output as collateral or ROI. It's about ensuring the rights of land/building owners (property ownership legislation), facility owners (rental legislation), facility beneficiaries (output collateral). It gives each party both rights/benefits and obligations. It's about the ensuring the place (land or building) of energy harvesting facilities, so the energy production will be continued regardless the current status or identity of the land/building owner. This calls for a change in property legislation. In Holland this is already take care of by property register legislation. In the land register installations build on the soil or on a building can be registered as a sovereign fixed right additional attached to this soil/building. This insures for free the existence of the facility location without the need to have ownership of the soil or building. This property attached facility gives the energy facility on third party property a legal status and thereby supports energy finance severely. It insures that the facility will be there regardless the ownership of the (land or building) property. This collateral record gives the energy output collateral a legal status and thereby supports energy finance severely. The second needed legal facility is a collateral record into the energy facility register. This should not be attached to the local/regional/national land registry, but attached to the local/regional/national grid operator, as this register already has a registration database of energy facilities. Adding a collateral record to this energy facilities register is simple. This collateral record gives the energy output collateral a legal status and thereby supports energy finance severely. Energy as Legal is a concept capable of generating a massive energy transition investment wave.

ENERGY as VARIABLE

All investments are seen from financial perspective by the return certainty and the reward on investment. These two therefore are the crucial facets. Investments with a fixed interest rate based ROI are not very attractive in economies with inflation: they deliver as their best just a hedge against inflation (interest rate = inflation rate). The interest rate based ROI covers in the best case the currency value decline caused by the inflation. Interest as ROI just gives liquidities a value maintenance at the cost of risk. Therefore the risks on interest based deposits should be low (directly -less exposure- or average -high return with high but spread risks-), as risk exposure delivers the change of even lose the whole investment. Of course everyone prefer the concept of growing values instead of just maintaining values (or even declining values). Capital is an asset that can work. Work that includes risk and will deliver gain/profits or decline/loses. Fuel less renewable energy investments are the way to profit. The fundamentals are good: increasing global demand by more people, increasing global demand by more wealth/purchase power,, increasing global demand by massive infrastructural and manufacturing investments in the emerging markets, declining global discovery of fossil fuels, higher exploration costs fossil fuels, higher refining costs fossil fuel, higher transportation costs fossil fuel. All these facets will contribute each and everyone to steady climbing energy prices. The perception of these fundamental facets are the perception of the future energy price. The perception of the future energy price is crucial for new energy investments. The current tendency of measuring new energy investments by old energy prices is forgotten that the global energy situation is severely changed (more demand, higher cost, less supply). In the 80ties there was enough energy reserves to even use them as political weapon as pushing the USSR into bankruptcy by flooding the market with cheap easy to explore oil. These times have changed. Easy accessible oil is over. Cantharell is almost empty and declines at high rate, the Continental Plate is has peaked and is declining, Ghawar (the main field of Saudi Arabia) is declining, etc. For actual data on oil fields see http://en.wikipedia.org/wiki/List_of_oil_fields. New fossil resources (like gas hydrates) have a completely complex exploration level (and by this a complete different cost level) than an oil well (see http://en.wikipedia.org/wiki/Clathrate_hydrate). Deep water oil has proven to be much more expensive than on-shore or near-shore exploration. Cheap to explore abundant oil/coal/gas is over. The energy price will rise. Exploration calculations for new energy investments based on old energy prices are as stupid as expecting that off-shore exploration is as cheap as on-shore exploration. It's the total of the status of the global energy reserves and the influences of the global energy market hat makes the energy price. Energy use in the western world is declining, but the Western World only counts 20% of the total global population. The Western World is also no longer the leading part of the world. China is already the biggest car user of the world. China will soon be the biggest nett car exporter of the world. Energy demand will rise and rise and rise, regardless the economic status of the Western World. What will be the price of energy in each year of the future for the next 30 years. That's the key data foundation for any energy investment calculation. The fact that renewable energy harvesting facilities don't need fuel makes the investment cases very attractive (as they will function in a world that will be dominated by fuel deficits). The holy grail for every energy investor is a look on further energy prices. This can't be delivered as facts, but can be the calculation of each own individual view on the energy price of the future. This open calculation model is currently in development within Planck Foundation and Open Foundation. It will give each new energy investment case calculator his own energy price forecast model based on own data input. This advanced (but also very simplified) tool will change the view of the capital market towards new energy investments completely. Is will become the boosting power behind energy transition investments. Energy as Variable is a concept capable of generating a massive energy transition investment wave.

ENERGY as RATING

Energy investments must be transparent accessible to the companies outside the energy industry. There's a knowledge gap between the capital market and the energy market: they have both their own specialisms, but they need (the conclusions) of each other specialistic knowledge. From finance to energy the case results are transparent: this this the finance model that can be offered (as in: this are the conditions we can offer). The by finance delivered 'material' (capital) is very transparent. The by energy needed input 'material' is also very transparent: equity, third party capital and interest. The by energy delivered output material is also very transparent: kWh. There are three not transparent facets (call them wild cards) in each energy case: 1) The market price of kWh on each moment of delivery (this wild card is facilitated by the Energy as Variable model), 2) The kWh production of the investment (quantity, operational stability and hours of the day), 3) The ex-capital maintenance demand of the investment (which will give a certain OPEX). As said: the first facet is serviced by the Energy as Variable model, to classify the last two facets (kWh and maintenance) there are objective rating tools needed. Within Planck Foundation and Open Foundation there is an open rating matrix is currently in development. It will be adjust during operation and also facilitates conversion of earlier ratings to new calculation rules. Rating agencies than could use this model to rate energy investments (like IPOs and ETFs) based on transparent basic data and by a transparent calculation model. This third party external of the new energy industry 'quality of investments' rating than can be delivered by each rating agency (and if they will not pick this up quite rapid: by special energy rating agencies). As result investors will have a instant summary of any project on one page. For the performance of the new energy industry in general the Energy as Rating model will have a huge overall performance improving influence. The projects with the highest positive scores will get more easy finance. Energy as Rating is a crucial part in the battle for the best ROIs. The Energy as Rating model will drive the energy industry to better scores. Energy as Rating is a concept capable of generating a massive energy transition investment wave.

ENERGY as EQUITY

The Energy as Fee as model to deliver Tier-One will switch the banks instant and massive into energy investments. Certainly as they also can obtain the liquidities by 'Energy as QE' programs of the Central Banks. Project developers will need equity and they can't create it (like the banks will can do) by the 'Energy as Fee' model. Project developers will try to use one of the involved parties as project equity supplier. This could be a land owner who brings in the land (against a better price, or against Energy as ROI) to deliver equity. This could be a manufacturer that use the profit part on the products as equity. That could be nation that facilitates manufacturers in this 'delayed' profit facilities. This could be the banks that brings the Energy as Fee part as equity into the deal. This could be a local/regional/national/continental/global business that wants to contribute in a project in exchange of delivery guarantees. This could be an investment fund that is specialized in energy project equity based on Energy as Collateral and/or Energy as ROI model. Power companies will also become huge players in energy facility equity in return of the right to sell the harvested power. Power companies are on a cross road right now: investing in central or investing in decentral power is the choice for both the marketing model as the business model. The fuel-less characteristics of renewable energy will be the reason why many of them will chose for the decentral model. The uncertainly on future coal prices too. The parent guarantee of governments for nuclear fission operations is something shareholders not fancy. Renewable is also a huge marketing facet for them. Energy as Equity just needs the in this Energy Finance paper described energy finance tools to grow to maximal attractive ROI on investments. Energy as Equity is a concept capable of generating a massive energy transition investment wave.

ENERGY as LEVERAGE

The financial instruments like Energy as Outcome, Energy as Collateral, Energy as ROI, Energy as Fee, etc makes it possible to leverage equity very profitable And where is profit there is always very easy equity supply. Leverage specialized financials will use all these new profit opportunities. Like there is/was a whole industry developed around T-Bills (state debt bonds), a whole industry will developing around kWh. An industry that is specialized in gaining as much as possible profit in the shortest time with the lowest equity amounts possible. The fast and smart guys. The guys who can speed things up, but also the guys will abuse every possibilities given. The house bubble can not be repeated in credit. First: There's simple no money for to do so. Second: Mortgages on houses have a not clear virtual output: amortization based on the income of the owners. Renewable energy investments have a clear measurable output: kWH, regardless the status of the owners: the energy will flow and can be seized. Third: risk fear is much more higher than during the housing bubble: buying sailed boxes with loans will not happen again for the next 10 years. Forth: Capital 'travels' less since the Credit Crunch. Assets managers have learned that distance enlargement equals risk enlargement: more distance, less control, more risks. Fifth: The 'Energy as DM' model (direct project owning) will compete successfully with traders in vague boxed products. Why buying vague blurred asset pictures if you can have the '10 megapix photo'. But with all these 5 narrowing factors, the 'Energy as Leverage' model will play an important role. The smart guys will take or base slice positions (always ROI, but low), or top slice positions (high ROI if the energy price is right) and the smartest guys will sell their top slice positions if they want to take their profits for being able to build new cases. Energy as Leverage is a concept capable of generating a massive energy transition investment wave.

ENERGY as GUARANTEE

There was a time (as in: only a few months ago) that state issued guarantees where the top level in guarantees. These days are over. The market demand for treasure bonds of a nation are the indicator of the value of state issued guarantees of that nation. As the market demand for western treasury bonds decline, also state issued guarantees of western nations have lost a lot of their attraction in delivering real guarantees. This decline of trust is due to several reasons: Western nations are debt burdened, have a greying demographics, lost their production economy, haven't been able to realize their dreams of superiority in knowledge culture and also western people are debt burdened (credit as steering wheel has become credit as motor and credit as motor is a model with a short life time). State issued guarantees of nations that are treasury bond market demand proven are a very powerful tool in finance. The western world has lost this very power fool tool. As said: economic decline combined with / hidden by over stretched credit situations leads to bank defaults, bank defaults/decline/collapse (if not handled right as in: compartmented solved) leads to governmental treasuries defaults/decline/collapse as governments needs too much capital for rescuing the banks and stimulus packages in an already lower tax income characterized times of economic headwind, which (if not handled right as in: compartmented solved) leads to currency decline/collapse. The capital market moves East, leaving the western world with no other option than printing money to purchase their own treasuries. A nuclear (as in: the game changing) solution that fix short time (week/month issues) only worsened the problem on the long (month/year) run. This is why the Greek treasury crisis is fought globally with huge amounts/guarantees. The Greek treasury crisis was de facto a global governmental bond crisis and by that a global state guarantee crisis. If not solved governments worldwide would instant have funding problems and would lead to instant worldwide governmental stop on any payments, bringing everyone who's depending on governmental payments in direct trouble and could lead to huge economic/social unrest. The response on the Greek treasury crisis was telling the world: don't go short on (bet on decline of) treasuries (as we will ruin your bets) while you want completely destroy governmental funding of any debt burden state/nation. There will occur a quality selection within the governmental bonds market. Just like by finance, state debt buyers will analyse more and more. Not only what is the debt and what is the GDP, but also more and more what are the economic future perspectives of that nation (including its banks and pension funds). In these terms the emerging/new assets holding states will get better ratings and still will have both sufficient governmental funding and the ability to use the tool of governmental guarantees which is attached to this. Worldwide local/regional/national/continental/global governments will gone use the Energy as ROI concept to insure further income on their investments and by this insure the trust in their credibility. Worldwide all Central Banks will gone use the Energy as ROI concept to insure further income on their investments and by this insure the trust in their credibility. The Energy as ROI model delivers them something nothing else can give them: rise instead of decline. For governments: rise of their debtor credibility. For Central Banks: rise of the market trust in their currency. Emerging states will certainly use their better credibility to seize improve both their own national energy situation, as well their global position on the high tech energy products/parts market. China will install governmental product guarantee plans to activate a national energy transition investment wave and it will work. China will install governmental guarantee plans to initiate an energy transition investment wave in its neighbourhood to insure more (by this mutual generated) renewable energy delivery to its fast expanding (and thereby energy hungry) economy. Energy as ROI is what will change the market of governmental funding (treasuries) and the valuation of governmental guarantees. The Energy as ROI model will become the main issue rating agencies will rate sovereign debt by. For large energy projects the project developer will be able to demand governmental (or inter company parental) guarantees of the contractor or supplier by making it one of the tender specifications. Although governmental guarantees don't have the financial value they had, they have still the value that a government will control the case and push the realization to prevent claims. The same can be said on inter corporate parental guarantees (where the mother company guarantees the actual delivery, specifications, function and maintenance of projects or project parts. Delivery and functional guarantees will ease financing severely. See also the Energy as Warranty model for this. Energy as Guarantee is still (if the Energy as ROI model is build-in) a concept capable of generating a massive energy transition investment wave.

