Plan A has failed and planet B does not exist – time for plan C?

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Abstract

The process leading up to the energy efficiency directive illustrates that many national states have given up their aspirations in dealing with the energy efficiency issues properly. In some cases is seems as if the search is rather for loopholes and redefinitions than for actual solutions. The problem is global and we see it also in other situations where high-level negotiations are used in attempts to make participating nations undertake measures to save the climate.

The IEA has continuously and gradually more insistently pointed at the necessity of improving energy efficiency on the demand side. Seemingly however with little result. Energy ministers claim on one hand that the world economy will suffer if energy use is reduced. Environment ministers look under all stones to find arguments that natural gas (i.e. shale gas) at least is acceptable. Finance ministers remain convinced that if energy efficiency is as good as claimed the market will deliver.

This takes place in spite of overwhelming evidence that there is a huge and growing cost-efficient potential to use less energy. There is "a free lunch that you are paid to eat". It is however not served. There is a need to help with the cooking. The government(s) will not be very helpful in doing so. We have to do it ourselves locally and in co-operation. On a community level there are plenty of activities and many municipalities have shown the way forward. The process is already underway but need to be multiplied.

Plan C (communities, commitments and cooperation) need to be elaborated. Technology development helps by miniaturisation of distributed generation supplying energy efficient installations delivered by companies that embrace new business-models where the quality efficiency takes precedence over the narrow technology perspective.

This paper will explore how and by whom new business models can be generated and applied in local communities both by the formal ones (municipalities) and the "civil society" to exploit the local resources and the local initiatives.

A story of failed ambitions

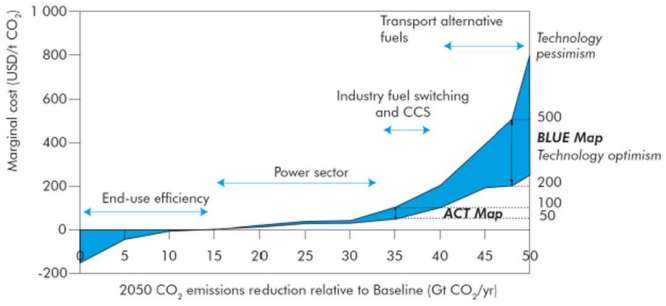
The road leading up to the Kyoto-agreement was a rocky one and the risk of derailing was imminent. The agreement was saved in the last moment by a rescue-operation led by the EU-commissioner for environment, the, at that time, chairman of the European council the Swedish minister Kjell Larsson and the incoming chairman from Belgium Marc Pallemaerts. This troika set out on a trip around the world with the ambition to save the protocol. Commissioner Margot Wallström said: "In all countries, climate change will be on top of the political agenda for a long time to come."[1]

The Protocol is based on the principle of common but differentiated responsibilities. It puts the obligation to reduce current emissions on developed countries on the basis that they are historically responsible for the current levels of greenhouse gases in the atmosphere.

The EU committed to a reduction of 8 % less emission of Greenhouse gases (GHG) compared to the base year 1990 and the EU obligation was the distributed among the member

1. http://europa.eu/rapid/press-release_MEMO-01-121_en.doc.

Energy Efficiency – the cheap solution



Source: IEA Energy Technology Perspective 2009

Figure 1. Measures to abate climate change in economic order. (IEA 2010.)

countries in a scheme of burden sharing. Again these sharing should take into account each member's situation in terms of emission and industrial structure.

The protocol has since then been heavily criticised. The critique is of varied nature but often claims that other instruments such as global carbon taxes would have a greater impact.

The most far-reaching criticism claims that:

> Climate change has turned out to be a so-called wicked problem, which is hard to define, hard to solve, and whose solving does not have a clear end point and whose resolution attempts generate additional problems. Climate problem is a problem of decision-making.

This critique goes on to say that:

> The Kyoto Protocol is not suitable for the solution to a wicked problem, because it is a copy of other agreements for tame and clearly definable problems. Thus, Kyoto has, as a matter of fact, worsened the situation as demonstrated by the increase in emissions. EU climate action cannot be considered successful, neither from the viewpoint of emissions reduction nor the angle of decision-making. (Korhola)

Whether the existence of the Kyoto-protocol really has worsened the situation is something that will never be known. That the agreement has put the issue of global warming on the agenda and made its complexity clear seems however fairly obvious. It is however also so that the decisions to solve the problems have been far from perfect and yes it also seems as if several decisions have not been in line with the ambitions but rather a way to pass the responsibilities to someone else or to a later time.

WICKED PROBLEM OR WICKED SOLUTIONS?

Energy efficiency is clearly one of the most attractive measures to take action towards the emissions from the energy sector, the one that together with transportation has the biggest share of harmful effects on climate. A fact that has clearly been shown in the recent IEA Energy Efficiency Market reports in which energy efficiency has been named "The first fuel"(IEA 2013) and "An invisble powerhouse" (IEA 2014).

