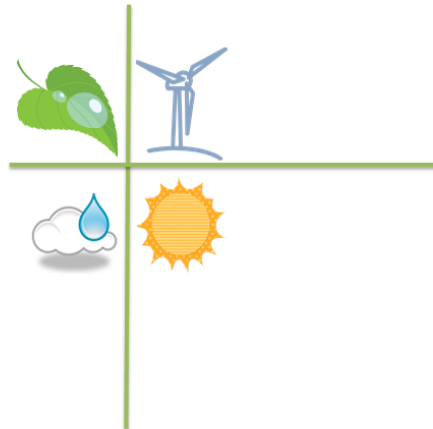


# 2014

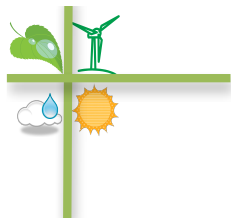
## Eco-diverCity



Zander Wevers

Dietz Dröge & van Loo

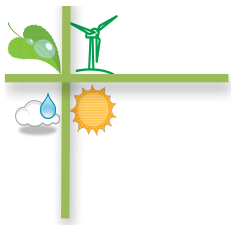
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# Eco-diverCity

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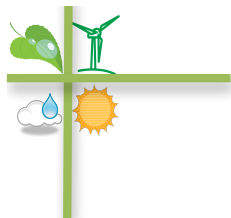
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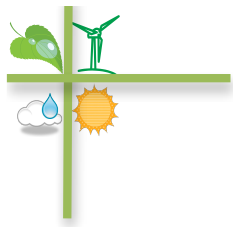
DATE: 17 MARCH 2014

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# Eco-diverCity

G38 GEMEENTE	COALITIEAKKOORD PARTIJEN	DOCUMENT, LINK
Alkmaar	OPA, VVD, D66, CDA, SP	<a href="#">2011-2014</a>
Almelo	CDA, PvdA, VVD	<a href="#">2010-2014</a>
Almere	PvdA, VVD, D66, CDA	<a href="#">2010-2014</a>
Amersfoort	VVD, PvdA, D66, GroenLinks	<a href="#">2010-2014, 2013-2014</a>
Amsterdam	PvdA, GroenLinks, D66	<a href="#">2010-2014</a>
Apeldoorn	CDA, PvdA, VVD, D66 en CU	Link
Arnhem	D66, GroenLinks, SP, VVD	<a href="#">2010-2014</a>
Breda	VVD, CDA, D66, GroenLinks	<a href="#">2010-2014</a>
Delft	D66, PvdA, GroenLinks, CDA, STIP	<a href="#">2010-2014</a>
Deventer	PvdA, D66, VVD, ADB	<a href="#">2010-2014</a>
Dordrecht	CDA, VVD	<a href="#">2010-2014</a>
Ede	SGP, CDA, Gemeente Belangen, PvdA, VVD	Link
Eindhoven	PvdA, VVD, D66, GroenLinks	<a href="#">2010-2014</a>
Emmen	PvdA, CDA, VVD	Link
Enschede	PvdA, VVD, CDA, BBE	<a href="#">2010-2014</a>
Gouda	PvdA, VVD, CDA, D66, GroenLinks	<a href="#">2010-2014</a>
Groningen	PvdA, VVD, SP, D66, CDA	<a href="#">2012-2014</a>
Haarlem	D66, PvdA, GroenLinks, VVD	<a href="#">2010-2014</a>
Haarlemmermeer	CDA, D66, VVD, PvdA	<a href="#">2010-2014</a>
Heerlen	SP, PvdA, Stadspartij Heerlen, Ouderenpartij Heerlen, D66	<a href="#">2010-2014</a>
Helmond	CDA, VVD, D66,	<a href="#">2010-2014</a>
Hengelo	PvdA, SP, Burgerbelang, D66, GroenLinks	<a href="#">2010-2014</a>
Leeuwarden	PvdA, PAL, GroenLinks, CDA	<a href="#">2010-2014</a>
Leiden	D66, VVD, SP, CDA	<a href="#">2010-2014</a>
Lelystad	VVD, PvdA, Inwoners Partij	<a href="#">2010-2014</a>
Maastricht	D66, PvdA, Seniorpartij Maastricht, VVD, CDA	<a href="#">2010-2014</a>
Nijmegen	GroenLinks, PvdA, D66	<a href="#">2010-2014</a>
Rotterdam	PvdA, VVD, D66, CDA	<a href="#">2010-2014</a>
Scheidam	PvdA, VVD, CDA en GroenLinks	<a href="#">2010-2014</a>
s-Gravenhage	PvdA, VVD, D66, CDA	<a href="#">2010-2014</a>
s-Hertogenbosh	VVD, GroenLinks, PvdA, CDA, Rosmalens Belang	<a href="#">2010-2014</a>
Sittard-Geleen	CDA, GroenLinks, PvdA, GOB	Link
Tilburg	PvdA, VVD, CDA, D66, GroenLinks	<a href="#">2010-2014</a>
Utrecht	GroenLinks, PvdA, D66	<a href="#">2010-2014</a>
Venlo	VVD, CDA, PvdA	<a href="#">2010-2014</a>
Zaanstad	PvdA, VVD, ZOG, GroenLinks	<a href="#">2010-2014</a>
Zoetermeer	VVD, PvdA, D66, CDA, LHN	<a href="#">2010-2014</a>
Zwolle	PvdA, VVD, CDA, Christen Unie	<a href="#">2010-2014</a>



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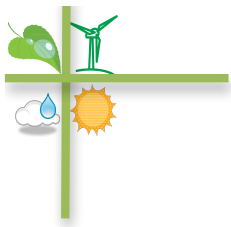
## Introduction

The Netherlands have long been struggling to meet the energy saving and renewable energy targets agreed upon in 2007. Till date, the cities have played a dominant role in stimulating the use of renewable energy while the private sector have invested hundreds of millions in research & development and innovation to make energy saving and renewable energy more accessible to the end user. Local cities are considered to play a key role in the transition to renewable energy as they hold a direct relationship with local business and citizens; Cities are therefore in a position to execute the national policy while meeting the requirements and demands of their local stakeholders.

The initiative formally came into place when in 2007 the leaders of the European Commission came up with the EU climate and energy package, better known as the EU 20-20-20 directive. The directive was to set targets for its member states (the Netherlands being one of them) with which it is to steer the member states on an annual basis towards a bigger objective which was the climate and energy directive i.e. 20-20-20. For the Netherlands, the targets are 20% CO2 reduction, 20% energy saving and 14% renewable energy generation. With the climate and energy package, the National government of the Netherlands have encountered multiple challenges in meeting these targets, which led to the Netherlands being one of the worse performing countries in the European Union. A key challenge was the effect of the debt crisis of 2007, a crisis which till date require ambitious and innovative policies to get the country out of debt while simultaneously attempting to reduce the unemployment rate, provide social support for the citizens directly affected by the crisis and to stimulate the growth of the economy, all at the same time. It is therefore that the current percentage of renewable energy input in the Netherlands is at a mere 4.4% (Social Economic Council, 2013, p. 6) and has only increased with a low 0.1% since 2012. These challenges encountered have a substantial impact on the performance of the Netherlands as the Netherlands was given the target of 14% renewable energy by 2020 while the Rutte-Asscher government have ambitiously heightened the target to 16% by the year 2023. (Social Economic Council, 2013, p. 3) In the year 2013 the Social Economic Council chaired and drafted the first energy agreement of the Netherlands which one might say is the first large scale ambition of the Netherlands to meet the laid out targets. The agreement included key stakeholders such as environmental organisations, think-tanks and companies directly involved in the energy industry in the Netherlands.

The obstacles faced within the Netherlands have given the country a somewhat weaker position compared to its counterparts; however, on a local level all is not lost. The paper will showcase the ambitions of the G38. The G38 is the 38 largest cities in the Netherlands, and can be found in alphabetical order on page 2 of the document. The paper will focus on the key policies and ambitions of the cities, policies which would not only place cities in a most competitive position on an international and European level but will also take on the challenges which the national government have often struggled with. Cities are considered the key executors of national sustainable policies and hold the closest relationship with household; households are currently responsible for 60% of the national greenhouse gas emission.

Other than only looking at the cities, the research have picked up on some regional, provincial and national campaigns which, if managed correctly, could yield high results and ultimately steer the Netherlands towards meeting the EU Climate and Energy Package.



# Eco-diverCity

## Background Information

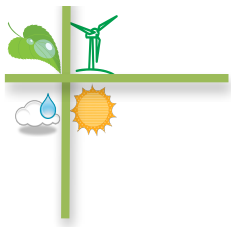
The EU 20-20-20 targets were set up by the EU leaders in March 2007 when they committed Europe to become a highly energy-efficient low carbon economy, these ideals was also later enacted through the climate and energy package in 2009. Within a document by the European Commission, one can find a complete overview of the targets laid out as well as the development of the EU wide policies surrounding the EU 20-20-20 directive. (European Commission, 2013)

The specific targets laid out falls within three main topics/objectives namely:

1. A 20% reduction in EU greenhouse gas emission from 1990 levels;
2. Raising the share of EU energy consumption produces from renewable resources to 20%;
3. And 20% improvement in the EU's energy efficiently.

The leaders within the EU decided to develop a EU directive, as not to limit member states to the how and where but to give them free reign to achieve the collective target set out in the 20-20-20 directive. The climate and energy package further comprises of four pieces of complementary legislation which should lead to the 20-20-20 target.

1. **Reform the EU Emission Trading System (EU ETS)**, he ETS is a key tool for cutting industrial greenhouse energy emission most collectively comprises of about 40% of GHG's. The idea was for industries or firms to trade emission with one another under the Emission Trading Directive, therefore industries with high emission can buy the emission cap from industries with a lower emission output. The EU ETS was further developed in in 2013 when a single EU-wide cap on emission allowances was developed instead of national caps.
2. **National Targets for non-EU ETS emission.** Under the "Efforts Sharing Decision", member states have taken on binding annual targets for reducing their greenhouse gas emissions from sectors not covered by the EU ETS, these sectors includes housing, agriculture, waste and transport (excluding aviation). – Currently more than 60% of the EU's total emission comes from sectors outside the EU ETS. Under the National Targets for Non-EU ETS emission, the Netherlands have a target of 14% by 2020. Other than the EU target, the current government have heightened their target to 16% by 2023. (Dutch Ministry of Economics, 2010) The current government will make use of a tool called "Green Deals" in order to prioritise energy conservation. Green Deals is directly aimed at getting the public and businesses to use more renewable energy.
3. **National renewable energy targets** is where member states have taken on binding national targets for raising the share of renewable energy in their energy consumption by 2020. The targets, which reflect Member States different starting points and potential for increasing renewables production, range from 10% to 49%. These individual targets will eventually help the EU to reach a target of 20% by 2020. The target will also help to cut greenhouse gas emission and reduce the EU's dependence on imported energy. The increase from 14% to 16% by the Dutch government therefore also applies to the Dutch renewable energy target.
4. **Carbon capture and storage** is the fourth element of the climate and energy package and is also a directive creating a legal framework for the environmentally safe use of carbon



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capture storage technologies. The practice involves capturing Co2 emission from industrial processes and storing it underground where it does not contribute to global warming.

## Methodology

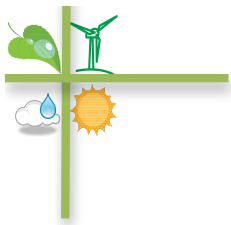
The desk research was conducted for the purpose of finding out to what extent the G38 (G4 + G32+2) is meeting the political agenda laid out by national as well as local politicians. When we talk about political agenda we are referring to the politicians who come into power through democratic elections, which generally take place over a four year period after which they can be re-elected for a second term. It is therefore that we firstly looked into the “coalitieakkoord” of the 38 cities which spans from 2010 -2014; the “coalitieakkoord” is an agreement between the political parties within the local government. The reason for the agreement is due to the fact that often parties cannot participate as a whole because they did not obtain enough votes during the elections, thus the need for an agreement on the future plans (next four years) with other political parties in the local government. A similar agreement takes place on a national level and is referred to as the “reageerakkoord”. The reader should note that within the analysis of the post-elections phase, only the coalitieakkoord was analysed as to see what exactly was promised to the citizens by the mayor and alderman(s) of the cities.

We secondly looked at the national “energieakkoord” which is an agreement between Non-governmental organisations (NGO’s), think-tanks and businesses directly involved in energy and infrastructure in the Netherlands. The energieakkoord was drawn up and chaired by the Dutch Social Economic Council (SER) in 2013. Due to the time the energieakkoord was drawn up, one cannot draw any conclusions from its workings, success or pitfalls as investment in GHG reduction is quite high and therefore takes longer to realise. One can however use the information to speculate and anticipate the success of their agreement.

The third and last study was what the cities have done so far i.e. from 2010 to when the research was conducted (2013). The research therefore plays off in two timelines i.e. post-elections (2010) and pre-elections (2013) as there will be elections again in early 2014. Within this part we analysed the reports and publications of the cities as to what the cities have done to meet their promise to their citizens made in the beginning of 2010. For interest sake, the paper will provide an overview on which political parties are involved in each city as to determine whether there is one political party who is more successful in implementing and executing “green” policies.

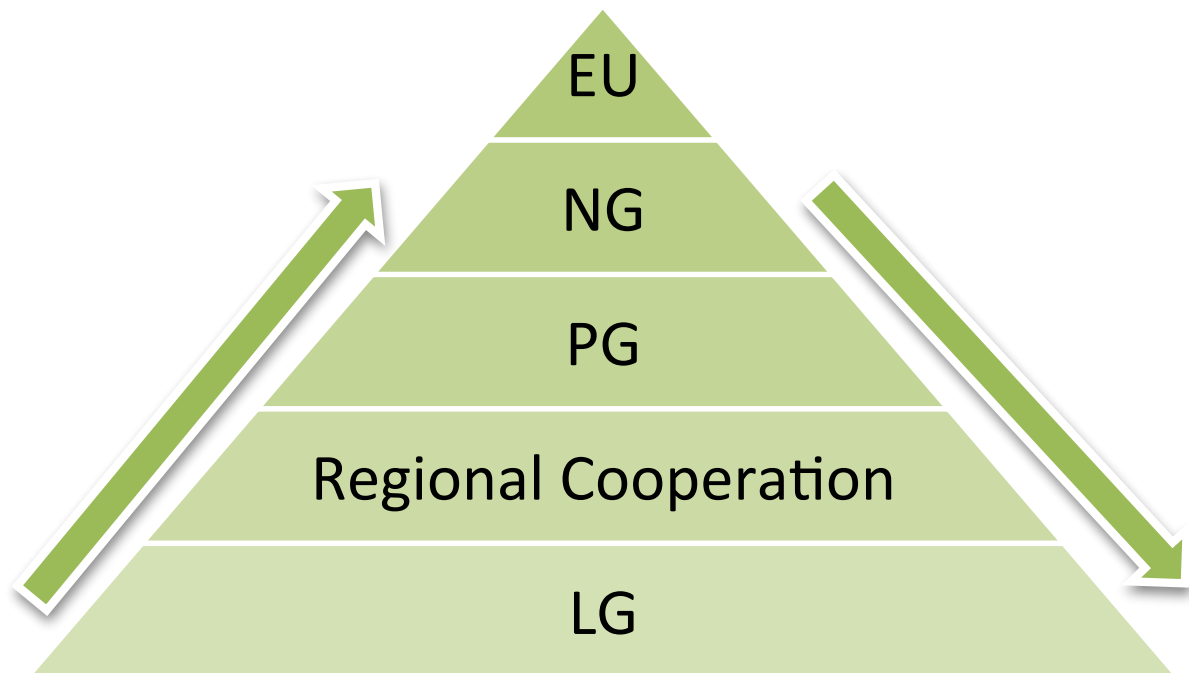
## Policy structure

Based on the fact that the original directive comes from the EU, the policy structure can often be seen as a trickledown effect, where the higher up bodies are the ones who set the targets i.e. EU, leaving the bodies below to meet the targets by personal means and execution. This however does not only happen at a EU level, but a similar structure can be seen within the Netherlands as well where the National government (NG) would set the targets and leaving the Provincial Governments (PG) to interpret and set individual targets downwards i.e. to Local Governments (LG). It is therefore



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that we will look not only at the policies of the LG's, but also at the National Energy Agreement (Energie akkoord) which was agreed upon in August 2013.