ENERGY as WARRANTY

The coming massive energy transition investment wave will give a major boost to manufacturers of the needed products. Products where both innovation (specifications), quality and price are the tree main characteristics of. Products that of course also want (and maybe deserve) a place (based on the above three product characteristics) on the world market. Governments have two huge reasons to support the export of these products. Why? First: by their volume perspectives they could recover/emerge the industrial production of a nation in the right (as in 21st century adjusted) direction. Recovery and transition in one package. Something any government certainly wants. As soon as possible. Second: by there market volume in combination with the Energy as ROI concept the manufacturer could get besides the sales price also a part of the energy production. The combination of these two are attractive to every nation. Market driven research and production plus future energy supply. How does it works? Both distributing importers and project developers will do their purchase more and more by tenders. Tenders based on quantities with a price. For volumes there will be no price based tendering, but a more specifications focused tendering will be common. The reason why this will happen is to make benchmarking more easy/quick/simple, by fixing one side (the price side). The supply side than knows the budget per product and the volume and can offer the best specifications in terms of product function, product stability, product service, product warranty and product finance. The last two could be offered in cooperation with open arrangements (closed arrangements are bad economics, creating not fair play fields) with the own governments, as the governments wants voluminous actual production for recovery, industrial direction transition for the future and future energy diversity and supply. So all governments will install a) product functional warranty, b) product specification warranty, c) product service warranty, d) export transaction facilities and e) product finance facilities. The governmental backed warranty arrangements will be crucial for finance and therefore will become the default mode. The global economic turbulence and the 'Toyota' effect (manufacturing errors) has delivered this new demand to export. And governments will go along with it. Some from the start, some later-on after their industries haven't be able to acquire much sales. Governmental backed manufacturer warranty will become the default condition in any capital intensive product (or product part) that needs finance by its sale. Financiers just will demand it. The same is applicable to product service facilities, which are needed for more complex products. By these three warranty facilities the function of a product is ensured and that's what a financier wants to have as operational guarantee. As the financier often will be paid in outcome of the investment, the financier has a direct interest in product function guarantees and will weight these guarantees significant. The warranties will be limited to the own product function. Construction companies will also try to acquire this state warranties on their work and for them it will also be limited to their own work, so no overall warranty ever is issued in this model (as that would be a blank cheque policy of the warranty issuing state. Is this just an other scam that privatizes profits and socializes possible loses? No. Why? Manufacturers will also to deliver the best specifications for the requested price, in this contest they will transfer their profits into finance contributions based on the Energy as ROI model. They will share this ROI with their respectively governments, giving the governments an energy income as reward for the warranty issuing and the export transaction finance and giving themselves the profit on the manufacturing afterwards. Of course both the governments and the manufacturers each independent or joint together can sell this ROI any time they want. As it's just an income stream on a facility and thereby has an attractive market value. There will be enough financials specialized in trade or exploitation of these Energy as ROI rights. Energy as Warranty is a concept capable of generating a massive energy transition investment wave.

G Lanch.

ENERGY as BARTER

Energy as Barter is something that sounds very old fashion and USSR-like, as only suitable in for a non international banking traffic dominated before the '80ties world. But this is a misconception. For long term contracts Energy as Barter is for both parties very attractive: the energy supply side of the barter deal ensures by this very easy a hedge on the future deliveries against declining currency values as the energy demanding side of the barter delivers real products instead of rapid in value declining currencies (as measured against a basket of commodities instead of against other -also declining- currencies). Thereby barters delivers more actual future purchase power as in currencies nominated long term contracts. Barters also can be used to guarantee the future supply of products not available in the domestic market. The importance of barters will grow as currency values stay declining at current speed. Bartering is also about the new multi-polar global model, in which bilateral contacts between two nations will increase enormously. Contacts that grow into contracts. The multi-lateral contract model was an illusion. It have never been there, still is not functioning, nor has a future. Too complex to reach agreements, too much noise on the lines. All supra national contexts have not a good figure for negotiations that require tact (and each negotiation does). The future of international relations is very strong in bilateral contact/contracts and if there will be multi-lateral contact and contracts they will serve a cause all parties agree on when they start to negotiate. And where companies can deliver a function as joint venture, this will replace politics totally. We see that already on the issue of gas-lines and oil-lines: political bodies where not able to fix these agreements for decades and suddenly joint ventures solve these problems. Even the toughest (for example the Russia/Ukraine gas-line issue). Complex projects like North Stream is a result of such joint ventures. Politics have proven to be poor deliverers of multilateral functions. That's mainly because politics sees supra national bodies as free to rip warehouses with no check-out. The main attitude of national bodies to international bodies is take as much as possible and bring as less as possible. Power, gas, oil and rail lines will be realized by companies, multilateral, in joint ventures: delivering economic democracy and economic bi/multi lateral cooperation/development: corporations that represent their respectively customers is in its essence an ultimate type of democracy: people can vote with their purchase power. People who complains about the power of corporations should stop complaining and start their own corporation. That would be 'something' harder than complaining (as in: very hard work and failures are included in creating corporate structures), but it would be a signal of really understanding the concept of economic democracy. Corporations should explore economic democracy as very valid (social media drivable) marketing tool. The role of economic democracy will be extended more and more, even into tax budget uses: the one that pays is the one that decides what to do with it. The old model of democracy is the parliamentary one (representative democracy). Economic democracy will not replace it, it will complement it by other means: the voting power the demand side of the economic model has. Or governments will like it or not: economic democracy will certainly become more important that it is now. The Shell / Brent Spar issue unveiled the power of economic democracy and this ghost will never return into the bottle again. When these infrastructural works crossing the high seas, international legislation is needed. Not a world government (that just will deliver new taxes, taxes that repress economic activities instead of stimulating them), but just international legislation hosted by the IMO and enforced by the International Court of Justice in The Hague, Holland will do the job perfectly. Rural energy will be produced local by PV. Farmers will grow their own bio-oil and produce in local farmer cooperatives or small local/regional factories bio-diesel of it. But the industries and cities always will have an energy deficit and that where remote energy concepts like GeoThermal and DesertTech kicks in. The infra to it will be designed, financed and build by companies in the respective countries that are feed by this power supply. Bilateral contacts based on real mutual benefits will rise severely in volume and quality. That's the future of international politics. And it will re-install bartering as massive tool. Energy for X (x is the subset of what's available in the one nation and what's needed in the other nation). Most of the new to establish National Energy Bodies will get a place just like Central Banks: attached to the government, but independent operating under tight regulation and law enforcement. Energy as Barter is a concept capable of generating a massive energy transition investment wave.

G Lanch.

ENERGY as DEMAND

Energy generation out of the old (fuel based) energy system goes in decline. Governments, companies, neighbourhoods, households, individuals and of course the power companies certainly will be willing to sign for future energy demand to insure their supply. From finance perspectives this is very interesting: it inserts user demand guarantees (as in: purchase power) in to the finance case, insuring a contract protected cash flow to the financiers.. It draws the power of further income to the present finance case. Energy as Demand can be done in two versions: A fixed energy price model and variable energy price model. For energy users is the fixed energy price is very interesting. Than they know the energy price for several years to come. For energy project developers the variable energy price model is very interesting: it delivers the future payment security and on top of that the profits attached to future price rise of energy. These profits make the sales price of a project to an investor (like a pension fund). The Energy as Demand model is very interesting for both financiers (more payment security), insurance issuers (more payment guaranty), guarantee issuers (more payment guaranty) and project developers (huge project income and/or project sale margins possible). As stated above: Energy as Demand draws the power of further income to the present finance case and by this make energy project finance, guarantees, insurances and by this all energy project development much more easier. Energy as Demand is a concept capable of generating a massive energy transition investment wave.

ENERGY as PENSION

The only assets that increase instead of decline in value (like currencies) are energy generating assets with the “Energy as ROI' model. Pension funds therefore will really like renewable energy investments, as this give them hedge (counter weight) against most of their assets. Pension funds will focus their whole new investment wave on the 'Energy as ROI' model. They have already to much assets will be that gives them a ROI, but not deliver a hedge against inflation (currency decline). They need to balance this. The current asset crisis emphases this very clear. Assets in currencies are declining assets by the massive non energy bound Quantitative Easing to fix bad bank/state debts that's currently going on in each year more volume. Pension funds will stop to buy treasuries (governmental bonds). They will not be able to sell them, as they only can be sold with a huge discount. They will use banks to make their treasuries liquid again, as banks can get one 100% cash for treasuries by the Central Banks. These liquidities they will invest in 'Energy as ROI' models as these assets grow instead of decline and by this can counter weight both the loses they will face on treasuries and other investments as the value decline of any currency as ROI based asset. It often said: Bank Crises delivers Sovereign Debt Crises delivers Pension Fund Crisis. By energy investments based on the 'Energy as ROI' model the pension funds can free themselves out of this asset down watering spiral. Pension funds are really 'hurt' by the market situations of the last years. PeakCredit/PeakCapital has given them severe asset damage. This undermines their function legitimization severe. They must take action otherwise the will be replace by any Direct Model, as Direct Models emerge enormously in the capital market. Capital democracy (people deciding their own investment portfolio) will become the default state of pension funds. They see this and adjust to it (by facilitating their customers with it) of they will lose their customers by this direct model demand that is unstoppable emerging in the market. The operational model of pension funds thereby will change a lot the next years. Pension funds will use the current quantitative easing focused on treasuries of the Central Banks to turn their treasuries into cash and use this cash for energy investments. Energy as Pension is a concept capable of generating a massive energy transition investment wave.

ENERGY as HEDGE

Energy investments based on the Energy as ROI concept deliver a free hedge against currency value decline to its investors. In the USA the FED already bought US treasuries with Quantitative Easing originated money since China stop doing that. In EU the ECB has started to buy european national treasuries on May 10, 2010 as response on the Greek Debt Crisis. In two major market in the world the currency is watered down in value to curb the disinterest of the market for buying treasuries. In this US they try to hide this by discontinuation of publication of the M3 money creation figures on March 23, 2006 (making the USD a complete virtual currency), see http://www.federalreserve.gov/releases/h6/discM3.htm for the official statement of the FED on this. It's safe to say that governments are over credited and that the markets lost their trust in these debt piling, political unable to balance income/spending, they have no other option than ask the Central Banks to create money to buy the treasuries, otherwise they will run out of money within 14 days. It's also safe to say that market capital is turning its back on treasuries reasuries has lost their name as 100% sure asset. Buying treasuries is equals buying assets that are actively watered down in real/actual value by the vendor after the sale (regardless the interest premium on it) something not many investors likes. Market capital is searching for new investment targets that are safe, can keep up with the coming hyper inflation and give a ROI. This why energy investments will make up a significant part of the asset portfolio of any financial in the next years. Not only for new investments, but also to hedge existing exposure in currency attached assets that can not be 'unloaded'. Unloading treasuries to the market in these market situations for treasuries is not realistic. To prevent market dumping of treasuries, they can be used as full nominal valued collateral by both the FED and the ECB. If they also need to disappear of the balance sheets than for this SIVs (Special Investment Vehicles) are created. This cash will not be used to buy new treasuries: financials will use the by this arrangements delivered cash for other products and/or in other markets. Governments have to save themselves and the financials have to save themselves. The best governments can demand is that financials that they unload of (yet toxic or still clean) treasuries sign a contract that they will not take short positions on (as in: bets on decline of) both treasuries and currencies. But this could be bypassed by funding this for relations of by joint SIVs where everybody has a minor stake (so they are legal off-balance). New energy investments have so much upside in comparison to treasuries. Much more certainty, build-in by it characteristics a free currency decline insurance and better ROIs. This is why financials will abandon treasuries and move to energy facilities. The same reason is valid if one can chose between investing in the East (delivering an asset risk and also a currency attached value decline) and energy investments in own or nearby nations. But energy investments will not only be used for much more certainty, build-in by it characteristics a free currency decline insurance and better ROIs. Energy investments with the Energy as ROI model will also be used as counterweight (hedge) for currency based assets that could not be unloaded by the market nor by the current Central Bank operations. As currency values decline financials can make a huge extra own profit on these on the Energy as ROI model based hedges. They put money in and get kWh out that can be sold against tomorrows power value in tomorrows currency value. The Energy as ROI model will deliver 50% of all the earnings financials make. The Energy as Hedge model is very attractive for the results and balance sheets of financials. They can make it these extra profits on third party currency assets (acquired against an interest fee in currencies, by the regular currency attached interest rate model), or even on interbanking loan created liquidities (as they could do before the Credit Crunch). Energy as Hedge is a concept capable of generating a massive energy transition investment wave.

ENERGY as PROJECT

When all these described finance tools are in place, project development in new energy facilities will become very attractive. Without these tools project development is very hard: the project developers need to realize any warranty, guarantee and finance by themselves. To illustrate this with an example: do you need to make your own screwdriver and screws or can you just buy them at low prices out of mass production by your local hardware store? Project development still will be an art, but it will change more and more to the art of combining the right project facets, while now also these facets needs to be developed (as they aren't realized yet). Project developers will split in four different focused types of project development related companies: the project designers, the project financiers, the project realizers and the project sellers. The Energy as Project model delivers IT models that facilitates project developers with an extended project template that delivers them both calculation as communication tools. Energy as Project is a concept capable of generating a massive energy transition investment wave.