Energy efficiency has a great potential and is by all means the cheapest (see Figure 1). It would be reasonable to assume that both politician and stakeholders on the market would greet this opportunity with open arms and as quickly as possible make sure that the energy efficiency opportunities were fully realised.

There is however clear evidence to the contrary. Some of them related to how the EU member countries have dealt with the Energy Efficiency Directive (EED). This directive has a target to reduce the energy consumption by 20 % compared to an assumed level of consumption the year 2020 (1,850 Mtoe). The legal definition and quantification of the EU energy efficiency target as the "Union's 2020 energy consumption of no more than 1,474 Mtoe primary energy".[2] This target is an absolute one and countries have been asked to report on the way they have implemented the targets in their own legislation.[3]

The member countries show a wide variety of solutions to this task and apart from a few that reports straight compliance most have found ways to motivate underachievement or to cover non-compliance with a clever choice of units for the reporting. Some have tried to redefine the task and make it look as if they are on track. One such is Sweden that reports "20 % reduction in energy intensity between 2008 and 2020". By stating the target with the same number (20 %) but as intensity (Energy/GDP) instead of nominal (Mtoe) the illusion works for some time.[4]

With this formula the energy use 2020 may be allowed to grow with the factor of the accumulated GDP-growth ($F=(1+g)^n$, where g=percent growth per year and n=the years for the period) and still fall within the "intensity limit" stipulated. In the actual case the energy use will remain constant at a GDP growth around 2 % per year, which actually is the target level for the Swedish economical ambitions. Constant energy use is actually the case for Sweden since some 25 years[5] so Sweden has with this "trick formulation" of its target made no commitment at all to the EU common obligation as regards the use of energy.

Energy Efficiency Obligations (EEO), i.e. the idea to make energy suppliers part of the delivery mechanism for energy efficiency, was another method suggested by the EED (article 7) to improve dissemination of energy efficiency to the market. This method suggests that energy suppliers should make energy efficiency part of their business model.

In April 2014 it is reported that this has been accepted by 16 countries but that 11 has rejected claiming that they have other methods that will deliver at least an equal amount of reductions.[6] It is hard to say if this discrepancy between rhetoric claims on the quality of energy efficiency on one hand and on slow implementation on the other, depends on failed ambition or lack of trust or something even worse – lack of cognitive capacity?

Whatever the reason it seems clear that if the Kyoto Protocol was plan A then this plan has failed.

2. http://ec.europa.eu/energy/efficiency/eed/eed_en.htm

3. http://ec.europa.eu/energy/efficiency/eed/reporting_en.htm

4. Abraham Lincoln once said: "You can fool all the people some of the time, and some of the people all the time, but you cannot fool all the people all the time."

5.https://www.energimyndigheten.se/Global/Ny%20statistik/Energil%C3%A4get/Energil%C3%A4get%20i%20siffror%202014.xlsx

6.http://energycoalition.eu/sites/default/files/20140422%20Coalition%20for%20Energy%20Savings%20Art%207%20Report%20FINAL.pdf

How the oil-club turned into advocates for energy efficiency

The International Energy Agency (IEA) was created as an OECD response to manoeuvres by the OPEC cartel in 1974. It was nick-named the "oil-club" since its primary goals was to find ways to establish a balancing control of the oil-market which was dominated by the producing countries, many of them in the middle-east.

Over the 40 years since then a lot has changed. Oil-producers are to be found all over the world, but much of the IEA functions have remained roughly the same. The basic ideas are un-altered, the two pillars of the IEA, which was to exercise control of the oil-market also from the demand side with common obligations for stockpiling and to gradually reduce oil-dependency by pooling of research on alternatives in the so called Implementing Agreements. Both have been successful.

But for a long time focus has been on alternatives for supply by changing of fuel. But only the last 5 years focus has shifted. In their first market report 2013 on energy efficiency they call energy efficiency the "First Fuel" (IEA 2013). They do that in order to compare energy efficiency to the other four "fuels" that they normally report upon, i.e. oil, coal, gas and electricity. The IEA then ranks energy efficiency as a resource that is more important than these traditional fuels.

In their market report 2014 they clarify further by saying that energy efficiency is an "Invisible Powerhouse" (IEA 2014). It is the first fuel because it has an enormous potential and is cheaper than any other fuel whether fossil, nuclear, geothermal or renewable. But if it is so good why isn't it used and what makes it invisible? Where is it hiding and what should we do to make it come out and show itself?

The IEA has already in World Energy Outlook 2012 shown that if all countries in the world only exploited the energy efficiency that was profitable for the user, that amount would be almost sufficient to limit the climate warming to 2 centigrade, see Figure 2, (IEA 2012).

The IEA has also in their World Energy Investment Outlook 2014 pointed at the conceptual problem there is with financing and energy efficiency. They say that most bankers are comfortable with judging projects that has a regular and positive cash-flow but when it comes to energy efficiency there is no traditional cash-flow! Money are saved and prevented from flowing out of the company but they do not generate new money coming in. "In contrast to traditional energy-supply investment, energy efficiency investments offer expectations of future cost savings rather than an asset generating a specific cash flow", the IEA says (IEA WEIO 2014). And therefore some bankers find it difficult to accept even profitable projects!