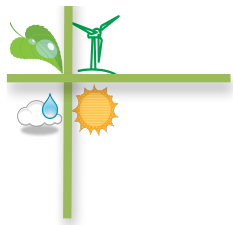


There is a difference between EU and NG policies, and that is that there are governmental agencies present (under the management of the relevant ministers) which ensures that all citizens have access to similar services i.e. subsidies, “energy efficiency loans” etc, both which are tools used to motivate the public or businesses to invest in energy saving or sustainable solutions for energy usage. The subsidies and loans provided have a direct effect on the policies of the cities as they can and should be used by the cities to stimulate the use of energy saving and renewable energy infrastructure, policies which would in the long run have a positive effect on the city itself. The cities should therefore use these provisions by national agencies as a zero cost tool for its own ambitions.

## **Variables used in formulating the statistics**

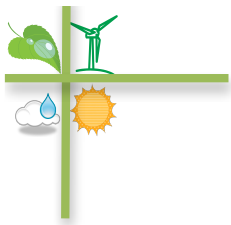
Having analysed the cities between their post-election (2010) till pre-election (2013) we have used the following variables to determine their success within the policy. The variables were specifically chosen for three main reasons; first being that these variables are drawn directly from the climate and energy package of the EU and would therefore be vital to meeting the targets. The second reason is that these variables were found under most policies already in place within the cities, cities are not obliged to use all nine variables in its policy, but these variables are some of the most prominent when analysing the policies of the cities as a whole and therefore a higher score (within the city) would represent a higher success rate. The third and last reason is that these variables are confirmed and agreed upon by the forty environmental organisations, non-governmental organisations, private and public sector that helped to draft the National energy agreement and signed it on September 2013. (Social Economic Council, 2013)





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- 1. Energy Efficiency/saving** entail all methods of energy efficiency as well as energy savings. Generally there are national subsidies or loans available for these services. The most commonly used methods are *isolation for walls, floors and roofs; sun boilers; double glass among others*. It does however not exclude additional initiatives showcased within the desk research on the cities or provinces.
- 2. Investing in energy efficiency/saving** determine whether cities have directly or partly been involved in the investment in research and development of energy savings. The research found predominantly that cities hosting a technical university often work together with the university and therefore invest in energy savings. Cities hosting a technical university are not the only ones whom was involved in energy savings, some cities hosted a competition between its citizens to see who comes up with innovative ideas for energy savings, the winner would then obtain financial support for realising his/her concept.
- 3. Using energy efficiency/saving tools in public buildings** is quite common with the cities. The cities have received an objective of their buildings to be “close to energy neutral” by 2018 under the Energy Performance of Buildings Directive (Directive/2010/31/EU, 2010) and since 2014, all new public buildings built would need to be near energy neutral. The use of energy efficient products also entails variables such as the use of LED-lights or energy saving lights other to insulation, double glass and renewable energy generation.
- 4. Mobility** received the second highest attention in the Netherlands, whether it being the stimulation of electric cars, sustainable days i.e. Rotterdam’s mobility week. Mobility takes into account the amount of infrastructure available such as Green gas tanking stations and charging station for electric cars or hybrid cars (use fuel and electricity). Mobility may also include subsidies which is a key tool used by national agencies to stimulate sales and counteract the price difference between an electric and fuel based vehicle. National agencies such as the National tax service (Belastingdienst) have therefore made a tax cut (special purchase tax and road tax) to stimulate the sale of renewable energy vehicles and vehicles which emit below a certain amount of Co2 per kilometre.
- 5. Renewable energy** includes the use and stimulation of *solar panels; installing wind turbines and the usage of hydroelectricity or non-fossil materials in coal plants called bio-mass* (energy providers are obligated to substitute at least 10% of their input in a coal plant with bio-mass). Other non-energy generating mechanisms are also included such as geothermal, heat and cold storage which are both generally used for heating – this infrastructure enables heat generation without using fossil fuels and therefore a low or 0% Co2 emission.
- 6. Co2 policy** is aimed at either Co2 storage or for cities to become Co2 neutral. Co2 neutral can be achieved by planting more trees/green areas while reducing the Co2 emission of industries, households and government.
- 7. “Green” Jobs** are jobs directly related to achieving the national targets in the climate and energy package. These jobs spans from *construction and installation, engineering, research and development* to communication done by the government or NGO’s to only name a few. It is however most difficult to measure as “green” jobs is directly associated with investment in renewable and energy saving infrastructure, promotion or services. Green jobs would therefore increase as the performance of other variables increase.

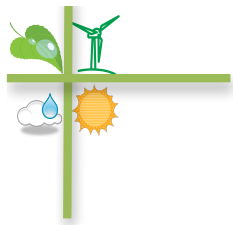


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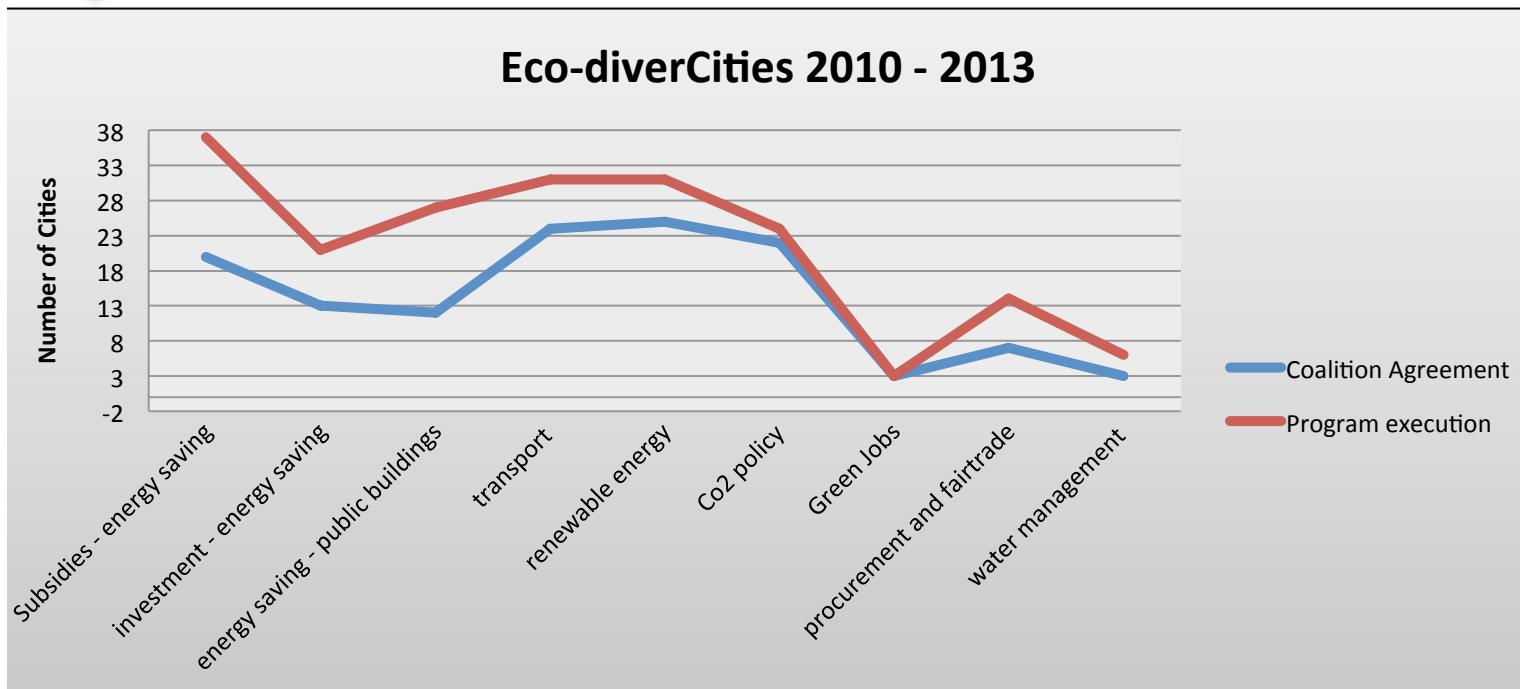
8. **Fair trade/Procurement policy** plays a role in two aspects, firstly, where the Netherlands buy its produce from has a large effect on mobility; for instance, if the Netherlands imports from Brazil rather than producing it locally, the cost of transport is much higher, not only in the transaction but also for the environment i.e. GHG emission. Secondly, the government tenders out its energy input for public buildings, this again can be produced locally or be bought in from a “green” source rather than a “grey” source (fossil energy).
9. **Water management policies** does not play such an important role in the energy and climate package, yet it is water policies which needs to prepare for the worse and therefore requires much attention. The attention should be aimed at ensuring that dams are strong and high enough, water is safely carried away from the land and remains un-polluted as pollution contribute to GHG emission namely methane. Water policies would also include wastage management as feces/manure can be used for agricultural purposes and also as a source of bio-fuel i.e. green gas.

## Main Findings

- ⇒ The average city already has 3.4 of the nine variables in place within its coalition agreement of 2010. Within the period of 2010- 2014, the average city has executed 5.08 of the nine variables in its day to day operations.
- ⇒ Cities have been cutting deals with energy providers for green energy prior to the national ambition of the SER.
- ⇒ Individuals/citizens/initiators have taken the initiative where the national government have not been able to implement a concrete policy, often by coming together collectively and developing programs, events etc. to meet the global need for Co2 reduction.
- ⇒ Much of ambitions of the cities come from bottom-up policy stimulation rather from top down. In the case of national interest groups, the support has come from cities rather than from national governments.



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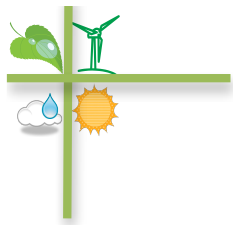
## Analysis

As the reader can conclude, there is a much higher result in what was done during this period (2010-2013). The findings led to some additional questions as to what filled these gaps. The gap does not take place in all cities but more in a general overview. One can derive that the areas with the largest difference is the following:

- ⇒ Energy savings subsidies
- ⇒ Investment in Energy savings/efficiency
- ⇒ The use of energy savings mechanisms in public buildings/property
- ⇒ Renewable energy in mobility
- ⇒ Renewable energy usage/generation
- ⇒ Fair-trade policy /procurement

These differences automatically raise more questions, questions such as; how much is done by the cities and how much is done by the national agencies/ministries. Who is responsible for meeting these targets? And who are the initiators of these projects?

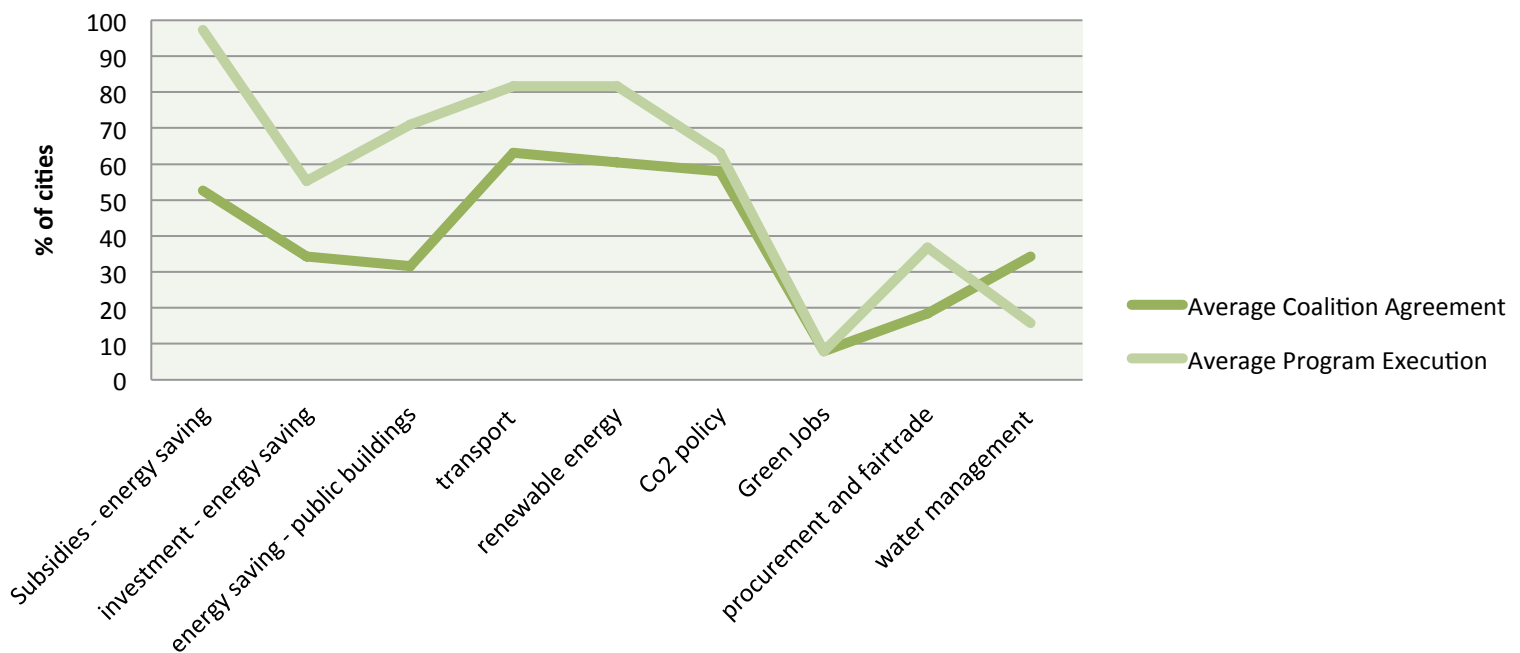
Based on the characteristics of the variables and their score on the graph, one can draw the conclusion that there is a strong correlation between the variables and financial motivation such as subsidies or energy saving, while variables which do not hold an immediate financial motivation receive less attention. Based on the information provided, the research draws to the following hypotheses:



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1. The gap exists due to the presence of national agencies and their subsidies or low interest sustainability loans, this means that more is done within the geographic radius of a city than being done by the city itself.
2. The “coalitieakkoord” is based upon what still needs to be done to reach the targets and therefore do not highlight plans which are already in place.
3. Local Co2 reduction and renewable energy projects often require long-term investment and therefore the cities draw up projects which spans for longer periods than the term in which the Alderman(s) are in office, therefore the M&A have a small role to play in the execution of the 20-20-20 directive. It is more suitable that special departments (such as energy or environment) within the municipality oversee the projects as they would be with the project from the start to finish.
4. The population (in numbers)of the city have a direct relationship with the ambitions of the city as a higher population means that there is more civil servant within the municipality. <sup>1</sup>

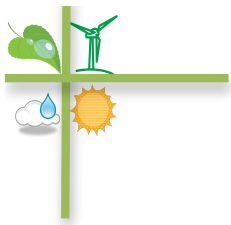
## Eco-diverCities 2010-2014



### Energy saving and Mobility

Subsidies are generally provided by the national agencies i.e. Agentschap.nl which is directly managed by the Ministry of Economic affairs. Subsidies for hybrid, electric or gas operated vehicles are again subsidised by the Ministry of Infrastructure and Environment. This may lead to the result that cities have little to no influence other than communication of available subsidies to their own citizens.