ENERGY as SOCIAL

Social networks are often called Web 2.0, as they play a crucial role in reversing direction of the Internet. Push to pull, professional driven information to user driven information, professional driven communication to user driven communication. Social networks are the right merge between professional technology and user driven information/communication. Energy as Social is about an Open Social protocol platform attached to Energy as Match concept. Energy as Social is about digitally very easy facilitating demand creation and concentration. It's about facilitating people to take the lead in their own street, district, village, city, region and nation in energy transition. Ideological (fee free), or commercial (fee based), that doesn't matter, the concept is the same: facilitating very easy to initiate and manage demand creation and demand concentration. Users can make 'virtual containers' that they could place on their own profiles on network sites which interacts with both the network site database as the 'Energy as Social' plus the 'Energy as Match' database. Each profile owner on an Open Social connected profile based network site can initiate a project: Everybody can make an Open Social container on the 'Energy as Social' website. Or in case of joint initiative or cooperation with that social network with the 'Energy as Social' initiative- even on that social network. Everybody can invite people to the functionalities of the 'container' by their own network site database tech. The 'Energy as Social' initiative don't want to focus on growth of own memberships, but wants to cooperate with all the existing network sites. Not creating own 'mass' using other 'mass' to create transition information/communication/demand volume. This even could be done with a build in fee for the network sites, as they all very much like income (or income diversification). The content of the 'Energy as Social' model come besides from the profile owners/relations, also from the database of the 'Energy as Match' model, where financiers and suppliers have 'posted' there products/services. It's safe to say that every internet user is part of some kind of social network (if we see MSN and hotmail also as such). Energy as Social is a concept capable of generating a massive energy transition investment wave.

ENERGY as MATCH

There are several parties in the energy investment market. First there are companies/households that 'fancy' certain types energy investments. Second there are banks that 'fancy' certain types of energy investments. Third there are hardware suppliers. Fourth there hardware installers. Fifth there are services (advice, maintenance, insurance, etc). Sixth there are project developers. See all this as data and see that there are matches (joint subsets) in this data. Matching of these 'profiles' will be done automatically. Banks just can dig/search automatically by wanted profile definition the type of finance, the type of investment, the type of return they want and send automatically a customized offer to this demand. Other market parties (like hardware manufacturers/vendors, services, insurances, maintenance) can do the same. Energy as Match rationalize/digitalize energy investments finance and realisation. Delivering both volume and cost reduction to the banks and other parties (as in: double profits by turn over increasing and cost reduction), which will be translated (due to the system transparency) to lower CAPEX and OPEX (interest is the highest part of OPEX by renewable energy) of these investments, making the energy output cheaper. The Open Finance Platform also gives the demand side possibilities for demand concentration. One person in a street, district, village, city can take the lead in demand concentration. This even could be done commercial (as in: with a kick back fee). If companies/households start to understand the future perspectives of energy, the market demand for energy harvesting facility investments will grow. If banks start to understand the huge possibilities and benefits of energy finance tools the supply of finance will grow. The needed Tier One capital demand issues need to be solved by BC on BS energy specific regulation and transaction attached by the Energy as Fee model. The needed liquidities must be made available by Energy as DM model by the market and Energy as QE by Central Banks. If central banks start to understand the benefits of energy focused QE, only than than supply can meet demand this emerging demand even in current times of Credit Crunch. Energy as Match is about a local/regional/national Open Platform for Energy Investments. These platforms works basically very similar to internet based dating sites. The local/regional/national platform can be economic independent by demanding $1/E1 per send offer (this is also a 'taxation' based limitation on individual offer communication). Suppliers and demand party could give this platform a setting of yes/no regarding receiving offers and/or quotation requests. Each nation should have its copy of this energy investment platform running as soon as possible. It will deliver many good things: less export of wealth by energy import, internal economic use of energy money, economic recovery/transition, bank recovery/transition. These investment platforms will use the Open Social protocol, so people will not have to initiate a new sign-up procedure with ditto new login/password combination and (much important) the virtual 'boxes' can be used on other network sites (enabling these huge communication mass). For more information on the 'Energy as Match' model see www.planck.org/downloads/Simplified-Diagram-Open-Finance-Platform-for-the-coming-Energy-Transition-Investment-Wave.pdf or see the extended version of this diagram on www.planck.org/downloads/Extended-Functional-Diagram-Open-Finance-Platform-for-the-coming-Energy-Transition-Investment-Wave.pdf. Energy as Match is a concept capable of generating a massive energy transition investment wave.

ENERGY as TENDER

The new (fuel less) energy model is based on technology, the model is totally capital driven as operational fuel costs are no part of it. This is a huge advantage of the new energy model. Technology is about the interest rate (and guarantees on actual capital availability), purchase price (and guarantees on actual delivery facility delivery), operation (and guarantees on actual operational performance), maintenance (and guarantees on actual maintenance costs) and of course the reason why the facility is made: the energy output (and guarantees on actual output performance). A good design of the new energy model has no wild cards. That's the beauty of the new energy model. No fuel. Just facilities. A model financial technocrats love: very facet can be designed, tuned and controlled. Fuel is not needed and risk can be insured. Just capital and performance. The bottom line of every production unit in the new energy model (micro, mesa or macro) is the ROI in energy against the investments and operational costs of the facility and the guarantees for that. As new energy model is very much on capital and speed, are abuse and bribe always right around the corner. Specification focused tendering ensures lowest interest rates, lowest maintenance costs and intervals, best operational output. The concept of specification based tendering is fixing the amount and making the specifications variable. This gives a focus from every party involved on performing on specifications (from interest, to low maintenance, to high outputs) and guarantees on them. This also exclude abuse and bribe very much. Suppliers will seek governmental insurance covering on their offers. Rates and guarantees are just another type of spec. Energy as Tender will deliver better performing energy facilities and by this reduce the cost price of the by this tendered facilities harvested energy and improve their ROIs. Planck Foundation in cooperation with Open Foundation will develop an open tendering model that can be used by third parties. For fair trade it's important that all bids are published so that other bidders can determine by themselves the quality of the offers. Tenders can have a limited period and a maximum purchase price. Energy as Tender is a concept capable of generating a massive energy transition investment wave.

ENERGY as AUCTION

Energy as Auction is about the sale of new energy investments by auction. It will be used by parties of both sides (investment case supply and investment case demand) to get their wanted best possible deals in the market place. Both side of the auctions will use the Energy as Variable model combined with the Energy as Rating model to determine the most accurate ROI perspectives of the investment case. Planck Foundation in cooperation with Open Foundation will develop an open auction model that can be used by third parties. For fair trade it's important that all bids are published so that other bidders can determine by themselves the quality of the offers. Auctions can have a limited period and a minimum salesprice. Auctions can be used by project developers sale of new yet to initiate projects, by project developers/owners for projects under construction and by project owners for sale of existing projects. Acquiring equity/finance by project developers will be done with the Energy as Tendering model. The Energy as Auction model is full focused on project sales. This can be both as whole project (to one buyer), or in parts (to many buyers), from one owner (that owns the full project), or from many owners (that owns parts of the projects). The purpose of the Energy as Auction model is a) to facilitate very cheap digital trade of energy projects, b) to deliver 'ready to step in' of energy cases to the worldwide financial world, c) to offer energy project owners the possibility to sell their assets to financials. The combination of Energy as Tendering and Energy as Auction will be used by smart energy project developers of energy project financiers to build and sell energy investment cases. By the Energy as Auction model this even can be done before the project is realized (as the Energy as Ration model rates the realization guarantees too). Energy as Auction is a concept capable of generating a massive energy transition investment wave.

ENERGY as EXCHANGE

As the design of energy grids will go from the centralized model to the decentralized model, there will occur a linear demand for decentral power exchanges. These decentral power exchanges will be the public market place for local/regional power demand/supply. The business model of power companies will due this decentral generation/harvesting model change severely. Their USPs (generating, distribution, billing and collecting) are undermined by this decentral heading changes. The future of the current power companies (if there is one) is adjusting to these new realities. A strategical choice between huge central fuel based (coal/nuclear), huge central fuel less (geothermal) or voluminous small decentral (gas, wind and PV) in terms of power generation. There is also a strategic choice between generating or selling power. These two classes of strategic choices determines the future fate of the current power companies. And in both classes they are mega ships that can't adjust directions/strategies as fast as needed. They almost occupy the current market, have the equity and have access to market capital but these 3 huge wind falls will not give them automatically a good position in the near future. The changes they face are paradigmatic and paradigmatic changes always comes with a lot of risk for the existing dominating market parties. See this similar to the rise of the Internet and the old media/contact industries like newspapers and broadcasting industry. Maybe it's even safe to say that the leading market leaders before paradigmatic change are not the leading market parties after a paradigmatic change. From the business model perspective (so regardless the type of fuel or the absence of fuel need in the renewable energy model) the two main changes are 1) the new decentral input and 2) the new pure power selling parties. Two completely new 'competitors' that change influence the traditional business model severely. If the old market dominating parties will survive in this new setting is completely up to them. The ones that recently have chosen for new coal and nuclear investments are toasted: they just don't understand the concept of PeakCoal and PeakUranium, nor the by increasing demand feed market supply tension. The old concept of PeakOil is wrong, it's developed by people out the upstream market. The new concept of PeakOil is that demand will out-phase supply before supply has peaked. More people, more prosperity, more purchase power will cause this. So the old energy business model is unter siege. From energy sales perspectives there will be a lot of new sales parties on the energy markets. Not only new dedicated energy parties, but also 'virtuals'. Virtuals are huge customer based characterized market parties in other sectors (banking, retail, media, political parties, unions, etc) that want to earn an easy buck on this basic commodity. Virtual can also be ethnic (just like we have faced emerging ethnic marketing in telecom, we'll see this also in power and all other 'enduser commodities'. For the energy supply perspective their will be a large volume of small decentral suppliers. These two changes will come together in what we can call 'energy democracy'. Like in all industries the whole old structures are wiped out. This has happened on the Internet (Web 2.0: the user has become the biggest content supplier, see for example Facebook, and the user driven content has conquered the largest share in 'media consumption time', leaving the old information distribution model with sharp declining media consumption time ('traffic') and by that with less subscription and advertising income. We see this development in telecom, where virtual mobile operators (like Tesco) have gain a lot of market share based on their large customer base in other markets. We will see this a lot more in telecom, as numbers will come free available (like domain names, or -very valid- as domain name: people like words, not numbers) and people will chose their own 'inbound' and 'outbound' telecom providers (of even depending on the destination which will be attached the contact details in their phonebook). We see this also in the music industry, where the old record companies will be replaced by a each artist it's own audience powered by the users 'user delivers users' concept and paid by new types of ecommerce, even till Sellaband like initiatives (where the fans funds the new production of an artist). We see this also in stock trading by the rise of trading platforms for the enduser, bypassing the old and expensive structure. We will see that in banking (people will decide what the financial should do with their money). We will see that in the pension fund industry: the old times that a 'wise' fund manager decides on investment are soon over: people will draw their own pension build-up plan and use new digital structures to handle this (user driven capital streams). The wise men has made too much mistakes to justify their interference. Back to energy. Generation will become for a certain part (how much nobody knows) decentral. Trade will move to virtual brands with transparent engines. For the 'import' of power from higher levelled grid structures there will be green power brands, nuclear fission power brands, geothermal power brands (the concept of economic democracy). Just in in object orientated programming their will be isolated and thereby easy accessible 'functions' that together makes the new energy business model. The local/decentral power grid will have an exchange where supply and demand will meet each other in automatic and manual trading. As the price of power rises the price of power will go 'live' (different price per location, per hour of the day, per day of the week, per day of the year). Than two things will happen: 1) households and companies will start to use energy management (using certain processes as the power is cheap) and will have units to manage this. These units will be connected to a XML live data feed from the local/decentral power grid. Besides the grid and the exchange there will be professional parties that takes care of making purchase 'profiles' (a set of what if / do that rules). In the internet world the exchanges are build by market parties that want to initiate an exchange. For power the municipals will initiate exchanges, will stimulate local power generation/harvesting and will insure multiple external power feed redundancy (now sometimes a

city/village has only one power feed and by this no redundant power supply). Planck Foundation together with Open Foundation will develop an open source local power exchange model. There are certain privacy issues, but they must be addressed political (more technology and more government is a bad, very bad development, delivering a more 'effective' digital version of the DDR, that will lead to less innovation as out of the box thinking will become risky). Energy as Exchange gives power generators and harvesters the best possible market and market price for their product and they can initiate customer preference serving groups/companies. Energy as Exchange gives the energy deficit households, companies, municipals, regions, nations and continents the power they need for the best possible actual market price. Also long term (not spot price based) energy demand/supply can be traded. But they will be more and more only guarantee the supply/demand and the live price will be used for invoicing. Energy as Exchange is a concept capable of generating a massive energy transition investment wave.