So energy efficiency is the cheapest way to solve the problems we face in climate and with energy security. But it may actually be even cheaper! The IEA has continued its studies and shown that many measures for energy efficiency not only pay back its own investments, but also have significant and valuable side-effects, sometimes called NEB (Non-Energy Benefits). Effects normally not accounted for in our everyday calculations.

Another such benefit is industrial productivity. Many efficiency measures have close relations to working conditions and when workers are more comfortable with e.g. lighting, air quality, noise etc. there are less mistakes in production, fewer sick days and less turnover of staff. According to the IEA examples energy efficiency measures could reduce the payback time by 50 %, from 4 years to 2 years, if they are included in the calculation (IEA 2014-2).

Yet another benefit is that homes can be warmer, drier and healthier. Again according to the IEA this could mean that when all costs including medical costs where put together there are cases where one Euro invested returned four Euros in benefits.

The leaders created the IEA as an organisation to help them prepare for the future and take control over the present. The failure of plan A shows that the leaders do not yet have a full view of their opportunities to cope with the problems but certainly the IEA of today has produced some good stuff for them to move up to the steering wheel again.

High ambitions make sense

There is obviously an opportunity to exploit this gold-mine that energy efficiency represents and that would make the world richer and healthier and at the same time save the climate. To do so we will need to focus on the existing building stock since the opportunities to a large extent are stuck in there. Refurbishment must be systemic and follow a plan based on a building declaration that anyway is mandatory within the EU.

Then the renovation must be "deeper", i.e. not only stop with a few percent improvement in terms of energy per square-meter but go for higher numbers, 40–50–60 %. It has to be done "faster" meaning that a bigger amount of the available space must be put to refurbishment each year. But then it must also be recognised that the shift towards a substantial lower energy use in a building may take some time. All the natural occasions in the life of a building that is properly maintained must be used.

Such actions will both create jobs and assist in business development which also is, according to the IEA, are benefits that normally are not accounted for. This is so much more important in a Europe where unemployment is high.

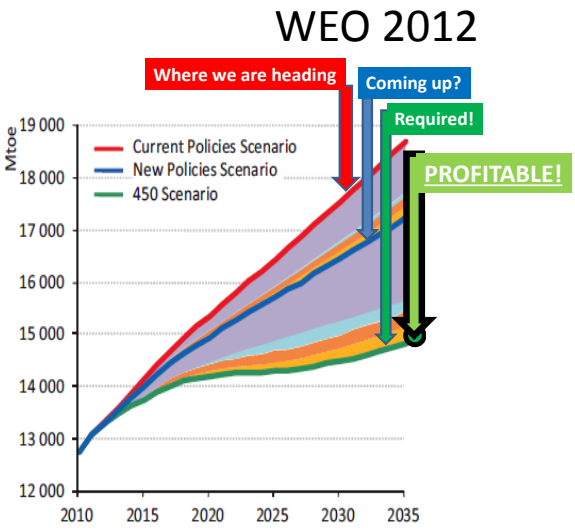


Figure 2. The normal IEA WEO scenarios supplemented with a fourth a new called "Efficient World Scenario".

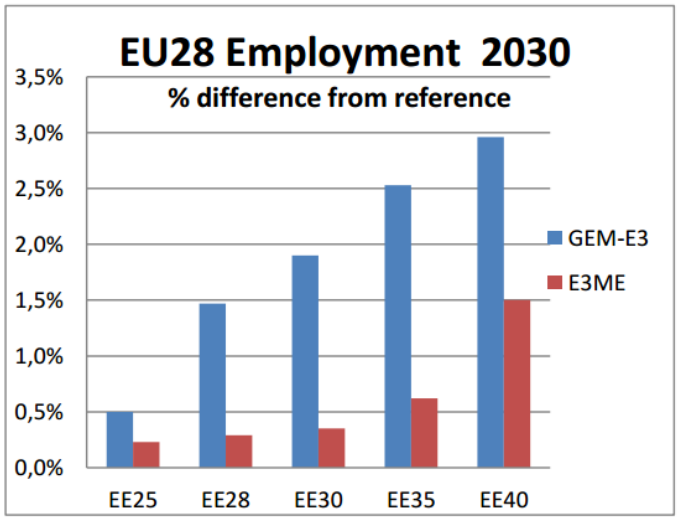


Figure 3. Comparison of impact on employment from two different and competing models (eceee 2014). Numbers 25–40 stands for energy efficiency target in percent by 2030.

There are critics to such efforts saying that Europe should not be in the frontline of climate related measures, but rather hesitate – wait and see what the others do! Well make no mistake – the fast growing economies in Asia are already developing these technologies and workforce skill. If Europe for some obscure reason should stop and wait it might be forever, since we will be overrun by other regions and nations (ABB 2011 and ABB 2011-2).