<sup>1</sup> Refer to Annex 1



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Cities can stimulate the usage of electric/hybrid or gas generated cars by making use of these methods of transport. Cities are also the key institutions to process applications for charging stations for personal or business use. A selection of cities have already communicated their plans to further install charging stations, yet with less than 2000 electric cars in the Netherlands<sup>2</sup>, the demand for the infrastructure is not strong enough to mobilise the private sectors into the business.

## Investment in energy savings/efficiency

The desk research mainly found two ways which cities stimulate investment in energy savings; the first was a correlation between cities and technical universities. The desk research found that often cities hosting a technical university, work closely with the university to promote and stimulate the use of energy savings, while at the same time some funds are being made available towards research and development of energy saving technologies. Joint initiatives often benefit the city as well as the university as their reputation often goes hand in hand.

The second way in which cities are involved is by creating awareness through events or competition between citizens, for example, the city asks citizens to take part in a competition by coming up with innovative ways to save energy, the person who wins the competition receives a donation (prize) from the city to realise his/her idea.

## The use of energy saving mechanisms in public buildings/property

In the Netherlands and its neighbouring countries, public buildings will have to be built Co2 neutral 2018 onwards. Till then, strict measurements need to be taken to reduce the Co2 output of public buildings and property. An innovation taken by the cities but also by the ministry of Infrastructure and environment is to install energy saving lights in public areas, LED-street lights and even to dim the lights on highways late at night till early in the morning (when there is not much traffic)

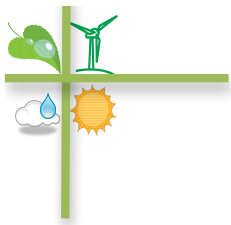
## Renewable energy usage/generation

Similar to energy saving, generating sustainable energy (renewable energy) receives a subsidy from Agentschap.nl which is directly managed by the Ministry of economic affairs. Therefore the same principles apply as with energy saving/efficiency and mobility. Another factor which plays a role in this field is the agreements between cities (sometimes regions) and energy providers, the latter however falls under procurement rather than (own) energy generation, even though it is for the purpose of using renewable energy rather than fossil fuels. Cities do however make use of renewable energy (similar to households) by placing solar panels on their roof which is more of a own renewable energy generation. This is an important tool, even if solar panels do not fully provide a building with energy; it sets a good example for the citizens of the city and therefore stimulate the usage of solar panels in itself.

## Fair-trade and procurement

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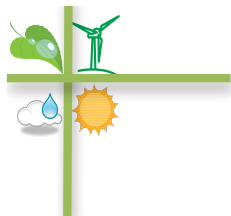
<sup>2</sup> Letter between the Dutch Parliament and the Minister of Economic Affairs and Minister of Infrastructure and Environment, 14 October 2013: characterised [2013Z16375](#)



# Eco-diverCity

Fair-trade and procurement can both have a large impact on the cities, whether it is buying in of renewable energy or producing it locally or even sourcing everyday products locally rather than from long distances. The biggest stakeholder here would be the city management and the businesses. The desk research highlights a few cases where the city has cut strategic agreements with energy companies to provide renewable energy to the city or households in the area. In other areas the city has agreed to establish a long-term contract between themselves and energy providers, being local or regional.

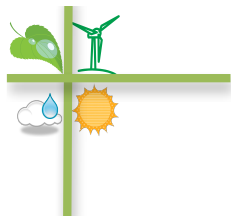
Fair-trade on the other hand have become quite a trend as people become more and more conscious about their consumption. Consumption is however not the sole problem but rather the production line i.e. cradle to cradle. Many local and national campaigns on fair-trade and responsible consumption have been launched in the G38 cities, whether it is through a festival or getting the whole city involved by making it an event in the city centre.



# Eco-diverCity

## National Bodies/NGO's and Information centres

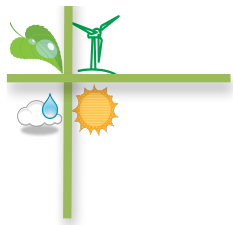
NGO/INFO CENTRE	LOGO	INFORMATION
<u>MEER MET MINDER</u>		Provides information to the end user on the benefits of energy efficiency, assist with subsidy application through information
<u>AGENTSCHAP.NL</u>		Agentschap.nl is the key subsidy provider in the Netherlands. The agency makes part of the ministry of economics.
<u>MILLEU CENTRAAL</u>		A Dutch NGO focussing on sustainable/renewable energy and energy saving.
<u>ZONOPNEDERLAND.NL</u>		An interest group/NGO which advocates for the use of solar panels, being businesses or households.
<u>DUURZAME GEMEENTE</u>		An online site which pools together all information regarding sustainability of its participating cities.
<u>PIANOO</u>		A expert centre focussing on the procurement operations of the public sector.
<u>NATIONALE SAMEWERKINGSPROGRAMMA LUCHTKWALITEID</u>		A national agreement (2009) between cities and the government over agreed norms and targets for air pollution.
<u>DELTA PROGRAM</u>		National agency which deals with water control, management.
<u>WATERSCHAPPEN</u>		Is a umbrella organisation which brings together ideas knowledge over how to go around with water management. This organisation makes part of the ministry of infrastructure and environment.



# Eco-diverCity

<p><u><a href="http://OPLAADPALEN.NL">OPLAADPALEN.NL</a></u></p>		<p>A foundation which focus on mobility i.e. charging stations for electric cars</p>
<p><u><a href="http://FAIRTRADEGEMEENTE.NL">FAIRTRADEGEMEENTE.NL</a></u></p>		<p>Is an organisation which monitors cities and their buying behaviour. Annual award for the most sustainable city.</p>
<p><u><a href="http://PLATFORM31">PLATFORM 31</a></u></p>		<p>Platform31 is a think-tank and network organisation for city and provincial development. The organisation focus on sustainability among other topics.</p>
<p><u><a href="http://DUURZAAM BOUWLOKET">DUURZAAM BOUWLOKET</a></u></p>		<p>Is an organisation which brings cities together who take part in making public buildings Co2 neutral by installing energy saving mechanisms. The organisation is not only focussed on local governments, but also on businesses and households.</p>
<p><u><a href="http://ELECTRIC HEROES">ELECTRIC HEROES</a></u></p>		<p>Electric Heroes is an organisation which promotes the use of electric shooters rather than benzene ones. The organisation is present in around 20 cities located in the Netherlands.</p>
<p><u><a href="http://ENERGIE PLUS">ENERGIE PLUS</a></u></p>		<p>A knowledge platform which brings all information together over renewable energy and innovative ways of generating renewable energy.</p>
<p><u><a href="http://ENERGIESERVICEPUNT">ENERGIESERVICEPUNT</a></u></p>		<p>The organisation which was set up by a handful of cities in West-Holland aims to pool together clients/households and installation providers. The organisation therefore provides a high level service at a low cost.</p>





# Eco-diverCity

HIER OPGEWEKT

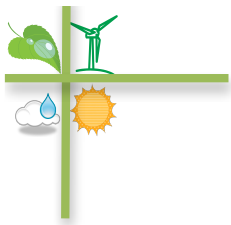


Similar to Duurzame Gemeente, Millieu Centraal, Hier opgewekt is a knowledge platform for locally generated renewable energy.

## Examples of projects stimulated by either regional cooperation, local governments or by citizens:

### Energy savings –

- Delft:** The city of Delft often cuts E-deals with their citizens. The deals aimed at personal initiatives and at creating public awareness while stimulating energy saving between the citizens. The deals is a perfect example of a local approach as energy saving does not always have to come from expensive research but can also be achieved by coming up with good ideas on how to save energy.
- Leiden:** The city of Leiden are one of the initiators of the [energieservicepunt](#) which is a project where the city helps households to reduce their energy usage by installing energy saving infrastructure. The service is not for free but rather provided at a lower interest rate than the user would pay if they had borrowed the money from the capital market. This is therefore a partnership between the city, businesses and the end user. The city also provide a low interest loan to the end user to finance the installation in the case that they are not able to finance it themselves.
- Nijmegen:** The city of Nijmegen opened a store called “[Het Groene Hert](#)” who brought together businesses, individuals and the city to enhance public awareness as well as to provide expert advice to end users over the use of energy saving or renewable energy infrastructure. The shop provides a perfect setting for individuals who wants to know more and who want to see energy saving infrastructure prior to investment. Other than creating awareness in the city, Het Groene Hert also consist of individuals with information regarding subsidies and low interest sustainability loans. The Groene Hert closed down in September 2013 due to not generating enough revenue to keep afloat, however the concept was very much innovative and raised much public awareness in the city as well as on a national level.
- s’-Gravenhage:** The city of The Hague host an annual Energy Conference ([Haagse Energiebeurs](#)) where stalls are set up (by businesses) and the citizens can take an energy saving master class on how to go around with energy saving.
- s’-Hertogenbosh:** The city of s’-Hertogenbosh have set up an energy covenant with 51 companies, the city established with the agreement that the companies will reduce their Co2 emission with 10% compared to their emission from 2009.



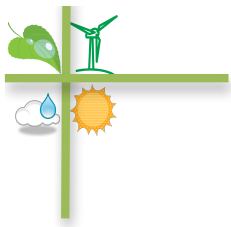
# Eco-diverCity

The period in which the target is to be met is between the year 2011 and 2013.

- Sittard-Geleen:** The city Sittard-Geleen is yet another example of a city which set up an energy cooperation called "[Energie Cooperatie Sittard-Geleen](#)". The cooperation between public, private and citizens sets out to increase initiatives between these three parties.
- Tilburg:** The city of Tilburg have set up an information platform for citizens who want more information on energy saving, the subsidies and low interest loans available to them. The name of the platform is "[KlimaatbureauTilburg](#)". Other than the platform, the city is also active in installing LED infrastructure in the regions of the city, the initiative is to change 2 400 street lights over to LED-technology, this project is called [LED's Go](#)
- Venlo:** The city of Venlo have started the initiative [Duurzaam Venlo](#) which is to stimulate and produce renewable energy through bulk buying of PV solar panels and energy saving infrastructure i.e. LED-Lights. The citizens have also started their own organisation called [Venlo Energy](#) which is a local energy cooperation focusing on producing renewable energy as well as energy saving.
- Zwolle:** The city of Zwolle works together with the Province Overijssel in stimulating the use of energy savings, the project [Energiebus](#) have been very successful in creating public awareness and providing the public with much needed information over how to go about with energy saving and the subsidies available to citizens for energy saving infrastructure.

## Investing in energy savings –

- Delft:** The city Delfts works together with the University of Delft on some trials for energy savings.
- Eindhoven:** The city of Eindhoven works together with TU Eindhoven as well as Philips on some energy savings trials. With Philips the trials mostly cover the use of LED lights or other ways of energy saving through lights or small appliances.
- Enschede:** the city is doing some trials together with the University of Twente.
- Groningen:** The city Groningen have created the [Energy Academy Europe](#) together with the Province Groningen, University of Groningen, HanzeHogeschool and Energy Valley (energy provider)
- Dordrecht:** The city Dordrecht developed the [Duurzaamheidsfabriek](#) which is the first EU building where students and businesses can learn together about sustainability. students can take a bachelors in studies related to sustainability while businesses



# Eco-diverCity

who moved in can directly work together with students in order to improve and test their own devices/technologies. With the idea, the city of Dordrecht won the sustainable award from the VNG in 2011.

**Hengelo:** The think-tank “[Trefpunt Hengelo](#)” is an perfect indication that investment in energy savings does not necessarily have to come from extensive research and development or through mobilising capital. The think-tank was started by the city Hengelo and currently holds a group of 32 citizens debating on how more energy can be saved within the city. The think-tank is therefore made up from citizens rather than companies and academics therefore “for the people by the people”

**Maastricht:** The city of Maastricht established a platform between Businesses, people and the city tackle energy saving together. The city even went further to promise to carry 25% of the cost to realise the concept. (The maximum which the city would invest was also 10 000 Euro)

**Utrecht:** The city of Utrecht have set up a centre which brings together citizens, environmental organisations and the private sector, the centre referred to as the [MCU](#) provides information on the environment, supports local initiatives and take up personal initiatives in the areas of environment, mobility and nature.

## Mobility -

**Arnhem:** The city of Arnhem have provided an additional subsidie for taxi’s and mini-busses which run on renewable fuel such as green gas.

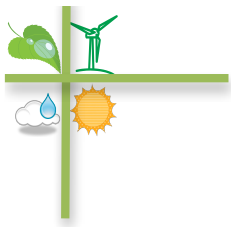
**Dordrecht:** The city Dordrecht created a campaign called “[Electric Heroes](#)” which rolled out into a national program present in around 20 cities in the Netherlands.

**Rotterdam:** The city hosts an annual event called [Eco-mobiel Rotterdam](#) which promotes Eco-friendly cars and mobility. Rotterdam also invests in charging stations for electric vehicles and uses these vehicles for their own operation and government.

**Nijmegen:** The city of Nijmegen have succeeded in securing a procurement with a public transport company (Hermes) and till date have 250 busses running on green gas only. The initiative is a great step for not only promoting public transport but for reducing GHG emission in the transport sector.

**Zaanstad:** The city of Zaandam has the largest charging point for electric cars in Europe. The public servants of the local governments use electric cars as transportation. This initiative makes part of the city’s ambition to be Co2 neutral in 2020.

**Zwolle:** The city is dependent on a subsidy made available by the Province Overijssel for vehicles which rely completely on electricity and green gas.



# Eco-diverCity

## Co2 policy –

Amsterdam: The city of Amsterdam's together with some multi-nationals located in Amsterdam uses only green energy (from Eneco). This is part of a bigger agreement between the stakeholders and to some extent makes part of Amsterdam's project "[Amsterdam Smart City](#)". The campaign should be labelled as procurement policy (inkoop beleid) rather than Co2 policy (as Amsterdam have labelled it) however it does have a positive effect on the Co2 policy if the energy have previously been generated locally.

Rotterdam: The project [ROAD](#) of the port of Rotterdam is a stimulus between the city and energy companies E.ON and GDF Seuz. The project is aimed at capturing emissions from the power plants and to store it in old gas farms off-shore. The project is one of the six projects funded by the European Energy Programme for recovery (EEPR) and plan to capture and store 1.1 million tons of Co2 per year between 2015 and 2020.

## Green Jobs -

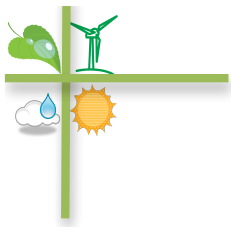
Rotterdam: within the sustainability program of Rotterdam, much attention has been given to creating green jobs, whether directly or indirectly. A study conducted by Boston Consulting Group have highlighted that the investment aimed towards its sustainable program i.e. CO2 reduction would have an economic impact. The impact would amount to much job creation, where Boston Consultants claimed that the investment done by Rotterdam, European Union (Capture and Storage System) and the Dutch National Government would indirectly create around 4 500 jobs within the years 2010-2015. Furthermore, the water management policy of Rotterdam would also contribute towards creating more jobs by issuing tenders to contractors while simultaneously reaching its goals set out within its water management policy.