ENERGY as TRANSPORT

Energy harvesting investments project developers will like be build on locations with the best ROI (lowest investment, highest return). This are often not the demand locations. This different location issue bring a transport demand into the energy sector. Energy transport makes it possible that supply meets demand , if there are power exchanges that can handle/invoice this demand. By good energy infra power surpluses can be send to areas with the highest energy deficits (and thereby give the best spot market price). Therefore energy transport is market wise (and thereby commercial) very attractive. The financial world start to understand this. An example: In Holland the state owned national grid operator (Tennet) needed E 1.5 billion, they tender this capital demand and gets offered E 11.5 billion within a week. Such a capital supply situation is a dream scenario for almost all investment cases anywhere any time. The financial world starts to understand the perspectives of energy finance each month better and they often begin on the energy market by looking for energy transport investments. Energy investments will take over the capital feed that now goes into state debt bonds. This a simple line with huge monetary consequences. State debt bonds will become very unattractive. States will need to balance their budgets completely as their access to the capital markets will be lowered. The unlimited capital flood of PeakCapital is behind us. Pension funds will have more appetite for energy generating and energy transport investments that each year will gain in value, than for state bonds (treasuries) that each year will decline in value. Energy transport investments have the huge benefit that they are energy source independent, this why most financials start their energy investments in energy transport lines: it delivers them a safe start point into energy finance. But they must not overweight this energy source independent facet of energy transport (as in: hedge against sources variables). An insurance against other variables don't make a product/service perfect in its own class. A focus on transport also could be a by lack analysis/knowledge driven misconception on where the lines are needed. An example: The above mentioned capital tender of Tennet will be used to realize a backbone from new remote coal fired power plants to the central cities. Coal fired power plants will no deliver power as they fuel cost (coal) will become to expensive and coal fired power plants are not as flexible (quick start, short online during demand peak, quick offline as the peak is over) as gas (a natural gas fired plant produces almost direct power after 'turning it on'). Energy transport is attractive but that was data transport also, still the fiber companies haven't made any money as they all did the same routes or did stupid route. An example of not profitable projects realized by companies that need to perform profits are the so called 'routes to nowhere' like the so called 'deer instead of dark fiber' to the less populated north in Finland. KPN Quest has several of those kind of 'investments'. Of course energy transport investments will have less competition as data transport as the CAPEX per mile is much higher and current capital supply is much more different than during the dotcom bubble (when all the fiber companies build lines on the same routes). The example above (ask for E 1.5 billion, get tendered E 11.5 Billion) certainly tells the story that there is too less investment demand in energy transport. But that will change as fossil energy prices will rise and thereby energy as molecules (fossil energy) declines, energy as electrons (kWh) will rise. Power transport by lines make it possible to live export for money by kWh surpluses, and to live import/purchase by kWh deficits. As the energy price rises power/current/am prices will become more flexible/variable. Companies and households with old fashion power/current/am meters will pay the maximum price and people with new digital XML based power meters that delivers live data will get live prices. Live prices as in: variable depending on location and time. This will lead to intelligent power use base on the price. For example: charging electric cars will be done with cheap energy. Industries will do energy intensive processes as the power is cheap (is in the power intensive aluminium commodity industry already happening). The first thing that's need change in energy transport is the unwanted subsidy of state owned national grid operators to connect each power plant anywhere. This make it possible to build huge coal fired plants in the middle of nowhere and give economies the bill of connecting them. The concept of privatizing profits and socializing costs build into the business model. This regardless the fact that coal fired plants will become the bleeders of their owners and/or operators as global coal prices will spike due to huge demand increase from China. The economic problem of the concept of fuel driven energy will be most visible by coal as fuel in times of PeakDemand in combination with soon occurring PeakCoal. All stories about huge coal reserves are just stories. The reserves are there, the exploration prices of deep coal are 'only' 3 till 4 times of the current surface coal exploration. Deep coal will be harvested with in-situ technologies and transported as kWh by powerlines. So the subsidizing of the energy wrong direction (delivering new coal fired power plants in the middle of nowhere national grid connectivity) must stop. Certain as off-shore wind doesn't got these free grid connection. This not-equal not-fair situation needs to changed by adjusting grid legislation to no forced by legislation infrastructure investments by the national grid operator for new power plants. The local grids should go to the municipals. Privatizing them equals stupidity. Any inter-local power line should be privatized (as in: sold to the market). Governments needs to capital this deliver them very much. If the lines are in separated corporate identities they can be sold with the attached finance (if the financier agrees with this). Smart governments don't consume this capital but invest it in Energy as ROI models that would give them better future perspectives and thereby better ratings. Supporting their financial status and their currency value by this. Inter local/city/region/national powerlines can be best addressed by the market. New

power lines should be underground and HVDC based. Existing HVDC tower attached powerlines could have on one side of the tower HVDC instead of HVAC. New power lines also will have fiber lines on/in it, creating also income by the fast growing demand for digital communication if television on demand and video calling/meeting will get traction. Active component suppliers (like ZTE and Huawei) certainly are interested in offering finance schemes for the needed active fiber components. Municipals will design their own external powerline redundancy. Municipal grids will connect each other municipal grids (as part of their redundancy plans). Municipal grids will connect each other municipal grids (as part of their redundancy plans). Regional grids will connect each other regional grids (as part of their redundancy plans). National grids will connect each other national grids (as part of their redundancy plans). Continental grids will connect each other continental grids (as part of their redundancy plans). If the market doesn't perform, governments will fill the white spaces the transport suppliers have left. Power lines will be attached to new rail roads. The Beijing to London railway that China wants to initiate is a perfect example of such a new combination, certainly as air travel and air cargo will become too expensive due sharp rising fossil energy prices and the to this attached declining air networks. When governments interfere in energy infra it gets politicized, making it more difficult to initiate/realize/operate. Power is like money: it has no political opinion. Other methods of power transport are a) embedded (by products that have high energy demanding production processes like aluminium or solar cell crystals), b) by hydrogen and c) by wire (as extended described above). Embedded energy will be solved by the market and needs no help from any government what ever. Hydrogen will be used in energy surplus location on moments where there is not enough power demand or power transport capacity. This will be done as close to the market/harbours as economic possible (as power is much more easy to transport than hydrogen). A global hydrogen market will emerge very fast. To think that there are enough rare metals to store the daily energy needed for the daily mobility is only a demonstration of absence of knowledge regarding the global supply/reserves/exploration of these rare materials. Cars will be driven by power, the power will be generated by fuel cells that will transform hydrogen to power. The current hydrogen production technology is not good: it leaks a lot energy on unwanted warmth. See Energy is Hydrogen in Energy Politics for the directions the hydrogen technology will go. The business model of energy transport is simple: there is capacity and there is demand. Certain capacity volume will be contracted by reservation and price, other by reservation only and the rest will be auctioned on an full automatic energy transport exchange model that also automatically will manage the transport to the line. All these will be XML live data driven. Energy as Transport gives local available energy, that's not locally needed a market somewhere else. By this it increases the ROI on energy investments. Energy as Transport is a concept capable of generating a massive energy transition investment wave.

ENERGY as ESCROW

As energy investments gives an output this output can be handle separate of the investment vehicle in an escrow. First this will be done if there are multiple owners but later-on this will be done by almost all energy generating/harvesting facilities. It makes them easier to sell, as in case of a sale of the investment nothing by use of an escrow nothing changes except some ownership records in the land registry record and some ownership records in the grid registry, but the payment data still will be the same. From finance perspectives this is positive: ensures the cash flow on facilities and by that the cash flow on investments. Finance structures can learn a lot of object orientated programming: the best/fast outcome for the lowest costs. Currently escrows are relatively expensive (as they are no commodity). This will change as they get more common tools. This also will change as banks start to understand that escrows ensures steady cash flows to them. Escrowing will even become cost neutral if the money must not be directly paid forward. This will give them the liquidities they like/need. Providing escrow services than will become a way to pay interest. Financials with good contacts with the project developer will always ask them to use their escrow services (fixed is possible). Escrow delivers certainty to the financiers. Certainly in case of renewable energy finance: due the fact that these investments don't need fuel and are almost totally capital/investment driven. Insuring the cash flow is an important facet for financiers. By the Energy as Collateral concept there even can be a backup escrow (contracts already signed as part of the finance deal) if an escrow party defaults. The beauty of renewable energy projects is that its possible to cover each risk and thereby the facility will produce fuel less each day of its existence. Escrowing is an important part part in creating this circle/chain of trust. The grid administration another part of this chain. The land registry records also. Escrowing (based on grid administration database) is ensuring the financiers that they will get paid. Period. That's quite a facet on an investment case. Energy as Escrow is a concept capable of generating a massive energy transition investment wave.

ENERGY as PROPERTY

Energy investments are very similar to property investments. The whole business model of renewable energy is almost the same as that of property. Only energy has two major upsides extra. A building is just a bunch of bills without good tenants. Good tenants makes good real estate. Bad (or no) tenants makes bad real estate. Good tenants insures future rent income. Future rent income justifies real estate investments and thereby real estate finance. Energy harvesting investments are like real estate investment, only better. Real estate investments are not mobile, the result of energy harvesting investments (energy) is. Real estate investments are very vulnerable for economic 'weather', fuel-less energy investments not: there will always be energy demand (local, regional, national, continental) and operating renewable energy harvesting facilities doesn't require fuel, so has very low operational costs, so has a huge spread between direct operational costs and direct operational output. The whole capital flow that was going into real estate will be diverted to energy investment, just by the lower risk profile of energy investments. The facility can be used as collateral, the output can be seized by default, there are almost no operation costs, the financier can share in the energy price rises (Energy as ROI), the output can be transported and there will always be a demand for it (as almost any nation has an energy deficit). The markets of commercial property are under heavy pressure as the global economy is redistributed from the West to the East and real estate can follow this production/wealth redistribution. Production goes East. The west is becoming to expensive. Globalization is just global wealth distribution by the market (instead of by socialism). The West has to adjust to lower prosperity levels and that will not be a nice process. Office demand is declining steady in the West as production goes East, but also because the office demand per employee is declining (due to more administrative mobile/home production due to information digitalization. The office market will implode is the XML based office IT model is implemented, which will end the whole old model of information streams in offices. Before the XML model IT is basically used to process old information streams, XML based information streams will reduce the human production facet on offices. Administrative control work will replace administrative production work. The sky above commercial real estate market is autumn dark. The sky above the 'Energy as Property' market is glooming and will be wide open and full of summer sunshine. Energy as Property is a concept capable of generating a massive energy transition investment wave.

ENERGY as LEASING

As the energy price rise, energy investments will emerge and leasecos will develop a wide range of financial constructions. These lease constructions can be divided in mainly two groups: pure financial focused and product focused. As it's a new market the product focus market approach will grow harder. Product focused market approach stands for the fact that not the financial construction is the demand creator, but the product marketing. Product focused group will be driven by a) manufacturers/importers (delivering both products and finance to their distribution channel, of (mainly in case of new market parties) trying to eliminate the need for a distribution channel or b) by products/solutions focused turn-key marketing, sales, installation and service/maintenance parties. Leasecos will use the third party driven products/solutions driven dynamic and the turn-key case model (that's covers anything by design) to the max. Leaseco are banks and banks employees are more legal officers than marketing giants. The cooperation between leasecos and the products/solutions driven third parties with their turn-key focus will be voluminous, as both sides do what they do the best. Leaseco have some problems these days. First: Due to the Economic Crunch their market demand has plunged and by this turnover has declined severely. Second: Their operational costs haven't changed very much. Third: Due to the Credit Crunch their capital 'purchase' (finance and refinance of existing short term loans) has become much more difficult. Fourth: Due the Credit Crunch capital 'purchase' has become more expensive for those that could not access the Central Banks 0.X discount rates directly. Fifth: Due to the Economic Crunch the rest value of each contract product has plunged due to severely lower market demand (making almost each contract not profitable), we have facet PeakMobility and PeakTransport in the Western World and that's something front operators in these two sectors (as the leasecos are) will feel the most. The health status of the car manufactures tells something on the health status of the lease companies. As results of these five influences their results are quite different than they used to be and by this the operational direction had to be changes (from growth to survive). Not strange that by almost all leasecos a change of leadership took place after these effects of the Credit Crunch came to the surface. The new leaders are in the new realities with the legacies of the past. They must cut severe in the costs (adjusting overhead with turnover). They must arrange (re)finance. The value decline of each leased subject is considered as a beyond management influence economic climate fact. The coming energy transition investment wave is a 'blessing for the sky'. The energy investment wave will deliver the leasecos Business Phase 2.0. Down by PeakOil, saved by PeakOil. Just a matter of adding a new sector. Beside Transport and Mobility now also Energy. Energy investment in general (with all the extra beneficiary models from this Energy Finance paper) has three very attractive general upsides for the leasecos. These are: 1) complete new market sector (the winners could take it all: huge turnover perspectives), 2) a free market hedge against heavenly energy prices effected sectors like transport and mobility (better ratings) and 3) severe longer period contracts (less cost, more future stability). On top of that leaseco can benefit of all the in this Energy Finance mentioned energy finance models. Energy as Fee gives them a direct a substantial income for each signed contract (plus solve Tier One demand issues). Energy as Output in combination with Energy as Collateral gives them a grip on the investment output (something very important: eliminates debtor risks completely). Energy as QE could deliver them the liquidities needed (as the Central Bank would accept these contracts as collateral in exchange for loans of 90 cents on the dollar). Energy as ROI can give them extra income and (if needed) a hedge against assets in week foreign currencies (like the dollar). For leasecos in the euro zone and dollar zone this is not that important, as the euro and the dollar are since 2010 officially married by currency swaps (without any democratic vote) and if they go down, they will go together. Leasecos are good in funding, contracts and collecting. Product focused sales organizations with turn-key solutions will conquer the market and will use leasecos for the financial/legal facets. Besides these new and aggressive/smart turn-key sales/marketing companies, there also will be case product focused case builders, that makes turn-key product/finance case and sell these to leasecos and marketcos. Of course the leasecos will make deals with the manufacturers and importers (dealer networks or direct marketing driven), but due the complexity of the case the turn-key parties will win with a head start. They do everything both the leasecos and the customers want. Turn-key. EnergyIndus is a company that makes such a turn-key models for leasecos and manufacturers and targets to build as much certainties into each model. Certainties is what finance drives. Marketing is what sales drives. Together they'll power energy transition severely. Energy as Leasing is a concept capable of generating a massive energy transition investment wave.