The European Council for an Energy Efficient Economy (eceee) has shown how the economy, the competitiveness, the job market, the environment etc. will gain from a more ambitious and active energy efficiency politics. A recent publication "connect the dots" with NEBs and the macro-economic observations from the EU impact assessment of targets for energy efficiency (eceee 2014).

In a Europe ridden by the problems of high un-employment it is difficult to see why the opportunities that energy efficiency provides, see Figure 3, are fully embraced by the politicians. Is it that there is no plan B?

ENERGY EFFICIENCY IS NOT DIFFICULT – IT IS ONLY COMPLICATED!

The customer is left with a multitude of options for energy efficiency but very few to be bought over the counter and with guarantees in terms of performance. Frankly speaking there is not any real market for energy efficiency! It needs to be "commoditised" for the customers to use (Nilsson and Ruhbaum 2014).

The real issue is not, as sometimes is implied in studies to show barriers to development of energy efficiency, that people need to be motivated and aware before they start to undertake energy efficiency measures. A lot of People (customers) are aware and motivated. They want to save energy but they cannot for their life put together an appropriate package of measures.

Yes there is a need to develop financing, regulations and incentives, but the real problem is that energy efficiency is sold by specialists on different sorts of technologies and seldom by specialist on packages of energy efficiency measures. Yes, there are Energy Service Companies (ESCO) and Energy Performance Contractors (EPC) but they are too few and their products are often developed for big customers rather than for small enterprises and households.

When you compare two pieces of equipment (or installations) it is possible to judge between them in terms of efficiency by comparing which one uses less energy for a certain amount of service, i.e. light, motive power, heating or cooling. Sometimes this comparison might still be unfair since the two objects compared does not necessarily deliver the same amount of service. We talk about NEB, i.e. Non-Energy Benefits. It is not only the amount of light, heat and power that may be different but also other issues of importance such as less noise, better colour-rendering, higher productivity, better work environment etc. So the two solutions might not be easy to compare. Therefore the comparison may not be easy to capture in a calculation for an LCC-analysis (LCC=Life Cycle Cost). (Nilsson et. al. 2012.)

We need to make more careful considerations when energy efficiency is an option. Typically when calculating:

- **Benefit** is regularly **underestimated**,, as has been mentioned the IEA has recently published material showing multiple benefits that normally are not accounted for (IEA 2014-2). It is mentioned that for industrial projects productivity gains could reduce the pay-back time to half and that every Euro invested in healthier buildings could pay back 4 Euro in e.g. lower costs for health problems.
- **Costs** are normally **overestimated,** packages of measures could share fixed costs and become cheaper compared to measures performed at different occasions (Bonakdar, Dodoo and Gustavsson, 2013). Due to market learning costs fall over time as market gains experience time and both technology and organisation and business models develop (IEA/OECD, 2000).
- **Planning** is often absent, it is only recently the Building directives in Europe has required Building Declarations, which could at least serve as a draft plan for refurbishments, and energy audits/management systems for the biggest companies.

All people involved in considerations of energy issues must reconsider their methods for making the judgements and decisions and ask themselves: Have we checked all the benefits, are we sure of the costs, do we have a plan to handle the change?

So all things taken together there is a call for a plan C where popular and community based initiatives replace or sets model for the national inertia!

Plan C – (communities, commitments and cooperation)

Many local initiatives and commitments have been started and signed the last decades. Communities play an important role in this (Betsill et al, 2007). In Sweden, and other countries, there is new cooperation between companies selling energy efficiency (for instance in the network "eef"[7]). Can this be the answer to (or play an important role in) how realisation of the energy efficiency potential can take place? In this section this paper will exemplify some initiatives and discuss if these initiatives fulfil

7. www.eef.se

the needs and if, and how, they can be multiplied and grow to other regions or countries. We will also discuss who can start initiatives and what society can (should) do to encourage.

EXAMPLES ON INITIATIVES

Covenant of Mayors

Source: website, 2015
Started by: European Commission
No of members/signatories: 5,613 signatories (January 2015).
Who can participate/sign: Cities, regions, network of regions, associated partners, energy agencies.
Kind of support: Promotional, technical and administrative assistance.

Background

The Covenant of Mayors is a European movement involving local and regional authorities, voluntarily committing to increasing energy efficiency and use of renewable energy sources on their territories. By their commitment, Covenant signatories aim to meet and exceed the European Union 20 % CO_2 reduction objective by 2020.

Obligations

In order to translate their political commitment into concrete measures and projects, Covenant signatories notably undertake to prepare a Baseline Emission Inventory and submit, within the year following their signature, a Sustainable Energy Action Plan outlining the key actions they plan to undertake. The Catalogue of Sustainable Energy Action Plans is a source of inspiration, as it shows at a glance the ambitious objectives set by other signatories and the key measures they have identified to reach them.