## Procurement/generation of renewable energy –

Amersfoort: [Eemstroom](#) is an energy cooperation between Eneco (energy provider) and the city of Amersfoort.

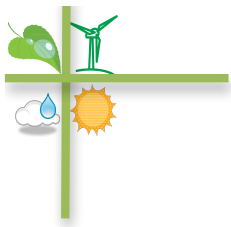
Amsterdam: City of Amsterdam works together with an energy company to burn garbage and to derive energy from the heat. This concept have led that the energy company import garbage from Belgium and France as the supply in NL is not enough input for the company to run throughout the year. The initiative which also makes up a large part of the city of Amsterdam's Long term sustainability plan is called [Waste Fired Power Plant](#) Amsterdam.

Appeldoorn: [De-a](#) is an energy cooperation between the citizens and the municipality of Appeldoorn. The energy is generated using solar panels and generating green gas from manure collected from the agricultural sector.



# Eco-diverCity

- Deventer: City of Deventer owns its own renewable energy plant called [Deventer Energie](#).
- Ede: The city of Ede have a cooperation with its Province (Gelderland) to produce renewable energy. The cooperation is called [Bio-energie de Valei Ede](#).
- Enschede: The city of Enschede is part of a regional cooperation with its neighbouring city Henglo as well as two energy companies Twence and Essent. [link](#)
- Groningen: The city of Groningen have built a solar park (compiled of solar panels). The park is owned by the city and makes up part of its sustainability and Co2 reduction plan.
- Leeuwarden: The city of Leeuwarden decided to cut out the “middle man” and to set up a company [Nieuwestroom](#) with 3 other cities. The company is to replace the intermediate and would therefore make the distribution of energy more transparent. Other than making green energy more affordable to the end user (citizen, SME’s), the new company would be able to guarantee the Green Certificate as it buys directly from the producer rather than from the intermediate.
- Maastricht: The city of Maastricht is one of the participating cities under the province Limburg in the project SLOK ([stimulerend lokale klimaatinitiatieven](#)). The project brings together 30 cities who all agree that energy should be produced locally using infrastructure such as solar panels, wind turbines, hydro power, biomass and geothermal energy production.
- s’-Gravenhage: The city of the Hague uses geothermal as their source of renewable energy. On the website of the company ([Aardwarmte Den Haag](#)) claims that geothermal emits 70% less Co2 emission while at the same time saves natural gas. The company was opened by King Willem Alexander van Oranje on 7 June 2012. The partnership is between the city of The Hague and energy company E-on.
- Sittard-Geleen: An initiative from the citizens of Sittard-Geleen is to get 500 households to put solar panels on their roof. The citizens therefore set up an campaign called “Nudge voor zonnekracht” through which it operates.
- Tilburg: The city of Tilburg is working together on a project with the Province North-Brabant where it developed a business called [MOED](#) (Midden-Brabantse Ontwikkelingsmaatschappij Energie en Duurzaamheid)
- Utrecht: The energy company [Utrechtse Energie](#) of the city of Utrecht have strategically placed windmills which together generate enough energy to provide 10 000 households with renewable energy.
- Zaanstad: The city of Zaanstad have set up their own energy cooperation called [Zaanse Energie Koöperatie](#), the cooperation is to focus on installing renewable energy and focus mainly on wind energy for its source. The city is a strong partner with the EU project referred to as [E-harbour](#), within this association the city have pledged to buy in 100%



# Eco-diverCity

green energy and to deliver 100% green energy to the citizens. The city works together with an organisation called [Green Choice](#) to realise its ambitions.

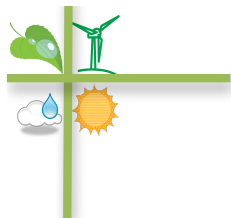
## Water Policy –

**Leeuwarden:** The city of Leeuwarden was one of the only cities who had an active water policy. Leeuwarden is known for being one of the leading cities in water management in Europe and the world and is also hosting the [Water Campus Europe](#). The campus is called Grotmij and brings together around 20 water companies involved in design and innovation of existing and new water infrastructure. The water campus focus on achieving energy-neutral building through heat and cooling storage, air-source heat pump, a thermally active concrete core and solar energy. The city itself have taken some serious measures such as deepening the canals, ensuring that drinking water stays at a high purity level and that water management stays in place.

**Rotterdam:** The Rotterdam Adaptation Strategy ([RAS](#)) makes part of the Rotterdam Climate Initiative. The focus is to ensure that spatial planning, water security for business and citizens in Rotterdam. With the city located along the shores of the Netherlands, water management plays a key role as the city is more susceptible to a rise in water levels. Within its program, the city highlights that bad weather conditions (leading to possible flooding) can not only impose on the safety and security of the citizens, businesses, but also have a severe effect on the economy. The city have therefore invested into developing projects which would focus on strengthening the infrastructure of dams, dykes and other infrastructure related to water in the city. The result is that Rotterdam is one of the safest delta cities in the world.

## The role of political parties in the policy making and execution of policy

The document has established that there is indeed a stimulus within the cities, whether it comes from the city itself or from the citizens. This leads to the third party (political) and will attempt to show whether a political party would have a direct relationship with the success of the local energy policy execution. In order to assess this, the paper will look at the political parties present in the cities and compare that with the execution of the variables (refer to Annex 2). The paper will look at five political parties in total namely: the Liberal Party (VVD), the Labour party (PvdA), the Green Left party (GroenLinks) and the Social Democrats party (D66) and the Christian Democratic Appeal (CDA)



# Eco-diverCity

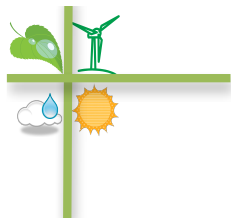
Political Party	Logo	Number of cities which the party is active in	Portfolio's directly associated with the above variables	Average score in the Coalition Agreement <sup>3</sup>	Average score in the Local Execution <sup>4</sup>	Percentage % <sup>5</sup>
Liberal party		27	17	3.53	5.47	50%
Labour Party		28	12	3.12	4.83	44%
Green Left party		17	13	3.38	5.38	47%
Social Democrats		24	10	3.9	5	49%
Christian Democratic Appeal		26	10	3.1	4.8	44%

Based on the findings, the paper will provide an overview of the party members (alderman) responsible for the portfolio's directly related to the variables which were used as a measurement to the success of the city's Co2 and sustainability policy. The assessment hope to establish a trend which would determine to what extent the political party's ideology is present within the city.

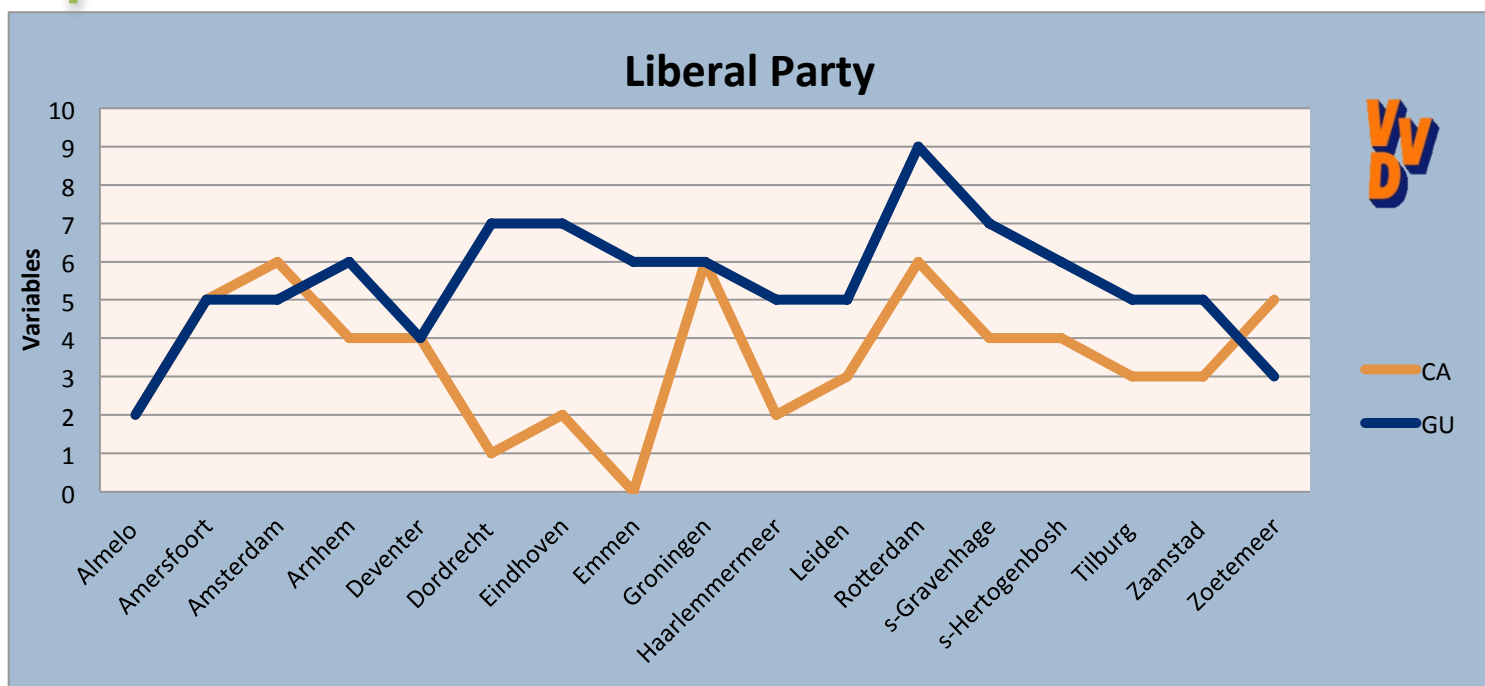
<sup>3</sup> Formula: Total score/number of cities

<sup>4</sup> Formula: Total score/number of cities

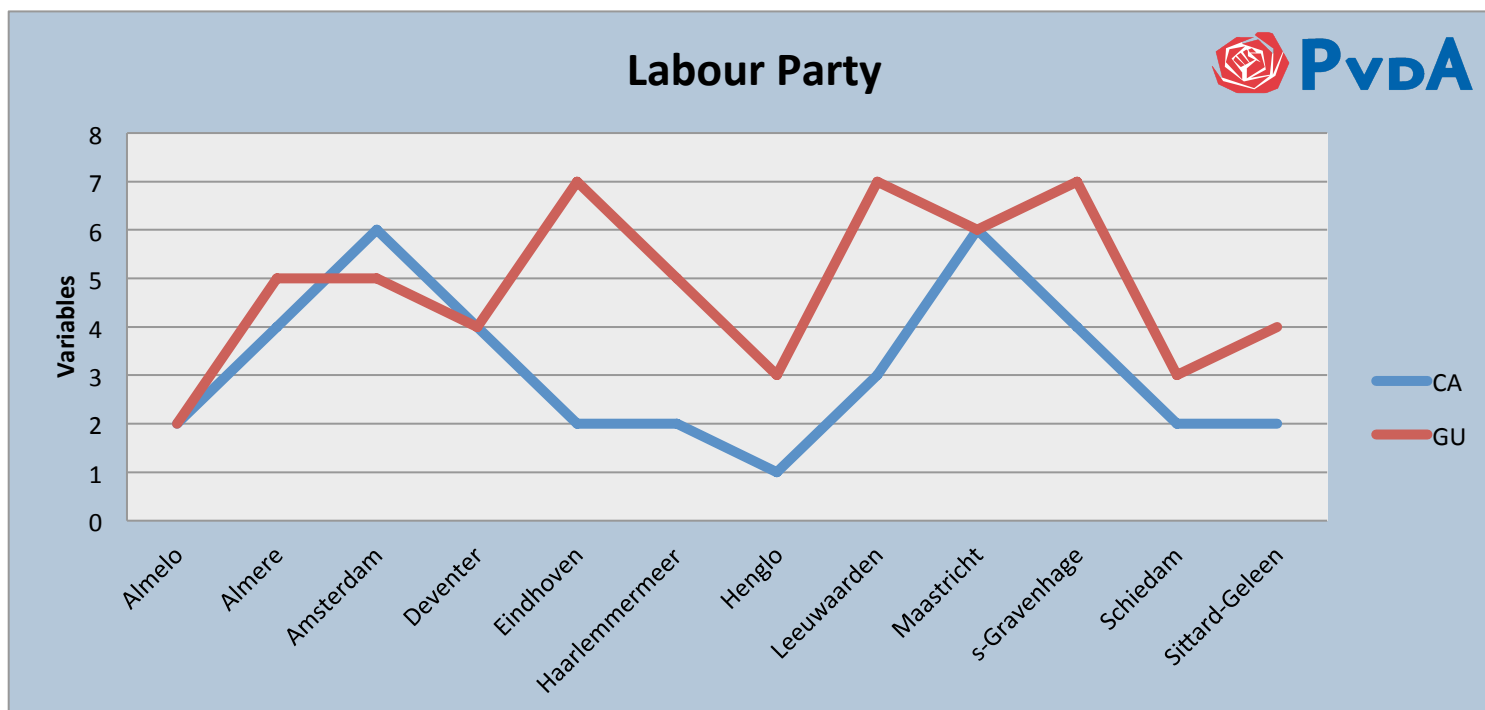
<sup>5</sup> Formula: [(Total score of CA + LE)/18] x 100%



# Eco-diverCity

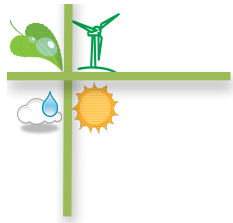


The graph is an indication of the cities in which the liberal party holds a portfolio directly associated with variables used in order to assess the performance of the cities. The liberal party holds the highest (17) amount of portfolio's and scores fairly high in its execution of the energy policies.