ENERGY as FACTORING

Factoring in it's most extended version combines invoicing, escrowing and payment insurance into one service for third party suppliers of products/services. It's doubtful if the current factors (financials that offer factoring) will contribute a lot to the massive energy transition investment wave, as power exchanges does this work. For regular factoring there will be not much market in the energy transition wave. But for adjusted standard services (invoicing power deliveries and acting as escrow) certainly. There is also certainly a future for factors in the building process of energy investments. Being the controlling third party. This independent third party function will develop to an independent industry and mostly will grow as side company out of the factoring companies, as this is closest to their current core business model of all the financials (similar to the phased mortgage schedules that are used in real estate construction processes). Energy as Factoring is maybe a in only some situations supporting concept capable of generating a massive energy transition investment wave.

ENERGY as SCF

Supply Chain Finance is about pulling the financial strength of the customer(s) into the investment case. This pulling the financial strength of customers into the investment case can be done if the product is something that fulfils the demand of the customer(s) and the customers want to sign for that. That such an arrangement is in favour of the investing party is clear at first sight. For the customers this also has several upsides: a) they put their financial strength of the future into insuring today the fulfilment of their energy demand of tomorrow (as in: free energy supply insurance), b) give them price fixation without costs (as in: free energy price guarantee) and c) give them the opportunity to profit from energy price rises (as in: giving them a free energy price rise hedge). Supply Chain Finance is about a financials that see the needs of both the supplier and the customers and builds a mutual interests serving finance model between those two perspectives. SCF can facilitate the investment swift from real estate to energy severely, dwarfing real estate investments by out performing them in ROI and risk reduction. There will be a lot of energy focused SCF financials on the market the coming years. It's almost a blue ocean market. Full of demand and almost none supply yet. SCF parties will in a certain way benefit from the harvested energy to by the Energy as ROI concept. The Energy as ROI model for the SCF party lowers the need for point of investment profits and thereby reduces the capital need of an investment case and makes it more attractive for third party financiers. Energy as Factoring is a concept capable of generating a massive energy transition investment wave.

ENERGY as FIC

FIC stands for Feed-In-Compensation. Feed-In is a legislation method that delivers energy transition away from fossil to a renewable energy model. By the fact that Feed-In a only legislation based model is, it has as huge benefit that it has no impact on the governmental budgets (i.e. it's governmental budget neutral). This governmental budget neutral facet that could be a very important facet in times that almost all governments must cut spending severely, but still wants to change the direction of the national energy system by a budget neutral model. The reason why nations would like to change the direction of their energy model is obvious: a) the fossil model that has powered economies for a century is ending and nations that will stick to it will face severe economic damage as fossil energy prices will rise and economies based on cheap fossil energy prices will slowed down by it, b) importing fossil energy is exporting wealth and c) much of the geopolitical and georegional friction and/or tension is caused by fossil energy demand and its attached capital flows. It's not strange that nations with no fossil resources are the first ones that considered FIC legislation. They have no double agenda as the fossil states have (as the fossil states have a huge fossil energy based income): energy is for the fossil deficit nations just a huge daily export of wealth and a huge future risk. How does it work basic? It forces the fossil fuelled power manufacturers that deliver to the grid to add a little to their price (say -for example- 1 dollar cent per kWh -but this is a variable that each nation could judge different) and to transfer this carbon fee the national energy transition fund managed by the national grid authority. This energy transition fund subsidizes with this carbon originated income the renewable power generation that is feed to the grid with a certain fee per kWh: the difference of an average fossil fuel generated kWh and an average renewable generated kWh. The operational costs are very low (as the grid administrations (national, regional or local) is already in place and functioning fully automatic and the costs of it are already for account of the parties involved. So fund nett income = fund nett expenses. The last thing nations need is a new governmental layer with ditto costs that will burden their economy. As the current energy power is almost fully fossil fuelled, this 1 dollar cent per kWh feed fund will have more carbon fee income than renewable fee expenses. This capital is parked by the National Renewable Energy Transition Fund, a body that supports maximum -for example- 25% - but this is a variable- of the loans for renewable energy investments by regular banks under certain conditions (see Energy as Rating) and as long these are liquid to handle (as they can be needed on short term to pay renewable fees if the renewable production starts to get traction. How does it work actual? The fund pays the difference between renewable and fossil power energy generation to the supplier of renewable energy to the grid (as additional price component on top of of the already everywhere installed open grid IT based administration). So the payment administration doesn't cost a dime extra to any party involved. The whole measuring, accounting and payment infrastructure is already in place (servicing the open grid architecture). The FIC model is also much, much, much more better that than the carbon tax proposed in Copenhagen, as that would lead to new global governance structures, with ditto costs and ditto poor transparency. The FIC model is by design much better than the Copenhagen Proposal. The FIC model does for the full 100% what it supposes to do, with no costs, no global treaties or any other not proposed side effects. The Copenhagen Proposal was just about installing a global tax to be able to install a global governance structure. It wouldn't solve the problem, nor bring solutions and delivers only less democracy and less transparency. As written before: democracy/transparency and distance are contrary items. The more far government is from the persons and companies it governances: the lower the quality of governance. Their should be installed a National Renewable Energy Transition Auditors (with maybe regional or local branches), that give the auditing guidelines to the market auditors and audit the market auditors in following these guidelines. Market auditors can be energy auditors if they get a permit (based on an energy knowledge educational course) for it and by mal-auditing or even audit fraud there are sanctions that leads in three strikes (with auto recover of strikes due to good behaviour -as in: no recorded mistakes) to withdrawal of the auditing permit. The FIC legislation stays in place to fossil fuel generated and renewable harvested power prices are equal, after that point, fossil will become only more expensive and renewable only will become cheaper, so the legislation is no longer needed. This price compensation model delivers the owners/financiers of renewable energy harvesting/generating facilities the coverage they need to initiate/finance these facilities. So this FIC model is not about 20 or 30 year guarantees. It just a market driven guarantee model that will be in place as long renewable is more expensive than fossil. This would not be a long period. The FIC model is just a way to kick start a national/regional/local renewable energy production, that will keep the energy costs for now in to the domestic economy, will guaranteed the economy steady energy supply, give the banks (instead of foreign states) a new line of income and prevent economic slowdown due to to high energy prices as fossil energy exploration starts to become too expensive and increased market demand of the emerging nations will drive prices even higher. What if the renewable fee demand is higher than carbon fee supply? That's just a sign that or the renewable fee must be lowered or the carbon fee must be higher. Just to the judgement of the national/regional/local government as writing in the FIC legislation. What's the method to get no head wind on the FIC model by large industrial power users? Limit the FIC model to grid deliveries and leave own power production by the industrial mega users out. They are powerful in lobbying and can retard the installation of FIC legislation for years. Furthermore: they really understand that mega energy using processes are not good any more from economic/competive

perspectives: they will change by themselves for the sake of maintaining/realizing profits and markets. They are certainly interested in energy transition. They understand the energy status better than we all do, as they must pay huge energy bills and due to the current economic turmoil the biggest share of profit realizations is in cutting costs. More on the current concept (not the above described new concept) of FIC can be found on Wikipedia (http://en.wikipedia.org/wiki/Feed-in_tariff). Energy as FIC is certainly an very easy to implement concept that is capable of generating a massive energy transition investment wave.

ENERGY as CR

CR stands for Carbon Rights. Energy as CR (Carbon Rights) seems a good model to transit away from a fuel demanding energy system to a fuel-free energy system. The problem is that carbon rights are total virtual assets, with only remote distance to sources and thereby absolutely vulnerable for fraud. The Energy as FIC model is much more better that the Energy as CR model, as the Energy as FIC has the grid as measuring tool and thereby can not be canartisted in any way. Of course some companies likes the CR model: it can be manipulated in many ways. But the CR model is just wind trade: it must make international 'carbon right' trade possible. CRs are not easy to verify value papers. CR trade is just another step in wrong ways of financial engineering: as it makes business not more, but yet less transparent. Another huge downside of the CR model is also designed to subsidize nuclear fission investments, just as the whole CO^2 discussion is designed in the '80ties to make environmentalists (who at that time were anti nuclear fission) to change in to nuclear fission energy endorsers and propagandists. The CR model is based on a misconception: that CO^2 is bad. This misconception has much more to do with the size of Al Gore's feature movie attributes (the famous CO^2 ladder) than with the real effects of CO^2. CO^2 is nothing more and nothing less than an atmospheric type of fertilizer. The concept of CR is the wrong answer on the wrong question. It is not the surplus of CO^2 we should fear, it's the deficit of it. The end of cheap and abundant fossil energy that could cause our economies to decline and our financials and governments to collapse. Fossil energy will be expensive, we don't need the CR model for that: it's just a result of more expensive exploration and refining. We used by the law of economics the easiest to explore and to refine resources first, now we are approaching the more hard second half of the resources. This (that the second half is harder -and thereby more expensive- than the first half is something we don't understand very much as mankind. Just like we don't understand the increasing demand (as in: increasing purchase power) of the emerging nations. The west is quite narcissistic in their global perception. The new reality on purchase power is not landing at all in the west. This has neo-colonial roots: the misplaced superiority feelings steers the Western World in dead-ended energy streets. Concluding: a) the CR model is vulnerable for fraud as it has no direct link (which the FIC model has), b) the CR model will be used to subsidize the parasitic nuclear fission industry (all costs of security, all costs of waste, all costs of destruction are for the society, plus they can get insurance, so pragmatic as governments are: they may operate without it). Germany has demanded from Vattenfall a corporate 'parent guarantee' for a nuclear fission power plant: that's smart behaviour that ends the wrong and not sustainable privatizing profits and socializing loses development. There are other reasons why the CR model is not adequate: it delivers no transition / no alternatives: it just taxes. More tax is not acceptable, we don't need more taxes, we need more changes. We need heading to a renewable energy model. The CR model is thereby no foundation for renewable energy business cases at all. Just due weak foundation of it. The CR model is based on the CO^2 myth and the days of the CO^2 myth are ending. The Energy as CR model is heading towards less transparency while the economy and thereby financials and governments are under pressure of the market and society are heading towards more transparency. Energy as CR is therefore just the wrong direction. Energy as CR is not capable of generating a massive energy transition investment wave.

ENERGY as DM

DM stands for Direct Model. The consumer demands more influence on the way their capital is used. Certainly as the so called professionals have made a mash and has proven to care more for their own fees (that reduce the future payments to the clients) than for the future payments of the client. The 'let the professionals take care of it' model is declining. The professionals where not that pro as they presented themselves. The professionals are more and more emperors without cloths. People, companies and governments start to understand that their deposits, savings and their pensions make not only their own future security, but also shape the current and future generic economic model. The awareness will rise more and more. Both by just generic media coverage on the economy and financials, but also by economic change focus movement that promotes this concept. In the US and Canada the Credit Unions are very active (http://www.youtube.com/watch?v=cawzTSVTP2M). In the USA there even a fast growing movement promoting this concept (www.moveyourmoney.org). This development is feed by three major generic social/economic processes. First: the generic democracy wave that has grown the last 100 years and now reaching even the financial industry. Second: the generic transparency wave that has grown the last 50 years and now reaches it the last non transparent bastions. Third: The huge paradigmatic change of the media, giving a more pluralistic media landscape with ditto more diversity in news on the economy and financials. Fourth: IT makes it possible the manage own stocks trade and will make it possible to also determine the 'direction' of own deposits, savings and pension capital. The central place (roundabout) in this new 'capital democracy' is for energy. People will leave pension funds (as in: go to other capital democracy facilitating pension funds). Capital democracy will go as far as that the ownership of investments will move from indirect (pension funds) to direct (client). The new capital democracy based pension funds will be no more and no less that pension service partners. Capital will stay closer to home (equals less risk and thereby more total return), the Energy as Direct model can use the data structures of Open Foundation to use local capital to build the local economy. The Energy as Direct Model is a concept capable of generating a massive energy transition investment wave.