Support

From the Covenant of Mayors Office Promotional, technical and administrative assistance is provided on a daily basis to Covenant signatories, Covenant Coordinators and Covenant Supporters by the Covenant of Mayors Office (CoMO), managed by a consortium of networks representing local and regional authorities.

From the Joint Research Centre In cooperation with the CoMO, the Joint Research Centre of the European Commission assists signatories with scientific and technical questions, mostly related to emission inventories and action plans. Signatories are guided through the process thanks to a number of tools and methodologies which have been developed in coordination with the CoMO.

From the EU institutions Alongside the European Commission, the Covenant benefits from full institutional support, including from the Committee of the Regions, which supported the initiative since its inception; the European Parliament, where the two first signing ceremonies were held; and the European Investment Bank, which assists local authorities in unlocking their investment potentials.

Concrete actions

In the database there are 5,613 signatories, of which 4,142 have submitted an action plan. 43 monitoring reports are found in the database. These reports describe the implementation progress compared to the action plan.

The "Benchmarks of Excellence", is a database of best practices submitted by Covenant signatories. These benchmarks are relevant examples that signatories are particularly proud of. It is not a list of all actions. Today (January 2015) 304 benchmarks were reported.

Clinton Global initiative

Source: website, 2015
Started by: President Bill Clinton.
No of members/signatories etc.: 3,100 Commitments to Action (January 2015).
Who can participate/sign: Companies, NGOs, foundations and governmental organizations.
Fee: 20,000 USD per year.
Kind of support: Promotional and administrative assistance

Background

Established in 2005 by President Bill Clinton, the Clinton Global Initiative (CGI), an initiative of the Clinton Foundation, convenes global leaders to create and implement innovative solutions to the world's most pressing challenges. CGI Annual Meetings have brought together more than 180 heads of state, 20 Nobel Prize laureates, and hundreds of leading CEOs, heads of foundations and NGOs, major philanthropists, and members of the media. CGI works within nine tracks; the built environment, education and workforce development, energy, environmental stewardship, food systems, glob al health, market-based approaches, response and resilience and technology. Energy efficiency is included in several of these tracks.

Obligations

None for members. The commitments are evaluated and reported to CGI.

Support

The members are invited to Annual Meetings. For three days, members connect, hear from influential thought leaders, build new partnerships, and make Commitments to Action.

Opportunities to engage are offered within nine tracks. All tracks contain a number of stand-alone events as well as ongoing engagements that bring members together to network, share knowledge, and collaborate on new and continuing commitments. Members can customize their year-round experience based on their specific areas of interest.

An account representative works to enhance the member organization's involvement with the CGI community and the variety of year-round opportunities that are available.

A portfolio team guides the member organizations in developing and tracking the progress of the Commitment to Action.

Members have press support from CGI's media relations team, including assistance with press campaigns related to commitments.

Concrete actions

There were 3,100 Commitments to Action reported in January 2015. A Commitment to Action is a plan for addressing a significant global challenge. Commitments can be small or large and financial or nonmonetary in nature. Many commitments are the result of cross-sector partnerships, with CGI members combining efforts to expand their impact.

CGI supports the development of commitments by facilitating dialogue, providing opportunities to identify partners, showcasing the actions taken by commitment-makers, and communicating results. CGI serves as a catalyst for action, but does not engage in the actual implementation of commitments.

ICLEI – International Council for Local Environmental Initiatives

Source: website, 2015.
Started by: Local governments.
No of members/signatories: Members are 12 mega-cities, 100 super-cities and urban regions, 450 large cities as well as 450 small and medium-sized cities and towns.
Who can participate/sign: local and regional governments and authorities.
Fee: ICLEI Members pay an annual fee based upon type of organization (i.e. local government or association), Gross National Income Per Capita and population. In Europe the fee varies from 100 to 8,000 Euro per year.
Kind of support: Promotional, technical and administrative assistance.

Background
ICLEI – Local Governments for Sustainability is a network of over 1,000 cities, towns and metropolises committed to building a sustainable future. ICLEI was founded in 1990 by 200 local governments from 43 countries who convened for the first World Congress of Local Governments for a Sustainable Future at the United Nations headquarters in New York. Operations started in 1991 at the World Secretariat in Toronto, Canada, and the European Secretariat in Freiburg, Germany.

ICLEI's first global programs were Local Agenda 21, a program promoting participatory governance and local sustainable development planning, and Cities for Climate Protection™ (CCP), the world's first and largest program supporting cities in climate action planning using a five milestone process including greenhouse gas emissions inventories to systematically reduce emissions. ICLEI's programs and campaigns looked beyond mere environmental aspects and embraced wider sustainability issues. The ICLEI Council acknowledged this and formally broadened the mandate of the association in 2003, renaming the association ICLEI – Local Governments for Sustainability. ICLEI also hosts the World Mayors Council on Climate Change consisting of over 80 members. The World Mayors Council on Climate Change is an alliance of committed local government leaders concerned about climate change. They advocate for enhanced engagement of local governments in multilateral efforts addressing climate change and related issues of sustainability. Membership is open to Mayors and equivalent leaders of municipal levels of government. For more information visit www.worldmayorscouncil.org.