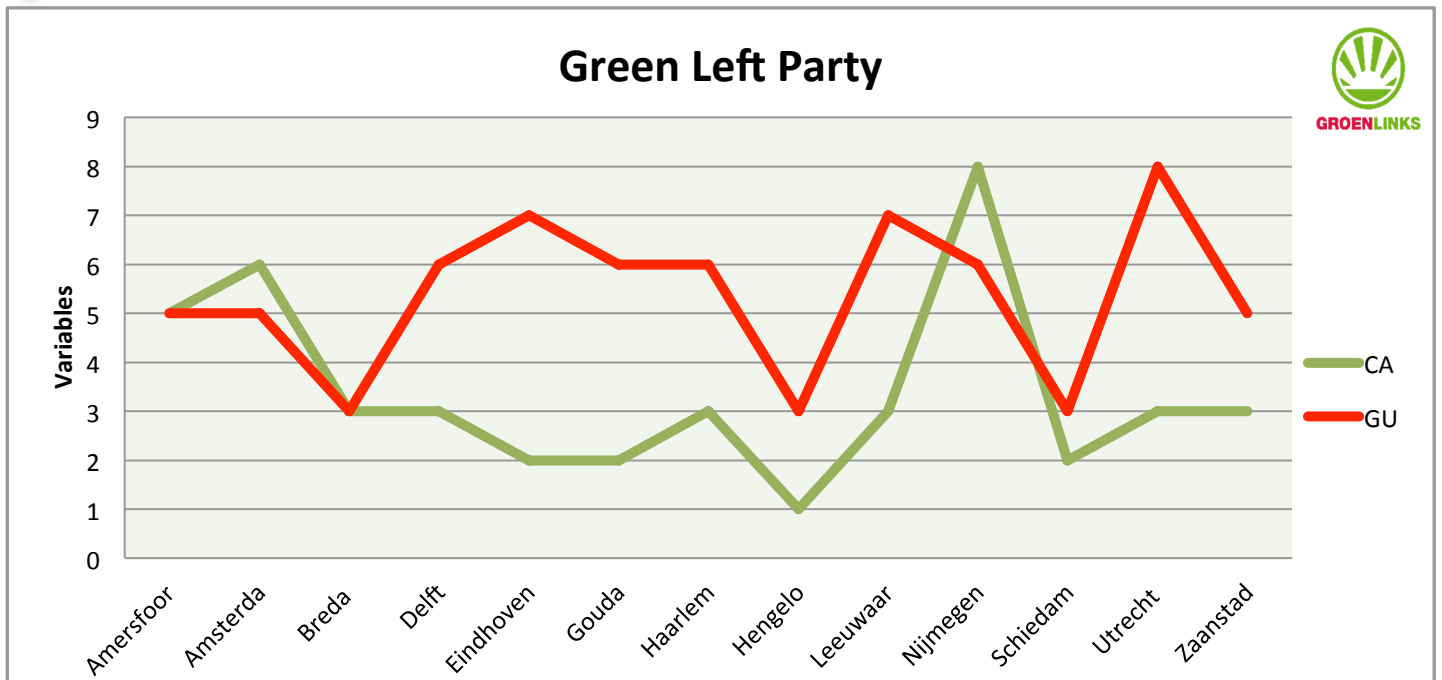


The graph indicates the performance of the labour party whom holds 12 seats associated with the portfolios of the cities. Similar to the liberal party, the labour party scores fairly high in its execution of energy policies.

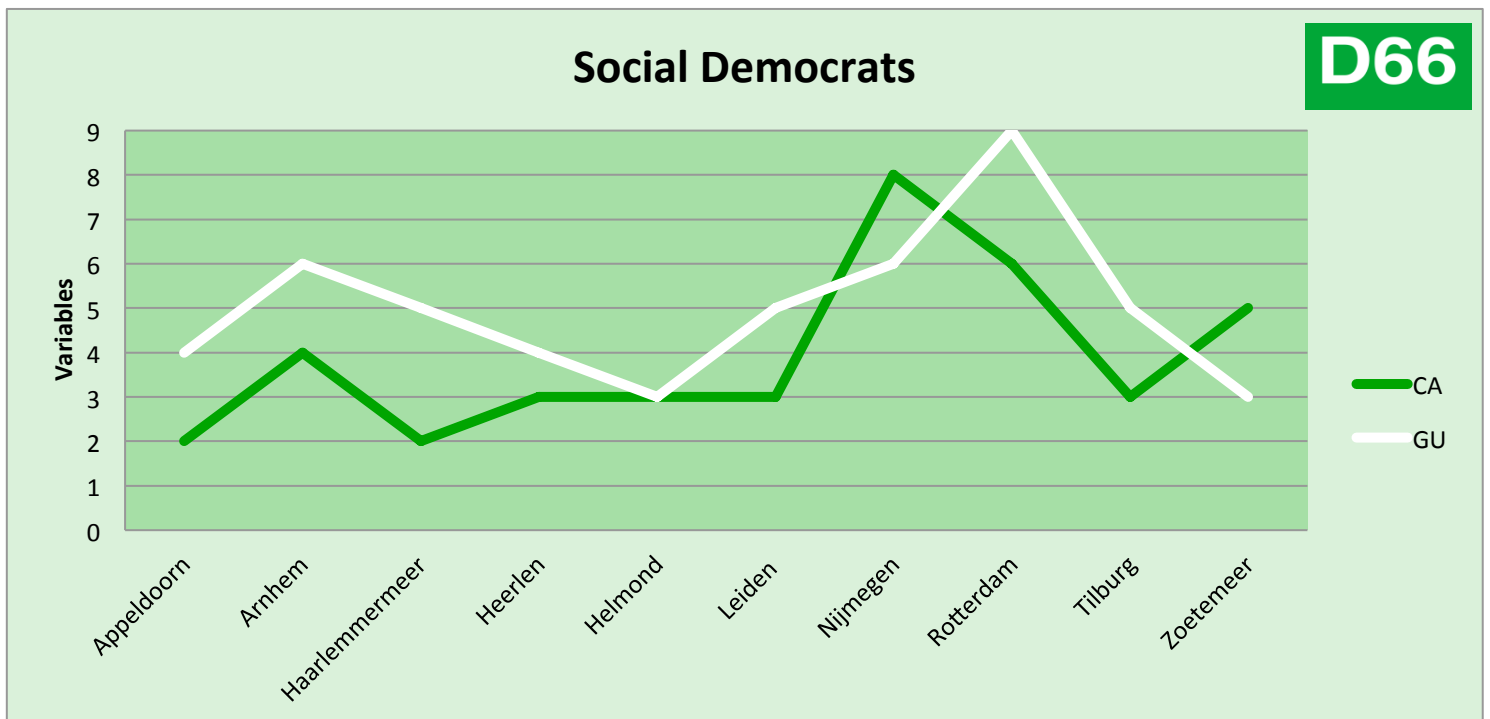




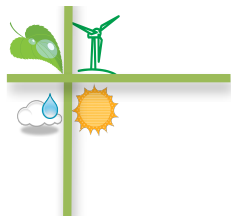
# Eco-diverCity



The GreenLeft party holds the second highest amount of portfolios within the cities (13). As an environmental driven party, the green party shows higher promise in their coalition agreement, yet the graph points out that there is still are still some obstacles standing in the way of the city's alderman to meet the high level of success associated with the liberal and labour party.

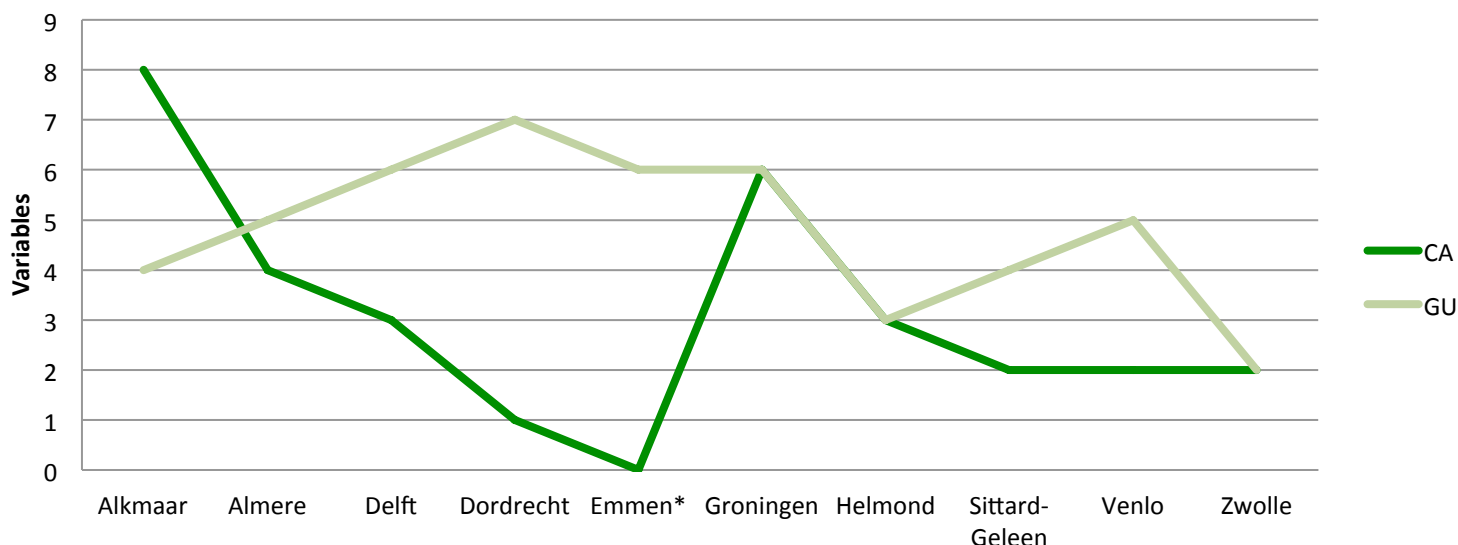


The social democrats holds 10 portfolios associated with energy and environment and as one can determine from the graph, the cities still have much to do before it can meet all of the variables successfully.



# Eco-diverCity

## Christian Democratic Appeal

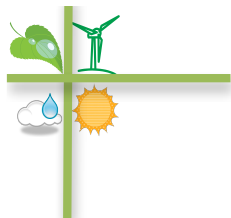


The Christian Democratic Appeal is present in 26 cities, yet only in 10 cities is the alderman from the party directly responsible for the portfolio of energy saving or renewable energy. The execution within the city shows that the alderman execute what was agreed upon and in other cases performs at a higher level than agreed.

*\* no coalition agreement was found on the city of Emmen for the period of 2010 and 2013, therefore no information could be derived to provide a score.*

### Interviews and survey

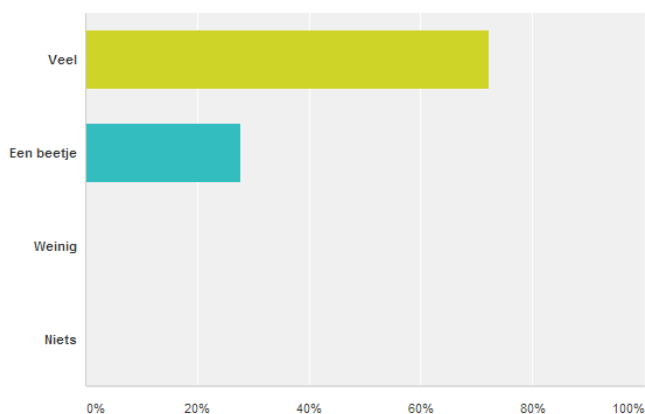
Towards the end of the research the Alderman from the represented cities were asked to participate in a survey and/or take part in an interview. The survey was to generate quantitative research while the interviews were aimed at providing an in-depth understanding of the motives behind the execution plan which aims towards more qualitative research. Within the interviews, Alderman were often joined by the programme manager for sustainability while on other occasions meetings were held solely with programme managers. The online survey has provided the following opinions by either alderman holding the portfolio of sustainability or by the program manager responsible for executing the cities policies.



# Eco-diverCity

Vind u dat u de afgelopen 4 jaar in uw gemeente grote vooruitgang heeft geboekt op het gebied van duurzame energie & energiebesparing?

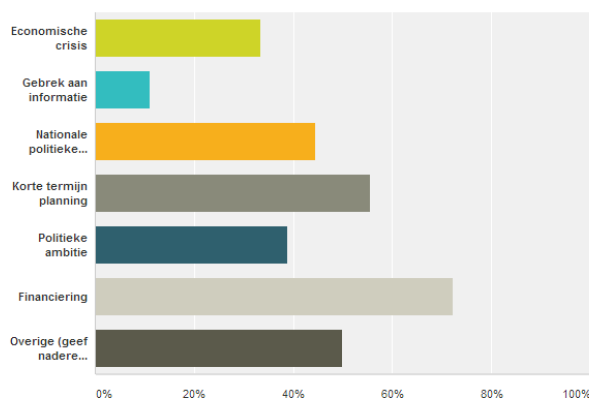
Beantwoord: 18 Overgeslagen: 0



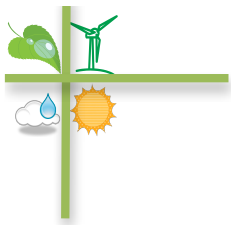
1. The first question on the survey was to ask cities whether they feel as if they have done enough during the last four years (2010-2013) in the area of renewable energy and energy saving. Based on the graph, majority (72%) of the participants have said that a proportional amount have been done on a local level (city level) within this policy field.

Wat zijn volgens u de voornaamste obstakels voor het realiseren van de EU doelstellingen (2020) m.b.t. duurzame energie en energiebesparing? (meerdere antwoorden mogelijk)

Beantwoord: 18 Overgeslagen: 0



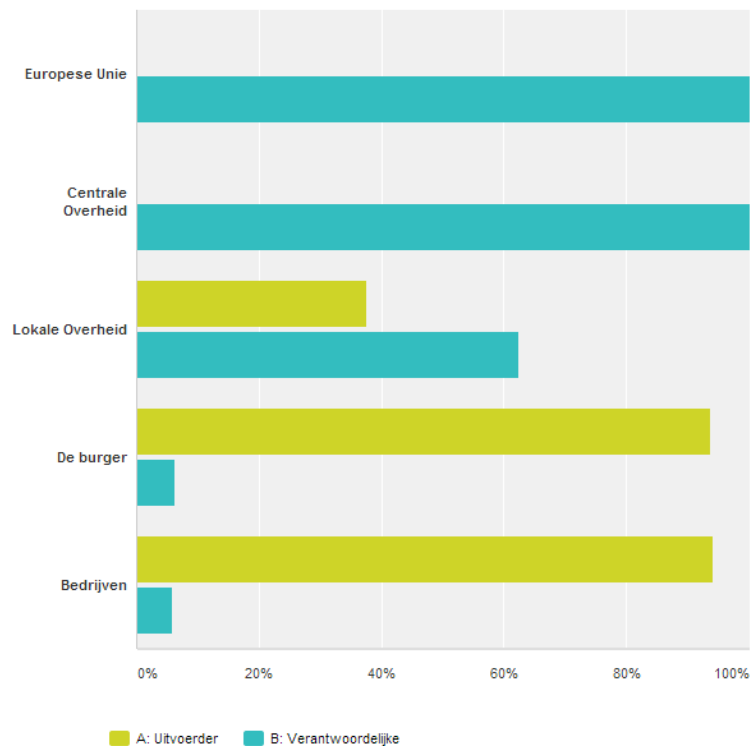
2. The second question in the survey asked the participants what they believed are the key obstacles to implementing policy and/or programmes towards energy saving and renewable energy. The graph shows that there is not just one obstacle, but that Financing (72%) and Short Term Planning (56%) are the two most common obstacles. Other obstacles such as National political instability (45%) the economic crisis (33%) have also been some of the main obstacles within policy and the implementation of programmes.



# Eco-diverCity

Wie is volgens u, (A) de belangrijkste uitvoerder en (B) het meest verantwoordelijk voor het behalen van de doelstellingen m.b.t. duurzame energie & energiebesparingen?

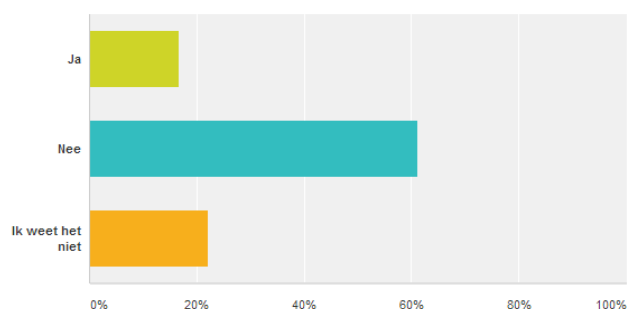
Beantwoord: 18 Overgeslagen: 0

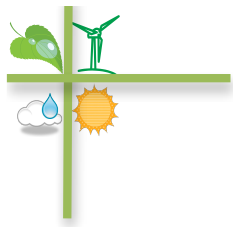


3. When participants were asked who the main responsible body is for (A) the executor and (B) the key responsible body is for meeting the renewable energy and energy savings targets it clearly showcased that (1) National and Regional (EU) bodies are predominantly responsible for meeting the targets i.e. as they have signed the agreements or agreed to the directives and that (2) the private sector, citizens and the local government (cities) play a key role in implementing initiatives aimed towards meeting these targets.