ENERGY as IB

IB stands for Inter Banking. Before the Credit Crunch the money creation was also done by the banks though the Inter Banking method. The Inter Banking method delivers a money creation system based on economical growth. Now in many nations (read: in the Western World) economic growth is over and they suffer of economic decline this money creation model is stalled in the overall way. Money creation by loans (the foundation for Inter Bank money creation) only works by growth. IB her effects are reversed (kicking weak banks out into bankruptcy) by economic decline. This is the explanation why banks in the emerging markets of the world still performs very well and banks in the old prosperous markets needs tricks to produce profits and good balances. For understanding the concept of IB, it's crucial to understand the process of money growth (i.e. money creation, market/economy money supply in that currency). As a bank issue a loan the loan is brought up on the balance sheet of the bank. This process is called money creation and is regulated by mainly a equity ratio demand. This is the reason why banks like to place parts of the balance off-balance: to being able to create more money (as in: having more interest generating turn-over). As in growing economies all banks can do this successfully, the money supply grows by this money creation process. How does this work as customers transfer the money of their loans to accounts by other banks? All banks has direct (or by an intermediary bank) accounts by each other and they order the bank of the account holder where the money must go to to write the amount of the account holder and redraw this amount of their own account by that bank. This way banks builds up daily big deposits (or debts) by each other. Once in a while balances are levelled by some third party counter parties (based on value exchange). In times of economic growth this model works fine, it only stalls if one bank make huge loses and by this defaults to its counter parties. But defaulting in a growing economic with the IB system as tool is quite difficult to do, it only happens by management that deliberated steer to bankruptcy after the have robbed their own bank. Bad investments and bad bets can not bring a bank down in an ambiance of economic growth. This changes when economic growth disappears. Than the process of money creation is stalled, the process of money creation stops, the money for the interest payments on existing loans is no longer made by new loans. The weak banks that have been possible to survive due the general economic growth comes into debt by all counter parties to levels that that counter parties not accept new transfers to their account holders on credit. In times of electronic banking rumours about this cause a electronic bank run and the bank defaults and is bailed-out, or taken in receivership by governmental organizations (in the USA this is done by the FDIC), or take over (with governmental support like Bank of America has done by Merrill Lynch, which lead to the Maiden Lane I to V bad asset take overs by the FED), or goes bankrupt (like is happened by Lehman Brothers). What do we see of this in the real economy? Not much: banks punish counterparts when they are more than liked overdue with higher IB interest rates for that bank (as in: go somewhere else, we make IB loaning by us less attractive). These IB rates are not published very much, so we don't see a lot of it. The only thing we see very often is the IBAN (Inter Banking Account Number), which speeds up international money transfer when used as destination account by the sending counter party. The good news for all banks (both in emerging markets as in the old markets) is: energy investments are a growing phenomenon and by this (even in declining economies) it delivers the effects of IB to all banks. If banks in declining economies start to understand this, they will become very active in new energy finance, as this will (partial) bring the huge benefits of banking before the Credit Crunch back into their business model. Banks in old markets will see the benefits of IB and try to install new energy clusters, where most of the money is circulating within their accounts (making IB possible). These clusters will achieve to cover whole chains, from manufacturers to installers and their suppliers and employees. Open Foundation has a tool for banks to realize this. Banks in emerging markets will also understand that new energy investments delivers all the good of IB to their IB system. Energy as IB is a concept capable of generating a massive energy transition investment wave.

ENERGY as TOD

Adjusting of the Tier One Demand maybe can become the most important tool in Energy Finance worldwide. Certainly in by Basel II (http://en.wikipedia.org/wiki/Basel_Committee_on_Banking_Supervision) dominated times. Basel II demands higher Tier One levels due to dynamic/specific credit risk levels for several types of more risk attached credit. If all the described Energy Finance tools are used the Tier One demand for energy investments could be lowered to zero, if some are used they could be lowered to specific risk adjusted levels. Basel III needs to address the Tier One demands of energy investments very specific and in the interest of both economic recovery and energy transition as fast as possible (within months and not within years) and as good (right risk adjustment) as possible. The fuel-less characteristics of renewable energy makes it a pure capital based model. The absolute demand for energy insurers amortization and interest payments. A request for this is send to the Chairman of the Basel Committee (Sir Wellink). It's clear that the different energy finance concepts lowers the risk for the financier severely, and that a cumulation of them can lower the risk to zero. If the TierOneDemand is lowered the IB money creation can compensate somewhat the lack of economic activities driven money creation that is present due to economic decline. The 'Energy as TOD' concept, is combined with the 'Energy as IB' concept, combined with the 'Energy as Gold' concept, combined with the 'Energy as QE' concept, if based on the 'Energy as Output', 'Energy as Collateral' and 'Energy as ROI' concepts can deliver both economic recovery and energy transition the same time. Energy as TOD is a concept capable of generating a massive energy transition investment wave.

ENERGY as CDO

A new CDO concept can be very interesting for new energy investments. The old CDO concept is dead. The old CDO concept was packaging a bunch of loans and than slicing it in risk levels and sell these risk levels as separate products. The accounting and collecting was done by in these action specialized third party companies. Recent history has unfortunately showed that the old CDO concept has failed. Nobody wants any more to buy a box of loan parts (even with commercial issued 'insurance') when there is not much data available or accessible. The practice of the old CDO concept was that garbage was sold as gold. Some of the CDO makers/packages ware not much focussed on delivering value for money, but more on getting money for garbage (first taking the highest risk themselves as sales argument for selling the lower risk slices, and them selling the highest risk slice easy driven by the names who bought the lower risk slices. It's a shame in rating that subprime loans could get an AAA rating. It's a shame in insurance that subprime loans could get insurance against systemic failure. The old CDO concept was build on the childish believe of bankers with a average age of 30, a believe in ever growing economies without any cyclical correction. Reaganitis to the max. One more is proved that good banking also is about mixing different ages. Home prices would rise for ever, even as the speculative home ownership seriously got traction (the most simple visible sign of oversupply). The end of the US housing value growth had four roots: 1) the demand for homes slowed down during Bush (as the USA was suddenly no longer the ideal place to emigrate to and the immigration wave out of Mexico stopped), 2) rising oil prices started to drain the economic growth power of an economic model that was totally build on cheap and abundant oil of the 80ties and 90ties, growth stalled and defaults start to occur, big cars equals expensive gas refills, big houses equals big energy bill for everything, 3) the USA was living way beyond it means (credit replaced production) as economic motor and 4) China had to much man and to less women, so the women got more selective and the man had to work harder and more (more income, no time nor will to spend it) to earn female attraction. Still the CDO as technological concept of organizing accounting and collecting and then slicing in from low tot full risk slices is a perfect tool. The CDO will gain new attraction. Not in housing, but in energy. As energy investments a) stay in production (are debtor independent) and b) the outcome can be seized very simple (by sending a simple form to the grid administrator), the CDO will be born again and get bigger than ever before in the new energy sector. This time investors will be more smart and less full of trust than the first time. Trust pollution (the real reason behind the CDO boom: building a misplaced wall of trust) can be avoid by an energy investment rating model that all rating agencies will use. See Energy as Rating. The new CDO model can have any appearance. Single energy source, multi energy source, single nation, multi nation, pure interest based or with (from 0% till 100%) Energy as ROI, several type of object insurance, several types of operational insurance, several types of municipal/state guarantees, several types of demand guarantees, energy price fixed or a floating energy price or a certain combination of these two. As in energy investments the risks can be out placed to the market and there's no fuel cost price risk the real variable is not risk, but kWh selling price. The energy price based CDO delivers each slide a part of the energy price, starting a the bottom. The slice at the end will get serious ROI if the energy price gets severe higher. This is a hedge model separate from the Energy as ROI based hedge model, but with risks (that will be rewarded tremendously if the energy price gets much higher). The new Energy CDO will have huge impact. The concept of the CDO was ok. It's a pity the use it on the housing bubble. But it will rise again, and the trust pollution issue still will be a problem. That's finance: taking care of your capital and not trust easy smooth talk, nor nice presentations, not TV commercials, nor too suited too much perfumed in hit and run models thinking sales men. The CDO will become huge in fuel free energy investments. Energy as CDO is a concept capable of generating a massive energy transition investment wave.

ENERGY as CDS

The concept of the CDS is very old. In Amsterdam in 1600 the first multinational of the world (the VOC) used the CDS instrument in its project funding. Today the CDS has lost a lot of its attraction (and value) by the recent arrangements AIG, Ambac, MBIA, etc. had to make with their customers as they otherwise would go bankrupt. The whole AIG bail-out was just one (temperately) collective bail-out of the CDS industry under the AIG flag, leaving the other CDS companies out of the wind. The problem with the current business model of the CDS industry is that they think issuing guarantees is just only about getting signing fees and mailing huge monthly invoices and that it stops there. But insurance is about paying when the insured situation occurs. This is something that wasn't in the current business model. The whole CDS industry needs both new management and a new business model. Yesterday. The times of the past aren't coming back. They could play a huge role in the new energy attached CDO wave, but the problem is trust. That they have to fix first by openly say goodbye to the old operation and start to earn trust again, by grading risks just as risks, by being risk exposures and risk hunters instead of risk covering. This risk covering by insurance companies is a concept totally can not be understood: insurance companies always have exposed risks in the interest of their own business. This risk covering is just an example of the 'hit and run' way to do business. Current management should make a public stand against this 'tomorrow will take care of tomorrow' former business culture within the CDS industry. The CDS industry was forgotten what their core business was and just became a part of their natural claiming enemies: the high risk insurance demanding parties. The first problem in the CDS industry was that they liked the signing fees too much and that they were to seduced by these fees that they don't see risk as risk any more. The second problem in the CDS industry was that they could not recognize/analyse the walls of trusts that were build on the CDOs that where offered for insurance. The CDO packagers kept at the start of a CDO funding process the highest risk, attracting by this huge corporate names in the global finance community and than at the end sold this highest risk to the dumbest/laziest and more greedy (an combination often occurs) customer in the market. The CDS is a very attractive instrument that can not be pushed aside due to some hit and run men with no wider scope than the next quarter reports (with ditto bonuses). Regarding bonuses: only upside bonuses are the most stupid inventive tools ever installed: giving employees the rewards of being entrepreneurs, without the risk of it. Of course the dream of everyone: only the upside and not the downside, but besides stupid, it encourage bad behaviour with other peoples money/future. Still the CDS is a beautiful instrument in funding. Just like soap: if some people don't use it right, it says nothing on the function of soap. Soap still cleans. CDSs will play a vital role in energy finance. The CDS industry will be separated in two directions: the insurance fee based covering and the asset based covering, and both will use each other as complementary instrument. The concept of insurance fee based covering is risk covering by risk spreading. The concept of assets based covering is risk covering by asset cashing if needed. The asset based model always will have the fee based model as buffer before them (as they don't like to lose their assets. The Pension Funds and the Central banks will occupy the whole assets based CDS market as they're the only once that hold large assets. The central banks are only ones that can make assets in money when the going gets tough. The whole system of guarantees and liabilities is currently too less transparent, this will be changed, as the system now is to vulnerable for/by abuse. Guarantees (and that's what CDSs deliver) will become real guarantees again. The real guarantee issuers will exposure the fake ones for their own benefit. Energy as CDS is a concept capable of generating a massive energy transition investment wave.