Obligations
None for members.

Support
ICLEI provides support to local initiatives and help develop local expertise. ICLEI also supports networking among and exchange of experiences between local governments, especially between developing and industrialized countries and provides technical support services and consultancy. At last ICLEI supports in evaluating and reporting on the impacts of local actions.

Concrete actions
ICLEI helps cities to enhance their sustainability by connecting committed local leaders and governments worldwide, and accelerating their actions through the signing of commitments at all levels.

C40 – Cities Climate Leadership Group

Source: website, 2015.
Started by: Mayor of London Ken Livingstone.
No of members/signatories: 11 partners/funders and 71 affiliated cities.
Who can participate/sign: Cities (companies and organisations as partners).
Fee: Information not available.
Kind of support: Promotional assistance, global field staff and technical experts.

Background
C40 is a network of the world's megacities taking action to reduce greenhouse gas emissions. With a unique set of assets, the C40 works with participating cities to address climate risks and impacts locally and globally.

C40 was created in 2005 by former Mayor of London Ken Livingstone, and forged a partnership in 2006 with the Cities Program of President Clinton's Climate Initiative (CCI) to reduce carbon emissions and increase energy efficiency in large cities across the world.

Obligations
Information not available.

Support
Global field staff works with city governments, supported by technical experts across a range of program areas.

Concrete actions
Each year, C40 surveys the Mayoral Powers of its member cities in order to understand where the greatest opportunities exist to advance specific climate actions and foster targeted knowledge sharing.

Energy cities

Source: website, 2015.
Nr of members/signatories: > 1 000.
Who can participate/sign: Local authorities, groups of municipalities, local energy management agencies, municipal companies and regional or national association of municipalities.
Fee: 625–5,000 Euro per year.
Kind of support: Promotional and technical assistance.

Background
"Energy cities" is the European association of local authorities in energy transition. Since its foundation, it has been committed to sustainable energy policies and active in sharing its experience and know-how with its members.

Energy Cities is the leader of the Covenant of Mayors Office (www.eumayors.eu) and one of its official Supporters.

Obligations
Members engage to make energy efficiency, renewables and sustainable planning an integral part of local policies and actions, share experiences, ideas and information, provide support to other members upon request, promote the Energy Cities membership and participate in Energy Cities' Annual meeting.

Support
Guidance to build a strategy, monthly e-review on urban energy issues, invitation to participate in European campaigns and projects, participation for free in annual meetings, thematic workshops, seminars, access to innovative working methods and invitations to visit frontrunner cities.

Concerto
Source: website, 2015.
Started by: European Commission.
No of participants: 58.
Who can participate/sign: Cities and communities.
Kind of support: Financial.

Background
Concerto aims to demonstrate that the energy-optimisation of districts and communities as a whole is more cost-effective than optimising each building individually. The EU initiative of the European Commission's Directorate General for Energy started in 2005 and has co-funded with more than €175 Million 58 cities and communities in 22 projects in 23 countries.

CONCERTO cities and communities have shown that existing buildings can cut their CO_2 emissions, at acceptable costs, by up to 50 % by implementing renewable energy sources, innovative technologies and an integrated approach.

Concrete actions
22 projects have been carried out.

EEF – Energy Efficiency Suppliers Association
Source: Interview, 2015.
Started by: Energy efficiency companies.
No of members/signatories: 60.
Who can participate/sign: Companies and trade organisations supplying energy efficiency.
Fee: 300–3,000 Euro per year.
Kind of support: Promotional and business development assistance.

Background
EEF started in 2008 with the purpose to achieve more and better energy efficiency projects. There was a lack of an "energy efficiency industry" lobbying in Sweden. EEF also wants to improve the dialogue between members and building owners/industries and to improve the companies knowledge of technologies in adjacent areas.

The purpose is also to be a gateway to the Swedish market, develop common services and facilitate for building owners and industry to find the proper service and product.

Obligations
Members are obliged to inform customers on the most energy efficient alternative in every project, to educate and update staff on energy efficiency and to have knowledge on calculating life cycle costs.

Support
Members can participate in projects exploring new business models. They also get market support and opportunities to meet customers in local seminars etc. EEF also supports in lobbying and collecting relevant information.

Concrete actions
Seminars, meetings with politicians, development of business models, collecting opinions from customers, in a more objective manner than the companies can do by themselves, transforming the opinions to better business models.

DENEEF
Source: website, 2015.
No of members/signatories: 119.
Who can participate/sign: Companies and organisations.
Fee: Information not available.
Kind of support: Promotional and lobbying.

Background
DENEFF is the first independent cross-industry network of frontrunner companies and unites companies in the field of energy efficiency to collectively represent their political interests for an effective and ambitious energy efficiency regulation in Germany. Since January 2011 DENEFF is ramping up its political activities with focus on energy efficiency in buildings. The objective is to accelerate market development for energy efficiency products and services. DENEFF is aiming for highest possible reduction of energy consumption by the means of energy efficiency while keeping the condition of neutrality of technology in regulatory and funding policies. DENEFF is creating regulatory preconditions facilitating energy efficiency services that enable investors to decide on the individually best choice, application and financing of energy efficiency measures.