Verwacht u dat Nederland in 2020 de doelstellingen m.b.t. duurzame energie & energiebesparingen zal halen?

Beantwoord: 18 Overgeslagen: 0





# Eco-diverCity

4. Asked whether the participants believe that the Netherlands would meet the renewable energy and energy savings target (16%) by 2020, a vast majority of participants believed that the Netherlands would find it very difficult to meet these targets based on the current conditions.

## Interviews

Interviews were held with a selection of the participants, the participants are directly involved in either/and local sustainable policy or/and the sustainability programme of the local government at the time of the interview. Therefore, being an Alderman (2010-2014) or a program manager at a local governmental level.

## Delft

### **Public – Private initiatives**

The city of Delft had a dynamic policy in place and have showcased that the “road” to a more sustainable city does not always have to come from direct financial relationships between the government and the citizen or businesses, but rather that innovative ideas and a direct relationship with “its” citizens can lead to successful implementation and execution of policies. The city has developed what is called an **E-deal**<sup>6</sup> through which the city has worked closely with local businesses and the public to achieve collective results. An example of this is [Project Green Village](#) where University of Delft have built a small scale village which showcase innovation in renewable energy to the general public. Another project aimed making public buildings energy neutral was headed by Ecoplaza and a nearby secondary school. Parents were asked to contribute money (for solar panels) in exchange for certificates of a similar value to be spent at Ecoplaza. The initiative provided for a loan from Ecoplaza for solar panels at the school, while simultaneously generated more foot traffic to the Ecoplaza store. Ecoplaza would also receive the difference in energy price due to the solar panels and therefore the school did not have to take out a loan for these PV solar panels but rather obtain the money through a rotating fund.

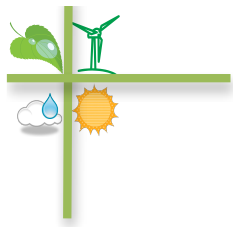
Another example of a partnership is the “Milieu Zone” which prohibits certain genres of cars from entering the zone. The city managed to cut a deal with the Dutch postal service (PostNL) to deliver parcels by more eco-friendly means while at the same time, PostNL would employ more socially disadvantaged citizens to deliver the parcels. The city of Delft has already met their Co2 reduction target of 35% within this period (2010-2014).

### **Recommendations**

With these two case studies, the Alderman for sustainability stressed that much still needs to be done on a local level in the sense of motivating the public to reduce their remittance of Co2 emission as well as focussing on energy saving. The Alderman closed the meeting by saying that innovative mechanisms for a financing model is still a fairly untapped, and that more attention needs to be given to this discipline in future initiatives. An innovative programme held with multiple cities is a

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<sup>6</sup> 35% Co2 reduction, 35% energy usage reduction, 15% renewable energy generation



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campaign called “energy party”. The campaign allows for individuals to approach their neighbours and educate them on the do’s and don’ts of Co2 emission and energy saving, the initiative allows for tailor made advice and knowledge share, often without the high jargon associated with energy saving and renewable energy generation.

## Enschede

### **Research and innovation to add to renewable energy output**

The program “Nieuw Energie voor Enschede” focussed the cities attention towards the generation of renewable energy (6.5%) within the city. The city works directly on “Bio-mest” pilot together with the University of Twente and the University of Wageningen. The University of Twente works closely together with Twence (waste -energy provider) to develop “[green coal](#)” which makes part of their Green Energy Initiative. The project is part of the provincial initiative called Bio-energy to Overijssel.

Other than local initiatives, the city of Enschede works together with a innovative energy provider from Finland which produce oil from biomass. The company ([BTG-BTL](#)) would become not only a source of energy, but would bring much research and innovation to the province of Overijssel and the Netherlands as a whole.

### **Achievements**

The city of Enschede have done much in the field of sustainability, part of its greatest achievements over the last four years was the pilot on making 20 houses energy neutral and opening these houses to the public. The city also provided its own subsidies towards homeowners wanting to make their homes more energy neutral while the city worked together with the province of Overijssel on a low interest sustainability loan for the same purpose.

Housing Corporation makes up part of the cities ambitions to increase the energy label of houses, the city have been working closely with housing corporations to meet their collective target of increasing the energy labels by two labels.

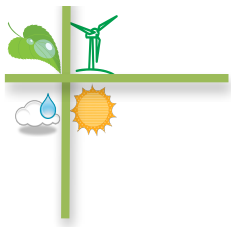
Together with the province Overijssel, the city of Enschede have developed a communication, cooperation and participation website called [Slim Energie Thuis](#) where it educates and assists its citizens on how to go around with energy saving and Co2 reduction.

### **Recommendation**

On a future outlook, the city of Enschede will focus on a massive energy savings campaign while looking into utilising all mechanisms for energy generation and storage. The city of Enschede will also focus on more cooperation with other cities within the Province of Overijssel while developing a business case for Grolsh (brewery) aimed at renewable energy and cradle to cradle practices.

## Haarlemmermeer

### **Public – private initiative & research**



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The city of Haarlemmermeer achieved much of its personal ambitions through public-private initiatives, Initiatives such as making buildings energy neutral and generating renewable energy through installing PV panels alongside the highway.

1. Installing PV panels alongside the highway
2. Research and Development (energy saving and renewable energy related)
3. Direct and current Green Deals – saves 25% energy
4. Algae used to produce cosmetics

Much research went into the initiative, including working together with the University of Amsterdam where 600 students in economics developed a research and presented workshops on:

- Workshop on how to reduce energy
- Quick and dirty tricks, benefits for companies
- 10 business cases
- Visiting schools and businesses to present their work

Together with Arizona University, United States, a university focussed on providing sustainable solutions to the public and private sector, the city of Haarlemmermeer have developed an “Area Development Company” which provides solutions to businesses located within the city and surrounding areas. The programme will be expanded to other cities later in 2014.

## ***Recommendations***

The programme manager for sustainability, Ms. Debby de Rijk said that “we believe in the strength of our partners” and that one should not underestimate how much can be achieved when you bring all the partners together.

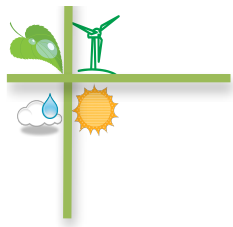
The city of Haarlemmermeer has put solar panels on 13 schools by 2013.

## **Helmond**

### ***Long term planning leads to high achievements***

The sustainability programme of the city of Helmond is fairly new (2009) compared to that of other cities. However, the city have done much since the inception of the sustainability programme, such as developed a long term programme (until 2045) which is assessed and elaborated on an annual basis. The programme managers (Ms. de Kort and Mr. Klaasen) have set strategic “check-points” which are aimed towards the ultimate goal of Co2 neutral by 2045.

The “Helmond Energie Convenant” aims to reduce energy usage by 10% by 2017 while the city hopes to buy in 100% of its products from a sustainable source. Since 2012 the public buildings of the city have been energy neutral, which is a fairly ambitious achievement when one looks at the required year (2017) and the year the programme was initiated.



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## **Recommendations**

In order to stimulate the people of Helmond, the city hosts information evenings while simultaneously approaching businesses and housing corporations to assist them with their collective ambitions towards a more sustainable city.

The city provides a subsidy to homeowners who wish to do an energy scan of their house – energy scan is an indicator to the homeowner as to how much energy gets lost through either lack of insulation or double glass.

## Nijmegen

### **Diversification driver**

The city of Nijmegen have been one of the highest performing cities in the research, the reason for this is due to the cities ambitious, yet achievable and measurable policy programmes.

### Energy saving

The city of Nijmegen have achieved remarkable figures with its energy saving policy and the most recent assessment shows that the city as a whole have reduced its energy usage by 7.36% by 2012.

- The city provided a subsidy of EUR 400 000 per annum towards building corporations, which is to be spent on making their buildings more sustainable.
- Even though the energy information store “de Groene Hert” closed its doors in 2013, the store (partly funded by subsidies) succeeded in raising local but also national awareness for energy saving and renewable energy generation mechanisms for homeowners and small businesses.
- The city developed a 10 year programme through which it wants to install 15% of low energy lights in the city by 2020.
- The city has put solar panels on its roof as well as on other public buildings in the city.

### Mobility

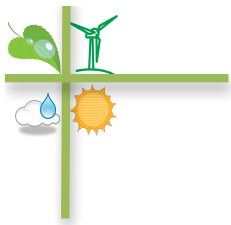
One of the greatest achievements of Alderman van Meer (sustainability) was to issue a tender for public transport to Hermes (Transport Company) who has 250 busses in operation in Nijmegen fuelled green gas rather than diesel. Nijmegen is also busy with a joined programme with the city of Arnhem, namely:

- ⇒ Regional cooperation
- ⇒ Green public transport (busses)
- ⇒ Subsidy agreement (taxi's and electric cars)
- ⇒ Expansion of bike routes between cities

The city of Nijmegen is also a proud owner of 2 stations providing bio-gas to cars and small vehicles.

### Renewable energy





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The Nijmegen Energie Covenant will open a waste-energy provider in 2015 which aims to provide a large amount of households in the area with heat as a substitute to burning gas. The city also works together with the region on solar, wind energy, biogas and heat storage projects which would not only reduce the Co2 emission but add to the national ambition of 16% renewable energy by 2020.

## ***Recommendations***

While the city of Nijmegen has achieved a lot, Alderman van Meer said that much still needs to be done. The sustainability team will draw up a new plan in 2015 which will set out the goals for the next following years. van Meer claims that more needs to be done with the business sector, housing corporations and energy companies in order to achieve the target of the national government. At the same time, the National government needs to provide more support to cities and have more deregulated policies in place as they would stimulate innovation and reduce red tape to ambitious programmes.

## **Rotterdam**

### ***Strong focus leads to high results***

The city of Rotterdam has long been known for its dynamic policies and long term orientation. Focusing on energy saving, the program namely:

“[Versnelling 010](#)” – is a programme focusing on making 10 000 homes more sustainable. The programmes focus is towards (1) households, which include homeowners, housing corporations as well as social housing and (2) providing a sustainability loan to homeowners who wish to increase the energy label on their property.

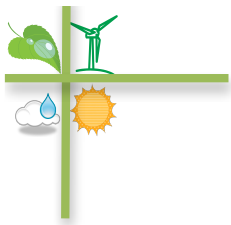
The city has recently developed an action plan based on the national energy agreement which was published on September 2013.

### ***Renewable energy generation***

Working together with the city of The Hague, Rotterdam have tendered a programme out to laying pipes for capturing heat and transporting it from their industrial sector to households, SME's and factories.

Part of the Rotterdam Climate Initiative 2020 is carbon capturing from two coal fired power plants located in the port of Rotterdam, this initiative is to come to realisation by 2016. Due to funding issues, the two energy providers have raised concerns on the investment required to make the project profitable. However, this is not the first or only carbon capturing project of Rotterdam. Two instances such as the Shell Platform and [Abengoa](#) have already managed to capture pure Co2 and manage to transport it to the agricultural sector (green houses) and store it off-shore. Rotterdam hosted the 5<sup>th</sup> Carbon Capture and Storage summit in on May 15<sup>th</sup> 2013.

In 2011 a hydrogen plant was set up in the Port of Rotterdam by [Air Products](#). The plant was set up in record time while hydrogen would contribute to an important mix to the future of sustainable fuels for transport and energy generation.



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## **Mobility**

Alderman van Huffelen from the city of Rotterdam has some simple yet effective policies in place. In regards to mobility, Ms. van Huffelen said that providing a charging station to new owners of E-cars is vital to rolling out the amount of E-cars in the city of Rotterdam. The policy is simple, yet points directly to the “chicken or egg” idea, therefore motivating the citizen to buy a E-car by ensuring that they will have the infrastructure to “fuel” it is an effective way to stimulate the use of electric cars in the city.

## **Recommendation**

Alderman van Huffelen had three recommendations for policy makers in the field of sustainability. The first recommendation was “infrastructure, infrastructure and yes, infrastructure. One cannot expect the public to take initiative in “climate friendly” vehicles if the infrastructure is not there to support their decision. Therefore, providing infrastructure will not only create awareness between the citizens, but remove the frustration in looking for a charging station once your electric car needs charging. The second recommendation is therefore to provide adequate parking i.e. with a charging station to the owners of electric cars.

The third recommendation was to lead by example, if you want to motivate your public, then you first have to motivate yourself. Being an advocate of your own policy is vital to winning over the crowds.

## **s-Gravenhage (The Hague)**

### ***Energy saving through sustainable circles***

The city of The Hague has built its participation module on that of the city Gent, Belgium. The programme includes sustainable circles which stimulates working groups between SME’s, semi-public and private companies to work together rather than against each other. The city have also developed a group of Energy Advocates which promote the use of energy saving and renewable energy generation tools among citizens and the above mentioned organisations. These organisations include Printing companies, Museums and Arts & Culture organisations.

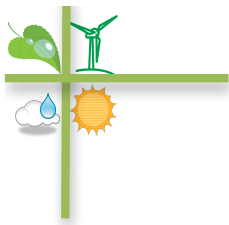
### ***Renewable energy generation***

Geothermal energy and district heating are used to produce renewable energy (heat) to citizens and businesses. The city of the Hague will start two new Geothermal projects between 2014 and 2015 and have an ongoing programme to install pipes connecting 100 000 buildings to a heat network.

The programme “Duurzaam Den Haag” provides facilities and experts to the specific target audience, being citizens, businesses and semi-public organisations assisting them in making the right decisions in their sustainable ambitions.

### ***Future outlook***

The programme coordinator, Mr. Johan Noordhoek a academic in physics and former employee at the Ministry of Economic affairs was one of the developers of the Energy vision 2040 of The Hague.



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Mr. Noordhoek have laid out the step by step sustainable policy programme for The Hague and uses the correct measuring mechanisms for analysing the policy rather than assuming that certain mechanisms work such as looking at full utility of PV panels rather than taking into consideration the different climate conditions found in the Netherlands.

The city of The Hague provides a subsidy for realising individual ambitions towards sustainable solutions, the subsidy is not output specific, but rather content specific, a subsidy which does not limit the end user, but rather provides the user with the opportunity to be creative and find solutions which are most suitable to their own needs.

## ***Recommendations***

Even though The Hague has their “tools” in place, Mr. Noordhoek says that there is still a lack of urgency from households and SME’s in regards to a more sustainable transition. This will be the focus of the city of The Hague in the near future.

## **Utrecht**

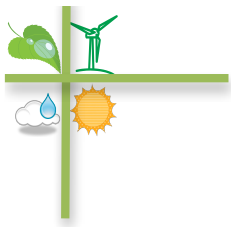
### ***Using subsidies and facilities to mobilise public and private participation***

The city of Utrecht has a dynamic programme called “Utrecht Energie”. The programme focus on subsidies and communication as a platform for meeting its targets set out in its personal ambitions. The subsidy programme called “Duurzaame Sameleving” provides a collective subsidy for (1) solar panels, (2) subsidy towards an energy scan of the required property and (3) a subsidy towards a collective industry rather than individual SME’s. Funding for these subsidies also comes from an energy fund called “Energie Fonds Utrecht”. The city holds the target to provide 60 000 energy scans by 2014 while simultaneously providing low interest loans to households who does not have the means to make their homes more sustainable i.e. energy efficient.