ENERGY as IPO

The rise of listings on stock exchanges have done for the capital market what the rise of money has done for trade. It makes it easy for third parties to join or leave a company and it makes it easy for companies to attract capital and get the company value determined by the market. The concept of stock exchanges i.e. public listings is very old. In 1602 Amsterdam had the first stock exchange of the world (just like it had the first public company and the first CDS -Credit Default Swap-) the same time. Listing energy facility investments is a huge capital tool, both by IPO -Initial Public Offering- or by -the less desired- reversed take over of existed already listed companies. As new energy investments always are about new projects and often are about new corporations, the rules of the old exchanges (like NYSE) are not adequate. Just like Nasdaq has done for the tech wave of the nineties, Nasdaq -and it's lookalikes- all over the world- will facilitate the coming new energy transition investment wave. For benchmarking all these new companies and new projects there is a need for a transparent trans market rating structure, without that these new investments will not be able to attract as much capital as they could if this structure was available. All the exchanges of the world will consider to install special energy focused units that facilitates both the needs of these new companies/projects and the needs of the investors. Once again the Energy as Rating model will be of much use for them. What type of companies will be listed? Project owning companies: One project companies. Multi project companies (from out of transparency demand, these projects should be easily to grade), but the need for transparency will put extra pressure on multi project companies, resulting is less internal diversity within companies. The times of internal complex listed companies are over. Project developing companies. Project building companies. Project material companies. Project knowledge companies. Material knowledge companies. Specific knowledge companies. The project developing companies will use an IPO very often (or they will sell the project whole or in big parts outside the public exchanges). New energy companies will occupy more than half of the space in all the financial media. Energy as IPO is a concept capable of generating a massive energy transition investment wave.

ENERGY as ETF

ETF stands for Exchange Traded Fund. ETFs are specific and dynamic (based on market or time or data rules) mixes/combinations of on exchange listed shares, that together give more designed security or return. ETFs can be compared by ordering a by the chef de cuisine configured top menu of the day in the restaurant of a famous chef. Restaurants operates in a certain type of cuisine, ETFs also. ETFs are market knowledge put in to daily configured investment products as an investment concept. ETFs are for investors that search specific active (based on rules) share mixes that are handled by a computer. ETFs are part of the transparency development in capital, where the capital issuer wants more control on their investment but doesn't want that this give them extra work. ETFs in the early days (just a few years ago) were static index trackers. Today ETFs are actions based on a vision on the market mechanisms. ETFs offers the possibility to create huge market demand for listed energy project shares, based on different strategies (action = reaction rules, time period rules, result data rules). The difference between a Traditional Fund and ETFs is that by ETFs the capital issuer determines the investment policy (by choosing for an ETF). For energy investments ETFs thereby are complementary supporting on IPO as energy finance instrument. ETFs are a good instrument to fund unknown but good projects in energy. The ETF is young tool, so both the technology, the scope of supply and the use is still changing a lot. The life time of the traditional funds is gone. The so called professionals have realized less profits. The capital world is changing. Investors will decide more themselves. Investors will only go in industries and models they understand. Capital will stay closer to home. The EFT is just a tool in these processes. The traditional funds will disappear and become just an overall brand for an ETF factory or ETF super market. For more detailed information on the origin and current status of ETFs see http://en.wikipedia.org/wiki/Exchange_traded_fund or google for it. From capital demand perspectives ETFs can be used to create demand for shares of good performing, but less well know listed energy material manufacturers, specific energy projects and/or energy project developers. Energy as ETF is a concept capable of generating a massive energy transition investment wave.

ENERGY as FUND

Energy funds ran that a managed by a good team can deliver both good ROI (cash or in kWH). The energy funds will replace the roll of the oilcos in the economy. There will famous good fund managers. They will have good/neutral/bad relations to energy project developers. Good multiple auditing can keep the can-artists out of the sector. Can-artists (by their laziness and drive for easy money) will be found mainly in the energy funding sector as well in the energy project development sector. Funds can perform well, neutral or negative. Any investor should know right now that beautiful marketing doesn't tell anything on the real values. Energy funds in each nation should establish a sector interest cooperation unit and support a independent web based medium on energy funds. Media delivers critic and critic prevents misbehaviour that can damage the whole energy fund industry in a nation severely and for quite a long time. Smart funds use separate not interconnected entities for each investment, these SIV sub funds has no need for unused liquidities (which lowers ROI) and have thereby a higher ROI. Funds can deliver significant equity or other type of funding to the markets. The Madoff case is one huge warning for anyone that want to invest in non-transparent funds. Madoff was a very respectable person in the financial world: he even served several years as chairman of the Nasdaq. Trust is nice, auditing is better. Funds must be audited very much. Law enforcement on fraud must be intensified. Funds needs to be as transparent as possible. The simple and transparent a fund is, the more it can be trusted. Energy as Fund is a concept capable of generating a massive energy transition investment wave.

ENERGY as FUTURE

Energy as Future is an investment model that bets on higher prices in the future ('going long on energy'). This model is very good serviced by the Energy as Variable model, that delivers a open/online spreadsheet model to everyone who wants to calculate future energy price effects, with variable entries for each calculation facet and several diagrams of the calculation outcome. Energy as Future is a model that can be used with market funds or without them (independent). The Energy as Future model breaks out of the out-phased historical energy prices, which where a result of cheap and abundant available high quality oil and coal. This 'jail' of the past really is bad for current energy investments as they use a no longer available reference environment for a new and total different energy reality. It's like calculating expensive produced off-season vegetables on cheap in-season market prices. The reality is that cheap, abundant, high quality fossils are behind us. Therefore a strong developed energy futures market will support the energy transition process very much. The first thing this industry will go for is giving some heavy counter weight o the oil industry by multi facet communication towards the media, politicians and governments. Exposing that's not in the interest of the oil industry to talk about PeakOil and PeakCoal, and that the oil and coal industry have no interest at all in exposing the real data, nor in development of comparative alternatives. The energy futures industry will bring the energy debate professionalism by lobbyists out of other sources than the oil and gas industry and will bring the discussion and future perspectives more in to a balance. Nobody (except the oil and gas industry) is served by the current PeakOil and PeakCoal blindness. Nobody will be served by a switch into the opposite direction (extreme over-valuation over energy future). But by a professional energy futures industry the oil and gas industry gets a good counter weight that give a more balanced and objective overview. Naked long, nor naked short should be abandoned, as this gamblers only takes the profits and walk away from loses. Naked futures should be abandoned in as many nations as possible by good legislation and ditto law enforcement. Energy as Future is a concept capable of generating a massive energy transition investment wave.

ENERGY as SHARIAH

The use of the Energy as ROI (kWh as ROI) model and the Energy as Fee models could be Shariah compliant, as they don't are based on interest but on investment outcome and transaction profit. As we all know the Quran forbids to charge interest as ROI, which rules out any Interest as ROI model for the Islamic part the the world economy. Planck Foundation seeks Muftis all over the world that want to research the 'Energy as ROI' and 'Energy as Fee' investment and transaction models and analyse if they are truly Shariah compliant. This could stimulate the sustainable development of the Muslim parts of global economy and Muslims all over the globe severely, delivering them also the wanted Sustainable Prosperity. It also could be used by the Islamic nations to redirect their sovereign wealth funds in more asset value sustainable directions and also could be used to compensate the loses made the last year caused by unsustainables/bubbles. It could also extent the energy income stream for the Islamic nations, making them PeakOil proof, giving them more time to diversify their economies in a riba free way. Energy as Shariah is a concept capable of generating a massive energy transition investment wave.

ENERGY as SOVEREIGN

Project developers that build investment cases on new energy finance models that use guarantees or CDSs that are covert by the local, regional, national, supranational governments or by the central banks of that nations or supra nationals should reward these governments or central banks if they sale the case. The guarantees could be even only issued under this condition. This would be smart behaviour as it rewards the risk taker for his exposure and preventing third parties to leave with the profit and left the risk taker with only the risk. Due to the Energy as Variable tool (combined with all the other described value adding new energy finance tools), the market value of new energy investment cases will be 150% till 300 % (one and a half to three times) of the nominal value. A part of this profit should we returned to the guarantee or CDS issuer, they could insure this sales profit sales by fixed sales price kick back regulation. It's important to know that all regulation can always be out ruled by smart financial engineering, which left the guarantee or CDS issuer one again with only the risk and not the profit. Therefore the bonus for the guarantee or CDS issuers should be just an initial and/or annual fee (the Energy as Fee model), or based on the Energy as ROI model. Each guarantee or CDS issuer could make their own price for issuing it, a price that the market will value as good (or too cheap or too expensive). Energy as Sovereign offers each nation (also the ones that have no fossil assets) the benefits of energy income: turning each nation into an energy harvesting nation, giving both all nations and all central banks energy based Sovereign Funds. The time of privatizing profits and socializing loses is over, the resistance against this public robbery is getting tough and this resistance is right: privatizing profits and socializing debts is just parasitical to economies, societies and governmental structures. It's polite white collared packaged hard corruption that undermines any good structure. Time for a model that replace parasitics with symbiosis. Time to make public finance more healthy instead of more worse. Any state and any central bank will issue guarantees on a) or energy investments or on b) export of energy facilities made by their own industry. As said before: all economic liabilities (so also of states) should be administrated more transparent. States will do right if they publish their guarantees and risk analysis on these guarantees. Central Banks should do only CDSs and will do right if they publish their CDSs and risk analysis on these CDSs. Publication gives public/media research and delivers critic if data is not right. Critic that takes care of always having the right data. Always having the right data is something that insurers the future of every governmental and central bank official. Transparency has a small price (sometimes some critic), but a huge benefit (knowing that that the road is OK and the direction right). A new type of export guarantee will occur: the functional guarantee. Most governmental export guarantees are mainly to cover the payment risk caused by the foreign counter parties, but more and more the foreign counter parties also wants or manufacturer delivery / builder realization guarantees, or manufacturer/builder warranty (or functional, or specification) guarantees. The demand for these guarantees will emerge severely as economies get into more turbulence due to the Credit Crisis/Crunch and the Energy Crisis/Crunch. What yesterday seems to be solid as a rock, can today default completely (mainly due weak auditing and false reporting, something that therefore should be declared illegal and law enforcement should be realized). So there are guarantees and warranties that will be issued by (local, regional, national, continental, global) governments and CDSs that will be issues by (national, continental, global) central banks. All of these guarantees, warranties and CDSs have a value adding influence case on projects. It should not be fair if the project developer will take the profit (or in project operation, or in project sale) and leave the governments and central banks with the liability. Value adding needs a fair pricing that reflects the value that's added. To be clear: guarantees, warranties and CDSs have a severe value adding effect. This should be priced and reimbursed. How will this be priced? As percentage of the sales price? History in financial engineering shows that in that case administrative cases will be build that leave the governments and central banks with no income on their value adding. Don't blame this on the financial engineers, blame it on the pricing model developers. The pricing model should therefore be fixed in amount, not in percentage. Than the value adding gets a price and that price will be too low, just right or too high, but the market will determine that and by analysis of the cases adjustments can be made for next cases. Pricing than gets market matched and payments of the value adding is insured. Payments can have only one type: Energy as ROI (transfer of part of the energy harvested). The Energy as Fee model (delivering a part of the project sales price as fee) is not a valid model (as it can be out-ruled by simple financial engineering based on simple legal like sale of use instead of sale of facility). So the Energy as ROI model is must be. The collection of these ROIs must be placed in a separate entity for the government or the central bank. By this the Sovereign Funds based on carbon free, fuel free energy systems will growing in all nations. It's a misconception that governments and central banks only can spend/water money (but yes, they are good at it). It's a misconception that the governments and central banks can bury any burden (by that they would just pile it up or watering it down and than collapse). It's a misconception that the governments and central banks can't make profit (and yes, they are often bad in it). What is the purpose of the these Sovereign (or Central Bank) Funds? First: they will bring the governmental balance sheets back in balance. Central Banks their balance sheets are always in balance as they can create money to do so. For Central Banks these funds are very functional in supporting the currency value: these funds are the perfect method to stop to process of currency value decline and support the process of currency value maintaining /conservation. These funds also can be the

G Lanch.

motivation that governments try to inflate themselves out of debt by currency value decline at the cost of the value of savings and pensions. These funds are thereby a perfect tool in creating sustainability in prosperity. In this concept the governments and currencies are mentioned as separate units, with separated tools and agendas. This is according the situation in almost any nation and regarding any currency in the world. The governments thinks the central banks are doing it bad (always covering the misbehaviour of the weak/bad financial institutions) and the central banks thinks that governments are doing it bad (always funding war by the use of quantitative easing). We have no opinion on this (as that would be a political opinion and we don't want to have these), but the Credit Crunch has made both parties clear that they need each other more than before and that they should work together more as they did. Together they deliver a better model and together they keep each other in balance. What are the funds used for? The funds (mainly feed by ROIs of large projects) will be used as guarantee funds for local banks to support them to issue mesa and micro (corporate and household/domestic) energy transition investments. So large investments support small investments and the whole range of macro, mesa and micro is covered. This can be done with the Energy as Equity model with the Energy as ROI reward. By this equity fund, all the local banks can have turnover (is income) again and act as the grass rooted level of change. Each nation than will be able to realize energy transition on all levels of their economy within 5 years. And this is why Energy Finance paper with all it energy finance models is developed, written and communicated. Energy as Sovereign is a concept capable of generating a massive energy transition investment wave.

G Lanck.