Obligations
Information not available.

Support
DENEFF supports the members in lobbying, networking, political contacts and with updated information.

Concrete actions
Seminars, meetings with politicians, position papers, lobbying activities.

Climate Alliance of European Cities with Indigenous Rainforest Peoples
Source: Web site 2015-03.
No of signatories: 1,700.
Who can participate: Cities, organisations and municipalities.
Fee: 0,0073 Euro per citizen.
Kind of support: Policy advise, project funding through European programmes, possibility to participate in campaigns.

Background
The Climate Alliance started in 1990 with the aim to reduce emissions of green house gases. The goal is achieved by implementing local climate strategies and raise awareness for the protection of the rain forest. Activities are lobbying, campaigns and assisting members with tools for climate change policies.

Concrete actions
Tools like the Carbon Calculator, Climate Cities Benchmark and the Climate Compass have been developed for the members. Several campaigns like City Cycling and Zoom – Kids on the move.

Discussion

INITIATIVES STARTS WITH A PIONEER

We, the authors, do not have proof or evidence except one study (Kern et al, 2009) supporting our theory but we believe that these, very different, initiatives have started because of strong and enthusiastic people or pioneers. Single persons with a strong driving force to change the agenda have been important. These persons have found platforms where they can expand, develop and run their projects. This can be both within companies and communities/cities. These people want to make a difference. When started, other people, companies and communities have joined and the projects have grown. These initial persons have been successful in convincing and motivating their own organisations to start a project. There are several reasons to participate for the company/community such as goodwill, visibility, economy and environmental aspects. As the number of participants/members of the initiative grows, it gets easier to convince more to join. It is now "normal" to be part of the initiative.

EVEN PIONEERS NEED SUPPORT

As mentioned above we believe that strong single persons have been important in developing initiatives, but we also think that these people in the long run need support from others, both in terms of practically getting the job done, but it is also important for the pioneers to feel that their beliefs, their ideas, are supported by society.

What we also see when analysing the different initiatives is that many have some support from society. It can be financing an office, a website or expressing how important the initiatives are.

COMPLEMENTARY TARGETS

Other sources (Korhola, 2014) claim that fighting climate change only succeed if decarbonisation is implemented in relation to other targets that are politically attractive and persistently pragmatic. Our hypothesis is that other targets can be easier to find locally, rather than nationally or internationally. It is also easier to pragmatic on the local level.

Another recommendation found in a study from Tyndall Centre (Bulkeley et al, 2009) is that local authorities should engage with stakeholders and communities to better address climate change issues. National governments should recognize the municipal role and co-ordinate between different levels of government, especially for overcoming conflicts between climate change and other social, economic and environmental priorities. And finally the recommendation for international agencies is to recognize capacity constraints, provide political support as well as finance and to engage municipalities, stakeholders and communities and develop partnerships. To address more than one target and to find support locally seems to be the answer also in this study.

VULNERABILITY INCREASES PARTICIPATION IN INITIATIVES

A study from the US indicates that the risk of being affected by climate change (extreme weather etc) increases efforts (in this case as participation in a climate change campaign) (Zahran et al 2008). The same study has also looked at socio-economic-capacity measures and found that the odds of involvement increase with the number of non-profit organizations with an environment focus. The odds decrease in a county area as the percentage of the labour force employed in carbon-intensive industries increases.

Table 1. Comprehensive description of initiatives on climate change.

	Website	Who can join?	Nr of participants etc	Started by	Obligations	Support
CoM	covenantofmayors.eu	Cities, regions, energy agencies	5613	European Commission	Aims to exceed 20% CO2 reduction by 2020	Technical, adminsitrative
Clinton	clintonfoundation.org	Companies, NGOs, governmental bodies	3100 commitments	Bill Clinton	None, but commitments are evaluated	Annual meeting, working groups
ICLEI	iclei.org	local governments/authorities	>1000	Local governments	-	Networking, evaluating, reporting
C40	c40.org	Cities	<100	Mayor of London Ken Livingstone	-	Field staff, technical experts
Energy cities	energy-cities.eu	Local authorities, municipalities, municipal companies	>1000	-	Engagement to make energy efficiency etc a part of local policies	Guidance for making strategies, participation in projects, study visits
Concerto	concerto.eu	Cities, communities	58	European Commission	-	Financial
EEF	eef.se	Companies selling energy efficiency	60	Companies	Inform customers on energy efficiency	Promotional and business development assistance
DENEFF	deneff.org	Companies and organisations	119		-	Promotional and lobbying
Climate Alliance	climatealliance.org	Cities, organisations	1700		-	Tools, campaigns, lobbying

In fact another study (Lutsey et al 2008) shows that the realization of all existing sub-national initiatives, as of September 2007, could stabilize US emissions at 2010 levels by the year 2020. It also indicates that the US has been more committed to climate change mitigation than is generally acknowledged. This shows that local initiatives are important when fighting climate change.