The city itself hosts facilities focussing on providing individuals and businesses with a service stemming from four characteristics namely (1) a venue to hold a meeting, workshop or information evening, (2) facilities, (3) knowledge on which tools are most suitable to the needs of the end user and (4) matchmaking between the end user and the service provider. The reason for the initiative because as sustainable energy, policies aimed at sustainability needs to be sustainable in itself, driving the end user to take their own initiative and becoming self sufficient in his/her decision making. This is an important observation as cities do not always have the financial means to provide information, subsidies and facilities. It is therefore that a programme have an end date as ultimately, the city (all cities in principle) would have to step away at some point and leave the market to regulate itself.

## ***Collaboration***

The city of Utrecht started an initiative with 100 SME’s and industry to collectively strive towards a 30% energy reduction. The initiative today (2013) includes around 800 companies where meetings are being held on a weekly basis.



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## Zoetermeer

### ***From subsidy to education***

The city of Zoetermeer is a fairly new city, constantly expanding there have been a greater increase in energy demand. Alderman Hans Haring stressed the need for an alternative as subsidies are not enough to accommodate all citizens. Subsidies made available are often drained within a few weeks or months and therefore does not provide a sustainable solution for the city nor its residents. Subsidies however were made available to citizens for insulation or/and solar panels.

The city of Zoetermeer therefore aims its focus more on educating and facilitating its citizens by (1) providing an energy market (information day) or (2) by providing a meeting platform and facilities to businesses and the general public. In regards to mobility, a subsidy was provided to taxis buying into green gas as an alternative fuel to petrol or diesel while the city have installed multiple charging stations for electric vehicles.

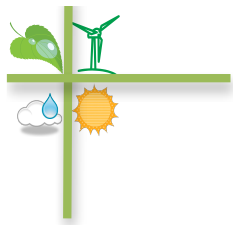
Similar to the city of Delft, the city of Zoetermeer are also making use of the project “energy parties” where individuals can inform and educate their neighbours on the facts and figures behind energy saving and renewable energy generation.

### ***Recommendations***

With the programme in place, Alderman Haring said that there is still much to do before the city of Zoetermeer can be considered energy neutral. Other than still limited renewable energy generation, building corporations needs to be more stimulated to sell energy neutral packages to their tenants. The packages can be bought in bulk (by the corporation) which will bring the price per unit down for the end user.

## **Analysis**

The transition to the targets agreed upon by the Netherlands in 2007 will not be an easy route. The Netherlands is expected to increase its renewable energy output with an additional 10% within the next 6-7 years and 12% by the year 2023. This means that the Netherlands should consecutively increase its output with 1.43% on an annual basis to meet its target for 2020. With its performance of 0.1% increase in the year 2012, the Dutch government (s) would have to increase its level of stimulation of public support in order to realise this ambition. At the same time, provisions needs to be made and companies incentivised to invest its time and capital into the generation of renewable energy. Provisions such as those laid out in the energy agreement (Social Economic Council, 2013) between NGO’s, think-tanks and energy and infrastructure related businesses. The energy agreement is therefore good in writing, yet it is still too early to determine whether the agreement would work out well in practice as elements of the debt crisis still dominates the public agenda and everyday operations. However, this would be the last chance the Netherlands would have to meet these targets and therefore it is up to society as a whole to make this work, not only for the sake of the EU, but for the environment, public health and other variables in direct relationship with excessive amounts of Green House Gasses in the air. Cities (G38) are currently seen as being more pro-active than the national government, which may be due to the political stability of the local governments



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while the national government have struggled to come to a political decision. One can identify a trend when looking at the execution and creation of local policies within the portfolios headed by the alderman(s) of the cities and their political affiliation. For instance, the liberal party and labour party are both seen to keep their promises low and achievements high while the Green party and the Social Democratic party have a tendency to yield high promises while meeting them at the same time. That said, the difference between the achievements of the parties is not sufficient enough to claim that the one performs better than the other, or that the transition should be a political decision. The research points to the direction that more autonomy should be given to the citizens, businesses (including research centres) and the private sector as they are the ones whom benefits directly from the result of their actions.

## Summary

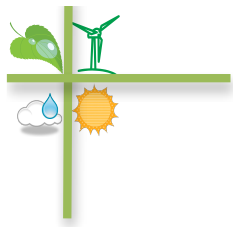
- ⇒ The Netherlands as a whole would have to increase its renewable energy output by 1.43% a year to meet the target of 14% renewable by 2020.
- ⇒ The energy agreement (Social Economic Council, 2013) is to play a key role in the Netherlands. The ambition of the SER is the last attempt the Netherlands has in meeting its targets.
- ⇒ Cities are more pro-active than the national government. Cities have been cutting deals with the private sector prior to the energy agreement of the SER.
- ⇒ Political affiliation does not play a key role in the success of the city's energy mix.
- ⇒ More autonomy needs to be given to the citizens, businesses and academia in the cities as they would benefit the most from the success of the policies.

## What we can learn from surrounding countries...

As cities can learn much from the tools and “formulas” of one another, so can national governments. The Netherlands is no exception in leading the way with innovative technologies and policies. The Netherlands, known for its innovative and state of the art infrastructure and policies on water management have been not only an inspiration for developing but for developed countries on effective water management. The report will focus on the sustainability policies of Belgium, Denmark, Germany and The United Kingdom countries who have similar geographical demographics (such as weather, land, shores etc.) as the Netherlands. With the exception of Germany being predominantly land locked, these four countries share similarities with the Netherlands when observing the environment for energy saving and renewable energy.

### Belgium – energy saving at households through promoting behavioural changes

In May 2011 a report (Bachus, 2011) on the Innovative Energy Saving Policy of Belgium was published where the main focus was towards households. The key instrument used in promoting energy saving by lowering household energy consumption was through promoting behavioural changes. The policy was set towards the following objectives: (Bachus, 2011, p. 2)

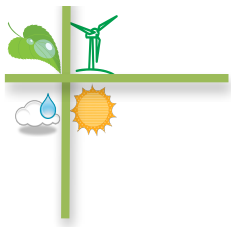


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- Designing innovative energy saving instruments for the household sector, based on re-design and integration of white certificates and complementary currencies with smart metering systems.
- Assessing those innovative instruments regarding their social acceptability, as well as their energy saving potential, economic and climate aspects i.e. Co2 reduction.
- Providing policy makers and other stakeholders with scientific advice on the potential and implications of integrating those instruments into climate change and energy saving policies.

The policy as mentioned in the heading was focused mainly on reducing the energy usage per household. The policy included multiple facets such as (1) stimulation/promotion of energy end-use efficiency (2) analysing and improving the energy performance of buildings for households' i.e. individual houses or apartment blocks (3) energy labelling of domestic appliances (4) eco-design and (5) the promotion of plug in electric vehicles.

1. Stimulating energy efficiency can be done in multiple ways; however, the most effective mechanism is by using multiple tools and mechanisms to meet the objective. Tools such as (1) mechanisms, (2) incentives i.e. financial or legal to remove the barriers and imperfections which hinders not only access to energy efficient tools but could lead to a lack of interest in these tools by the end users. Subsidies and de-regulation of small scale energy saving is therefore vital to creating social demand from the end users.
2. In order to assess the energy performance of buildings outdoor climate and local conditions needs to be taken into consideration. Measuring variables such as space, water heating, cooling, ventilation and lighting are some of the key -, yet not the only ways to measure the energy performance of buildings. Measuring the performance of a building is important as generally older buildings are more susceptible to energy loss i.e. heat or cold escaping through the roof or walls of a house which leads to an increase in use of energy to obtain a certain temperature which is preferred to by the consumer and related to the outside environment i.e. seasonal rise and fall in outside temperature.
3. The use of energy labelling originates from the **EU Directive 93/75/EEC** of 22 September 1992. Since then there have been a increased change in consumers choosing appliances on the basis of their energy efficiency. Due to the success of energy labelling, the EU have continually expanded their labelling policy as it have proven that households choose their appliances based on the energy labelling of the product, forcing the end user not only to look at the price (shelf price) but also to incorporate the cost (energy cost) of usage in their decision making process. The EU also felt that the labelling scheme helps manufacturers to position their products on the market by showcasing the research and development which went into the product, making it more energy efficient i.e. innovative.
4. Energy efficiency can be stimulated by labelling products as an indicative to the consumer as to how much energy the appliance or product consumes to provide the desired function i.e. lighting, televisions, fridges etc. A second way to stimulate energy saving is by ensuring that products consist of a factor referred to as "eco-design" which is generally concerned with high energy efficiency and multi- functionality of a product. A lamp is a good example of this. The EU regulation in this field is the transfer from general "heat" generating lamps to the halogen and LED lamps which we find on the market today. The regulation has therefore



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forcefully removed old fashioned lamps due to their high energy consumption and heat generation (when not required).

5. The final focus of INESPO's analysis was focused on electric vehicles. The focus (EU and national) was widely aimed at two factors namely (1) pushing technologic development and (2) creating a market for electric vehicles. The program was directly in line with the EU **Directive 2009/33/EC** on the promotion and development of a market for cleaner and energy-efficient vehicles through public procurement and raising awareness. The project was predominantly steered by (1) the promotion of clean and energy-efficient road transport vehicles as well as (2) providing a legal basis for promoting a broad market introduction of environmentally-friendly vehicles.

The success of the INESPO project was highlighted by the European Energy Agency (European Energy Agency No 5/2013, 2013, p. 31) after assessing the strategies in the cities of the Flemish, Walloon and Brussels regions for achieving targeted energy savings by the promotion of rational energy use in buildings. The document (No.5/2013) highlighted that each region had a complex communication strategy yet that the actions complimented by efforts of the distribution system operators, the provinces, the communities and various other organisations. The communication activities ranged from raising awareness to providing tailor-made advice to its stakeholders and direct population(s).

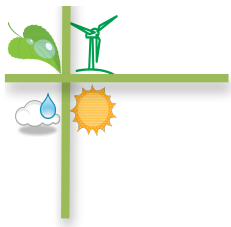
## How Denmark's long term planning have led to a high increase in renewable energy...

Denmark has long been well known for its dynamic renewable energy and energy savings policies. Between the years 1980 to 2010 Denmark have increased its renewable energy output to 19%. The national ambition of Denmark is to be fully energy independent by the year 2050 and to draw 33% of its energy demand from locally produced renewable energy sources by 2020. (Danish Government, n/a) As the rest of Europe, Denmark suffered severely from the 2007 crisis while its private sector was heavily affected in its global business operations. The government of Denmark owes much of its success to its long term planning, strategies and goals towards energy production. The strategy of the Danish ministry of Climate and Energy steers towards nearly half of the Danish electricity to be provided by wind power alone while an estimate of 20% renewable energy is to come from biomass. Yet another innovative policy of Denmark was to integrate and tie in a large proportion of its industry to renewable energy such as the company [Vestas](#) which is a Danish company established in 1979 and is today the global leader in the production of wind turbines, having installed wind turbines generating a capacity of 60 Gigawatt and active in 70 countries. Vestas, similar to its country of origin, expressed the need for long-term planning as together with eight other European companies, Vestas<sup>7</sup> called for a strong 2030 EU climate and energy framework based on mutually reinforcing tools and targets, including an ambitious and legally binding target for the share of renewable energy in the energy mix of more than 30%.

The white paper issued by the Danish company and its partners called for a set of regulations to be put in place which will steer the EU and its member states not only to their sustainability ambitions/targets but create a better investment climate for firms, households and public institutions.

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<sup>7</sup> The reason we focus on Vestas is as it have provided concrete arguments as to why long term ambitions are vital to obtaining investment in renewable energy generation.



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(1) Need for a clear investment signal (2) need to reduce energy prices and risks (3) achieving a fair market and (4) need for a coherent overall energy system.

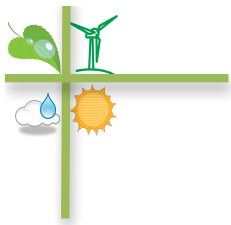
1. The white paper have expressed an issue which lies within nearly all EU member states, the need for a clear investment signal is directly correlated to investment. The private sector will not invest in a market unless they are certain that there is a clear and long term demand for a product or service. The reason for this is due to the high investment required for the infrastructure related to sustainable policies, whether it is setting up a wind farm or laying infrastructure such as public transport or charging stations for electric cars.
2. As the oil crisis of the 1970's and 90's have showcased, developed countries such as those found within the EU are highly susceptible to the price of fossil fuels or oil which in exchange will affect the cost of production on the local market and lead to an increase in the price of products. Denmark have long realised that through long term planning and investment the ambitions of the government can not only control the price but reduce the price of energy rather than being dependent on the market price for energy inputs.
3. Achieving a fair market is high on the agenda of not only Denmark but also of the EU and its member states. Currently much of renewable energy and energy saving tools are being subsidised with taxpayer's money, creating an unwanted tension between "old" and "new" energy sources. Oil - and "grey" energy providers have long been lobbying against subsidies and for a cap or a timeline on subsidies while the current economic crisis and cuts in public spending have not been able to steer the transition towards publicly funded renewable energy and energy saving initiatives. At the same time, green energy providers have lobbied (Vestas, online)for integration of green energy alongside conventional sources of generation, claiming that much more investment needs to go towards electricity networks, demand management, energy storage and balancing capacity. Green energy producers have also taken on Emission Trading System (ETS) claiming that the system needs to be reviewed so that externalities are factored in the market price, allowing competition to be based on the real cost of all technologies.

When the Green production policy in Denmark (Cour, 2012)was reviewed in 2012 by the Danish Energy Agency and the Danish Ministry of Climate, Energy and Building, the review showed that the policy have contributed significantly to the country's economy since its inception where in 2010, "green exports" have accounted for 80 billion Danish Krone (Danish currency) which made up 10.4% of the total Danish exports. At the same time, the green production policy have provided for the employment of 8.4% of the Danish labour force (106 000 employees) who is directly or indirectly involved in green production while an estimate of 22 000 enterprises in Denmark produce and sell one or several green products such as environmental technologies, goods or services. The success of the policy shows to the reader that renewable energy does not only have to be seen as a cost for the public – private sector but that with strong policies, it could add to economic growth and employment rather than hinder it.

## **Denmark's carbon tax**

In 2002 Denmark expanded its carbon tax rate (original policy from 1996) to 100 DKK (Danish Kronen) per metric ton of Co<sub>2</sub>. The tax rate applies to all energy users which also includes the industrial





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sector. The industrial sector however follow different principles and can however be reduced based on the process the energy is used for, and whether or not the company has entered into a voluntary agreement to apply energy efficient measures. The principles however does not allow for a tax reduction, but rather a tax refund once the company in question have met the requirements for the refund (specified in the principles). The motive behind the carbon tax is to stimulate people to change their behaviour in regards to energy consumption while simultaneously; the money collected goes towards research for alternative energy resources. (IEA, 2011) The International Energy Agency complemented Denmark on their well-designed polices for renewable energy, energy efficiency and climate change and have gone as far as awarding Denmark with the title as the leader in renewable energy and energy saving policies among its partners of the OECD.