ENERGY as GOLD

Gold is the common practice hedge against currencies: if currencies goes down, gold goes up, so every asset mix that contains gold has a hedge against declining currency values. Gold is not more than an value insurance instrument. Unfortunately gold is a dead (not working) commodity that doesn't produce any outcome besides a gain of its market price. Renewable energy producing facilities are therefore a much better currency value hedge than gold. They deliver continuously a kWh capacity, that can be sold against a steady climbing price for actual currency values on that time. They deliver a) an income with b) a free build-in currency hedge. Hedging with gold is no longer needed and will be abandoned in the 21st century. All Central Banks of the world has leased their gold to financials, to get an income on the gold. We know the financial status of the financials. This promises not much for the return of these leases. This besides that the hedge funds that holds these gold leases are disturbing with these huge -leased- liquidities the financials markets, more specific: they go short with it on the weaker currencies. For this reason some people are declared unwanted individuals in several nations of Asia. If hedge funds go short on corporations: no problem. It's the duty of the management of a corporation to stay strong, if they go weak, the deserve to be attached. But for currencies this game isn't moral: Going short on currencies is robbing the savings and pensions of complete nations for just what money. Going naked short on currencies should be declared illegal globally. Not any governments will have any problem with underwriting this for implantation in their country. If this a ban on currency sales and currency insurance? No. An other instrument is installing a Tobin tax of 1% on derivatives, making financial gambling a little more expensive. But the first thing that must be done is feeding this funds with piles of cash by the gold leases of the Central Banks to them. Central Banks therefore should terminate their current gold leases by converting them back to cash and use this cash to acquire 'kWh as ROI' investments. The very valid risk of 'oops, it's gone' on the gold leases is than eliminated, and dead assets have become working assets, giving an ROI, securing the energy supply (and thereby the economy) and give a value support to the currency they operate. The value of a currency will be determined by the kWh production capacity the currency has an ROI on. Of course there is a financial direction (and of course stakeholders) that want currencies to go back to the old gold backed status. But gold is trouble. Currencies will never go back to a gold back status, therefore there is too less gold available in the world, unless the price will go through the roof: therefore there are stakeholders. Gold production is a dirty, environment poisoning and very violent industry. Gold possession has a negative influence on people: they hope everything will collapse: than their gold will be worth more. Gold is good for nothing. And yes, there are people who dream of a commercial gold back currency, these people are often also the people who promote a global united currency and hold large gold positions. It's time to abandon gold and activate other backing assets on both the governmental balances sheets and the Central Bank's balance sheets. Both should make a deal with each other and go hand in hand into 'kWh as ROI' positions, or do it separate from each other. The governments will hedge the payment obligations on their state debts this way and the Central Banks will replace their gold and foreign currency positions by this. Time to abandon gold and get not fuel demanding (as in: renewable) kWh production units take the lead in currency backing. Individuals with gold positions should also consider this: Procession of gold will be illegal if the going gets tough. See presidential Executive Order 6102 on April 5, 1933 by FDR declaring actual private procession of gold illegal in the USA. It's better to invest in kWh and by this get asset income, energy security and asset security, than holding dead gold that will be declared illegal if the going gets tough. Let's prevent economic collapse, fiscal collapse, governmental collapse and currency collapse and use available capital to get fuel free kWh production running. Holding gold certificates is something only wannebelievers do. Holding private gold in banks is something only people with a lot of confidence in banks and governments do (but was the concept of gold just the opposite: distrusting these both?). It's time to abandon gold for ever out of the financial system. Are their systemic risks on fuel free kWh generating assets? Yes. Two. First: When nuclear fusion gets up and running energy would become cheap again. This is not likely to happen in the next decades. See the Global Future Analysis for the only possible and also safe model for fusion: a virtual magnetic building powered by joint lasers laser cross point. If this type of fusion will become possible it will boost economies severely (never the less: resources/materials/elements still will be scare) and give time for redesign. Second: Regional induction/radiation that demolished integrated circuits. Could be an occasionally cosmic storm (see www.spaceweather.com) or man made (better said: enemy made) by EMP (Electro Magnetic Impulse: see http://en.wikipedia.org/wiki/Electromagnetic_pulse) by detonating an atomic bomb high in the sky, or by mad man HARP (High Altitude Research Project) experience on just the right frequency of one of the components the atmosphere. There should be an EMP protection legislation issued by the technological power authorities. And HARP experiments should become declared illegal by the UN. And EMP bomb design and procession also. Induction/radiation as possible technological (and therefore economic) danger has got much to less attention, while it's a real/valid danger with a high risk ratio. Are their other facets? Yes. Four. With the 'kWh as ROI' model we a) can save/transit our economies, b) save/transit our banks c) save/transit our pension funds and d) save/transit our currencies. Not bad for a concept of just three words. The same can be said for central banks issued CDSs. Energy as Gold is a concept very capable of generating a massive energy transition investment wave.

G Lanck.

ENERGY as QE

As the increasing volume of sovereign debts will vacuum clean the capital markets, capital will become scarce. This is a huge problem that must be solved, otherwise the energy transition will not be realized and the economies of the world will collapse. The fact that almost all companies must refresh their finance contracts will deliver huge capital 'trade' issues, but will have a neutral effect on capital availability (as capital will be released and demanded in the same quantity). Quantitative Easing (QE) is about artificial enlarging the quantity of money in circulation. QE is not without price: it waters down the existing value of money: think just in the tea bag example: more water on the same amount of tea delivers less strong tea and if it goes to far: just coloured water without any taste, that nobody wants. QE is gambling with the future value of a currency. QE is creating inflation (money gets less value). QE is about risking savings and pensions of persons, households, companies and governments. The in currency debt burden (with no background assets, likes consumer credit burdened and sovereign debt burdened) likes QE very much (as it inflates them for free out of debt), the currency asset owners doesn't like QE (as it lowers the real value of their currency based assets). Inflation is often called the invisible tax. Inflation makes debts wise and savings/pensions stupid: encouraging en rewarding irresponsible financial behaviour. Therefore we must QE only if it needed and (even important) only to steer structural changes to better futures. Than the damage of QE will be compensated by it positive effects. If QE only and fully should be used for energy transition investments it would make the future perspectives of that currency (and all the currency based assets that are nominated in it) stronger instead of weaker. Why? It would give the banks income, income they need to adjust to the new low (back to back-to-back, one to one) leverage realities of high prices energy/resources delivered growthless economies without collapsing. By this it will prevent future bail-outs of the banks . Bail-outs that have been done and will be done both by governments (a la TARP) or the more invisible by central banks (a la Raptor -the debt dump in the Enron bail-out, the guy who came up with this name could sure make another fortune as stand-up comedian- and Maiden Lane I till V regarding the last 'sell bad stuff for good prices' action-), both types of bail-outs endangers both the governmental funding as the currency value (and by this could lead to economic/financial/governmental collapse). It would give the states income, income they need to adjust to the new lower income realities delivered by the high prices energy/resources caused growthless economies (as governments basically float/grow on the outcome of the market driven economy). It also prevents economic collapse due to high energy prices and thereby once again prevents further bank bailouts (if regulation are tightened, control/auditing get independent and misbehaviour will be sanctioned) and further governmental defaults (as governments basically float/grow on the outcome of the market driven economy). People and governments that thinks that QE can be used to replace the market, quite don't understand the collapse of communism very well. People and governments that are infected with Reaganitis and use QE to bail-out irresponsible behaviour of corporations/financials/governments (privatizing profits and socializing loses), quite don't understand the concept of open/fair/free capitalism and abuse open/fair/free capitalism for their own agenda (George Orwell: Animal Farm: some pigs are more equal than other pigs). QE should be used for energy transition. To be more precisely: without EQ the needed massive/fast energy transition will not happen. QE channelled though energy transition investment saves the economies, the savings, the pensions, the financials (if they will be regulated), the governments and the currencies (as in: central banks). Of course all the people that have abused the housing markets, again will try to abuse the energy driven QE. This could be out-ruled by some smart regulation to prevent such weak assets as 'stated income' loans. The tools needed are all listed in this Energy Finance paper. Bank regulation is not our job, that's the job of both governments and the financial industry. If we use QE for energy transition we will save the economies (giving them time to adjust to new 21st century realities), the financials (giving them time to adjust to the new 21st century realities), the governments (giving them time to adjust to the new 21st century realities) and by this all our future, our savings, our pensions and our democracy/freedom (as collapse with 100% certainty leads to bad forms of authoritarian governments). We fix our energy system and gets all the other for free included. It gives the central banks a load of currency covering energy harvesting assets plus also a load of future energy income. The currency gets stronger, as needed. This way even currencies will be able to adapt themselves to the new growthless realities of the 21st century. QE the old style (just watering down currency values) will not deliver Sustainable Prosperity). QE this new way will build and maintain Sustainable Prosperity. If central bankers start to understand Energy as QE, energy price rises will bring prosperity instead of collapse. The asset based CDS type is non QE instrument that central banks can use and by which they can support severely the new energy investments as well generate huge incomes. The asset based CDS will replace gold leases completely. Gold leases delivers as side effect economic turbulence, asset based CDSs delivers stable economic recovery and transition, beside it delivers more income as gold leases deliver. QE still is needed as the economic process doesn't create enough money for the massive energy transition wave (as the IB motor is in reverse in the old markets).Central Banks must take a huge mental barrier to see energy as currency saviour, but when they understand the theory, they will practice it certain. Combined with the Energy as TOD concept, the Central Banks assets based CDSs as first line, the Energy as QE concept (based on COD as method?) is very much capable of generating a massive energy transition investment wave.

CONCLUDING STATEMENTS

The old fuel based energy model is based on fuels that are finite and face an increasing price of fuel every year. An new energy model is based on renewable energy and needs only capital.

The Western World has had it time in the sun. Their wealth levels are too expensive for good competition in an open global market, they have relatively more old not productive demographics and on top of this (or by this?) they can't absorb strong price rises of energy and resources by more efficiency. The best the Western World can do in the 21st century is maintain there current levels of prosperity. This Sustainable Prosperity (often called Economic Adulthood) they only will enjoy if they a) change their energy system, b) prevent a collapse of both their financial sector, c) prevent a collapse of the governmental income and d) prevent a collapse of their currency values. If they can't do this four they will not get Sustainable Prosperity and go into Economic Decline. Bla bla bla on western superiority is just bla bla bla, it's just a self overrating wannabe misconception with neo-colonial roots of the Western World. China and India deliver more Ph.Ds each year than the USA and Europe have all together. The Western World just has become too expensive, too less productive, too credit burdened. Low production and high credit often goes together. Credit than is used to compensate the low production (as in: for consumption and bubbles) instead for production facilities.

Our current fractional reserves based banking model functions only in growing economies. In economies with zero growth and in declining economies it will not survive and lead to defaulting banks and collapse of the financial sector. The reason why fractional reserves based banking not works by less/no growth and by decline is that the money for the interest payment on loans not is created by the economic output. By less/zero/negative growth with mathematical certainty defaults will appear. In no growth economics only 1:1 banking is possible, and an overall fractional reserves based banking model impossible.

We have to prevent a collapse of the energy system, of the economic system, of the financial system, of the governmental finance/structures and of currency values.

The 'Energy as ROI' model has the capability to fix bank balance sheet ratios, pension fund coverage ratios and currency values. Plus it gives the financial world income during their transition to 1 to 1 leverage ratios as they faced the fractional reserves based banking unfriendly economic phase on zero growth or even decline.

The 'Energy as Fee' model has the capability to fix bank bank balance sheet ratios. Plus it gives the financial world income during their transition to 1 to 1 leverage ratios as they faced the fractional reserves based banking unfriendly economic phase on zero growth or even decline.

The 'Energy as Fund' model has the capability to use the international capital market for huge macro investments and the same time will deliver national guarantee funds that allows banks to issue energy harvesting facilities finance on the local/nation level to persons/household/companies/municipals.

It has been said that there are three types of people:

Those who make things happen.

Those who watch things happen.

Those who wonder what happened.

2010-2015 ENERGY WARNING

ENERGY COLLAPSE > ECONOMIC COLLAPSE > GOVERMENTAL COLLAPSE > CURRENCY COLLAPSE

CURRENCY COLLAPSE WIPES OUT SAVINGS/PENSIONS AND LEADS TO HUGE SOCIAL UNREST

HUGE SOCIAL UNREST LEADS TO TOO STRONG LEADERSHIP AND POSSIBLE RISE OF DICTATORS

Planck Foundation

Gijs Graafland

May 2010

Amsterdam Europe

There is one everything covering only 16 minutes short video everyone should see:
http://www.chrismartenson.com/crashcourse/chapter-18-environmental-data
Contrary to the title, it's not about the environment, it's mainly about the prices of resources.

The main target of Planck Foundation is developing and realizing models that delivers normal economics driven Sustainable Prosperity for the full approximately 9.0 billion people that will live on planet earth.

http://www.planck.org/downloads/Global-Future-Analysis-Version-2009.pdf

http://www.planck.org/downloads/Global-Resources-Analysis-Version-2009.pdf