NON ENERGY BENEFITS AND SPLIT INCENTIVES

Non Energy Benefits, as mentioned earlier, are not included today in cost analysis of energy efficiency projects. We argue that NEBs are more likely to be seen and acknowledged locally and thus local initiatives are more likely to be successful. The valuable effects from NEBs can benefit a different stakeholder than the one paying the energy bill. On local level it is more likely to solve this problem of split incentives.

THE ROLE OF DECENTRALISED POWER

The energy supply side is changing. Power and energy supply today can be dealt with locally in decentralised systems. Combined with energy efficiency (smart appliances etc) a greater independence is possible. This is a strong argument at the local level and can be a driving force for the local community initiatives.

MARKET POSSIBILITIES AS A DRIVING FORCE

There are also examples on initiatives not started by people who want to change the world. They are started due to a true market possibility. Companies make money on selling energy efficiency and some see great opportunities in the future. Examples are EEF in Sweden, DENEFF in Germany, Alliance to Save Energy in the US and EuroAce on the European level.

WHO CAN DO THE JOB?

We believe that projects/initiatives can start from any strong person but to survive they need at least one of the items below:

1. **A Very Important Person (preferably with funding):** One example is the Clinton Global Initiative.
2. **A nudge from society/local politicians or authorities:** Covenant of Mayors, ICLEI.
3. **A market possibility:** EEF, DENEFF.

We can see that there are several initiatives to participate in or collaborate with today. **An interesting question is what all these initiatives add up to in terms of protecting the climate when international projects, like the Kyoto protocol, fails?**

References

ABB 2011, Trends in global energy efficiency 2011 An analysis of industry and utilities http://www.enerdata.net/enerdatauk/press-and-publication/publications/2011-trends-in-global-energy-efficiency.pdf.

ABB 2011-2, The state of global energy efficiency http://www05.abb.com/global/scot/scot316.nsf/veritydisplay/e22257539f67437248257a24004e8c91/$file/The%20state%20of%20global%20energy%20efficiency_final.pdf.

Betsill et al, 2007, Looking Back and Thinking Ahead: A Decade of Cities and Climate Change Research, Department of Political Science, Colorado State University, Co Department of Geography, Durham University, UK.

Bonakdar, Dodoo and Gustavsson (2013). Implications of energy efficiency renovation measures for a Swedish residential building on cost, primary energy use and carbon dioxide emission. eceee proceedings 2013.

Bulkeley et al, 2009, Cities and Climate Change: The role of institutions, governance and urban planning, 5th Urban Research Symposium: Cities and Climate Change, Marseille.

eceee 2014. What we will gain from more ambitious energy efficiency goals in the EU. December 2014. http://www.eceee.org/policy-areas/2030-policy-framework/benfits-report.

IEA/OECD (2000), Experience Curves for Energy Technology Policy, International Energy Agency/Organisation for Economic Co-operation and Development, Paris.

IEA 2010, Energy Technology Perspectives, http://www.iea.org/publications/freepublications/publication/etp2010.pdf.

IEA 2012, World Energy Outlook, http://www.iea.org/publications/freepublications/publication/world-energy-outlook-2012.html.

IEA 2013 (Energy Efficiency Market Report 2013) (http://www.iea.org/publications/freepublications/publication/energy-efficiency-market-report-2013.html).

IEA 2014 (Energy Efficiency Market Report 2014).

IEA 2014-2 Capturing the Multiple Benefits of Energy Efficiency.

IEA WEIO 2014 (World Energy Investment Outlook 2014). Factsheet Energy Efficiency (http://www.worldenergyoutlook.org/media/weowebsite/2014/weio/WEIO2014FactSheet4EnergyEfficiency.pdf).

Kern et al, 2009, Cities, Europeanization and Multi-level Governance: Governing Climate Change through Transnational Municipal Networks, Journal of Common Market Studies

Korhola Eija-Riitta. 2014, The Rise and Fall of the Kyoto Protocol: Climate Change as a Political Process. Dissertation at Faculty of Biological and Environmental Sciences University of Helsinki. https://helda.helsinki.fi/bitstream/handle/10138/136507/Therisea.pdf?sequence=1.

Lutsey et al, 2008, America's bottom-up climate change mitigation policy, Energy Policy, Volume 36, Issue 2, Pages 673–685.

Nilsson et al. (2012) We are lost if we don't develop new business-models. Paper 3-106-12 eceee summer study 2012.

Nilsson and Ruhbaum (2014) Understanding and addressing the client's needs: How can we frame energy efficiency? eceee proceedings 2014.

Zahran S, Brody S D, Vedlitz A, Grover H, Miller C, 2008, "Vulnerability and capacity: explaining local commitment to climate-change policy" Environment and Planning C: Government and Policy 26 (3) 544–562.