## The German Renewable Energy Sources Act

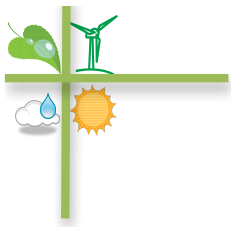
The German renewable energy act (GREA) came into force in the year 2000 and succeeded the Electricity Feed in Act of 1991. The GREA focussed on encouraging cost reduction based on improved energy efficiency from economies of scale. Till date, the act have yielded high results to where in 2013, 23.4% of Germany's electricity was produced from renewable sources while 10.2% of heat and 5.7% of fuel was generated from renewable energy. (Euractive, 2014) Germany currently hold 3<sup>rd</sup> place (wikipedia, n.a)<sup>8</sup> in renewable energy generation behind the USA and China when one look at the amount of capital invested into renewable energy.

The renewable energy act stemmed from three principles namely (1) investment protection through guaranteed feed in tariffs and connection requirements, (2) no charge to Germany's public spending and (3) innovation by decreasing feed-in tariffs.

1. The principle of investment protection was focussed on providing preferential feed-in tariffs where network operators are required to feed in this electricity into the grid over electricity produced from "grey" sources, namely nuclear, coal and gas. This preferential feed-in tariff would grant renewable energy plant operators a 20 year, technology specific, guarantee payment for their electricity generation.
2. Similar to other EU member states such as the UK, Germany have developed a policy such as the "polluter pays principle" which in essence means that whoever consumes more, pays more. This principle is often passed on to the consumer as industry incorporate the cost (now cost of energy) into their everyday operational costs. The reasoning behind this initiative was due to "grey" energy providers do not include the externalities in their cost of products i.e. energy. The externalities such as public health, air pollution and environment are often left un-supervised or the responsibility is later passed on to the government. The polluter pays principle is therefore vital to creating a level playing field for renewable energy as in the long term it would yield a higher return that energy produced from fossil fuels. It is also important for the reader to understand that due to this mechanism, the German Energy Act is not a subsidy system, but rather a system which incorporates the full cost of production i.e. cost of production + externalities.

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<sup>8</sup> Wikipedia was used due to the language barrier as the original document is in German



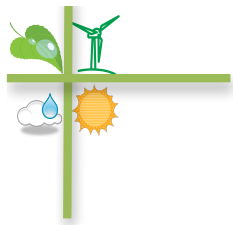
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3. The last principle is aimed at steering innovation by decreasing feed-in tariffs by 1% per month. The principle behind it is to promote innovation which would force energy providers to become more cost effective i.e. more efficient and less costly.

On a more local level, German cities are also taking the lead in showcasing their successful policy implementation. Similar to Denmark, Germany have very much integrated the public and private sector into their policies. An example of this initiative is the “[Local Renewables Conference](#)” hosted on an annual basis in Freiburg Germany. The conference provides a focus on how local governments can utilise the available resources within their region (renewable being one of them) and move beyond consumption to replenishment. The conference focus on the multiple factors in sustainable energy solutions such as: (1) exploring smart grids and smart solutions, (2) sustainable building and renewable energy, (3) sustainable urban mobility, (4) sustainable urban policy and planning for the post carbon age and (5) sustainable urban energy.

Furthermore, a policy analysis by the International Energy Agency (IEA) was conducted in 2013 (IEA, 2014) have highlighted the new comprehensive strategy namely “the Energy Concept” with which Germany have provided the framework for their energy ambitions till the year 2050. The concept is based on the principles of long-term, integrated energy pathways and is built on the success of previous policies such as Energy and Climate programme of 2007. The Energy Concept would however include more ambitious targets while Germany wishes to become one of the world’s most energy efficient and environment friendly economies while simultaneously managing the energy prices within the market and economic prosperity. The analysis showcases that Germany will have a tri-focus namely sustainability, affordability and competitiveness. Within the energy package, a focus on seven legislative measures such as grid expansion, promoting energy efficiency, funding the reforms ad reverse the previous decision to extend the life of nuclear plants. The ambitions of the German policy makers have led to yield high results, results such reducing Green House Gasses by 40% from 1990, putting Germany right on track to meet its target set out in the Kyoto protocol in 2001. The government further wants to reduce its GHG emission by 55% in 2030, 70% by 2040 and 80% to 90% by 2050, an ambitious target for one of Europe’s most energy intensive countries. The report (IEA, 2014) applauds the ambitions of the Germany Renewable Energy Sources Act (2000) and claims that the policy has “proven to be very effective in introducing renewable energy, notably electric generation from biomass, wind energy and solar photovoltaics (PV). The IEA highlights that the policy have been widely successful in bringing the cost of electricity down, as reflected in the decrease in feed-in-tariffs (FITs) mentioned in point 1 in this chapter.

Part of Germany’s plant to close all nuclear plants by 2022, coal fired power plants have received much investment as Germany will rely on coal till around the year 2050. Similar to the Netherlands, Germany is also involved in Carbon Capture and Storage (CCS), yet similar to the Netherlands, the progress till date has been slow and susceptible to setbacks. (IEA, 2014, p. 11)



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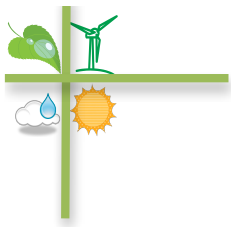
## United Kingdom's tax on CO<sub>2</sub> emission

The in-depth review by the IEA (IEA, 2013) highlights the UK's plans to deep-decarbonise its energy system. This will be done by providing a tax on CO<sub>2</sub> emission with which it hopes to cut its GHG emission reduce their GHG output by 80% by 2050. The EU obligations under the climate and energy package (EC 2020 climate and energy package, 2007) have set the target of 15% compared to levels from the year 1990. The UK government, noting that the effects of climate change is right at their doorstep i.e. flooding and increase in temperature have a potentially damaging effect on the country itself. It is therefore that the UK has defined a strategy to move to a low carbon economy and tackle climate change. The UK plan to further reduce its GHG emission by 50% in 2027 and 80% by 2050.

The United Kingdom have implemented four policy instruments namely (1) a carbon price floor (CPF), (2) a contract of difference, (3) a capacity mechanism and (4) an emission performance standard to meet its ambitious goals set out in the previous chapter. (IEA, 2013, pp. 11-13)

1. The carbon price floor (CPF) is to provide a transparent and predictable minimum carbon price for the long term, the policy instrument is also aimed at increasing competitiveness of low carbon technologies over time, a policy ideology shared with Denmark and Germany i.e. that the price of energy should incorporate externalities and not just the cost of production. There is however a risk to such a policy as an increased tax on GHG emission (externalities) would increase the cost of energy to the end user. This process has been largely discussed and has been labelled "energy poverty" as it affects the citizens with a low income severely, to the extent where their energy bill drives them below the UK norm for what is poverty.
2. Similar to Germany, the UK have guarantees preferential treatment to low carbon electricity generators (feed in tariff - CfD) and providing a guaranteed price throughout the period of the long-term contract. This policy is vital to diverting investment from "grey" energy generators to that of "green" (renewable energy/low carbon emission) for a long term period, till enough investment have been made to ensure that "green" energy can compete with "grey" energy on a level playing field or until externalities are correctly incorporated in the cost of energy to the end user.
3. Security of energy supply remains a key focus on of the energy policy of the UK, with an estimate of 12 gigawatts of coal and oil-fired capacity and 7 gigawatt of nuclear power capacity scheduled to close by the end of 2020, a much needed capacity mechanism needs to be in place ensuring sufficient system flexibility is available in reliable supplies, especially when demand increases i.e. peak periods (mornings and evenings) and during winter time. The UK government will therefore contract out a diverse range of flexible resources, including generation, demand side response and storage.
4. The final policy instrument would limit how much carbon new power plants can emit per unit of electricity generated and will be set at a level equivalent to 450g Co<sub>2</sub> per kilowatt-hour. The policy is called the emissions performance standard (EPS) and would apply to all new fossil fuel plants, maintaining the government's commitment that all new coal-fired plants will require Carbon Capture and Storage systems and facilities.

Together with the four policy instruments, the UK government have indicated its intent to deploy three low-carbon technologies such as (1) renewable sources, (2) nuclear power and (3) Carbon



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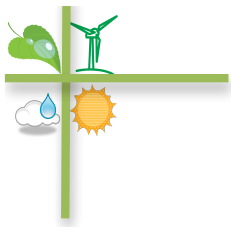
Capture and Storage as outlined in the climate and energy package of the EU (EC 2020 climate and energy package, 2007).

1. As mentioned earlier, the UK has an obligation of 15% renewable energy output by the year 2020. The Government have tapped into its geographical and industrial advantages and has significant wind resources and currently the world leader in installed offshore wind power capacity through British Gas (energy provider holding the world's largest wind farm). The government aims for a wind power generation to increase from 65 terawatt/hour between the years 2010 – 2020, a programme which would increase wind power generation seven fold and erecting several thousands of wind turbines on- and off-shore. The investment needed for renewable energy between this period comes to around 110 billion British Pounds into plants and energy grids.
2. Nuclear energy currently provides 16% of the national energy output. As current plants are ageing, the government have plans to invest in three new plants in the years 2010 – 2020, however the investment is to come solely from the private sector and will not receive any public subsidy. As nuclear energy is still the most economical (cheapest source of energy) and have little to no Co2 emission, nuclear plants would counter the increase in energy prices within the country.
3. The last technology is the Carbon Capturing and Storage system which till date have not yet been installed. The UK is however a very committed supporter of the development and deployment of CCS and have pledged GBP 1 billion towards projects directed to commercialisation of CCS so it can be deployed by 2020. Other than the political drive, the UK is home to some the most active academic institutions on CCS worldwide while the government have invested much in energy research, development, demonstration and deployment towards these academic institutions. The IEA applaud the ambitions of the UK government and encourages the government to maintain its commitment despite the challenging financial conditions.

The UK government's main focus is therefore to decarbonise the power sector without risking security of supply, therefore it has decided to reform the electricity market.

## Future Outlook

The paper have showcased the position of the cities in the Netherlands, touched on what have been done at a national level as well as highlighted a handful of the many agencies, think-tanks and NGO's present on a local and national level. The fact is that there are many stakeholders present when it comes to achieving the National target agreed at 14 and later 16%. Looking at the future, national, regional and local governments will have to work together in achieving what seems to be quite an ambitious challenge. The challenge can however be split up into two segments namely national and local roles and initiatives. National government are mainly concerned with meeting national targets, developing policy and taking initiatives which benefit the whole country. While local governments are concerned with the direct public, working climate and environment in which it needs to execute its policies.



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## National level

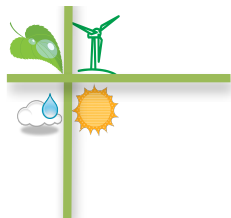
The national government should use its monopoly in order to strengthen regulations, increase taxes (call it green tax) on highly polluting energy producers while using the “green tax” revenue to stimulate renewable energy in the market. This way of thinking (taxing) have been widely discussed and implemented in countries such as the UK and Germany. The debt crisis have increased the burden for the government, often forcing the national agencies to pay out more money in the form of social benefits, unemployment benefits and the sort while at the same time, fossil fuel plants and oil and gas companies receive tax holidays on their profits which is to be reinvested into innovation. Green tax is therefore a simple and “society serving” mechanism which would ultimately cut the bill of the government while saving energy at the same time. (Huhne, 2013) Germany’s green tax is a key example as it brings in EUR 40 billion a year (Jung, 2012), enough to reduce the burden of the government who currently use taxpayers money as an input towards the green energy market while the money is needed elsewhere, which forces the government deeper and deeper into a public deficit. Green tax will not severely affect energy companies, but rather force them to diversify; reducing their reliance on what is still considered cheap yet unreliable fossil fuels.

The ambition of the Social and Economic Council to draw up a national energy plan is therefore key to meeting the national ambition, bringing business, academia and politics together and put their cards on the table to find a solution to what have till date been a somewhat political discussion. Having the energy agreement drawn up by a permanent body (SER) allows for a much longer “shelf life” which may not have been possible if it was to be drawn up by political parties or a ruling government. The Netherlands should continue with “Green Deals” and also make a provision to extend these deals based on successful implementation. Pilots are not always successful and are generally a risky investment; the national government should therefore stimulate and expand pilots which yield a high success rather than investing in more and more pilots. By doing this the innovation will not only stay in its “infant cycle” but granted the opportunity, it will grow into a handful of mature projects, projects which will steer the Netherlands towards its targets.

During the interviews held with Alderman, there is a demand for de-regulation when it comes to local initiatives. The national government should set targets for cities and allow them to meet these targets by own means, similar to the relationship between the EU and the member states.

## Local level

The local government is often in the position where it’s day to day operations includes serving the direct public as well as the national government. This can place a difficult strain on the local government as the interest of both parties may, and often do conflict with one another. It is therefore the responsibility of the city to translate national policy to a local medium. Drawing up their coalition agreement, the alderman(s) i.e. (managers of the specific portfolio) should have concrete and preferably long term objectives which can and should be derived from prior discussions/deals with the private sector. Private-Public partnerships is a key tool to not only get the private sector on board, but as mentioned in the energy agreement, the private sector is a key player not only in executing the ambitions of the Netherlands but generally would lead the projects due to profit seeking in a time of economic downturn. Therefore cities should focus on not only getting the private sector on board by either procurement, but ensure that the business generated serves their



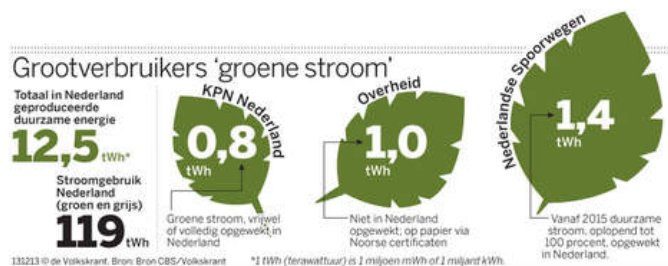
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local citizens by providing jobs in the field of interest. The cities should take more initiative, showing the national government that they are able to operate autonomously, only then will the national government grant them autonomy. Local governments have a direct relationship with their citizens and should therefore use that advantage to find out which renewable energy mix and alternatives for transport the citizens would want in order to reduce GHG emission, find out what the citizens understand of the topic energy savings i.e. how does it work, what citizens can do themselves and how the city or the national agencies can help them meet their ambitions. Financing is not always the obstacle to success, but rather creativity, or the lack thereof.

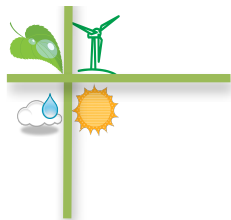
During the desk research many initiatives have come up in the document (p14-18) where cities have either set up or worked together with local initiatives, or stimulated projects through procurement or with local initiators (citizens) themselves. The effect of GHG emission reduction is like greenhouse gasses i.e. a mobile variable, this means that it constantly travels and therefore is not limited to a geographical area. Cities should therefore focus less on competing with one another and focus more on learning from one another. This can be done through regional participation or through the province.

## Conclusion

Much have been done on a local level (city) since the focus on renewable energy and energy saving. The energy agreement of the Social Economic Council is to be a key initiative which may just give the Netherlands the boost it needs to meet the renewable energy and energy savings targets. Cities are at the heart of the initiative as they provide land, tenders, labour and a communication platform to businesses and households looking to invest in renewable energy or energy saving infrastructure. Public buildings are also the second largest user of green energy<sup>9</sup> and would therefore contribute a much larger part to the national target if they decide to generate their own renewable energy rather than buying it in from abroad. Cities should therefore have more autonomy in executing their plans while the national government should only provide targets and social products (subsidies and low interest energy savings loans) to city residents. Citizens and business should be motivated to do more by highlighting the future obstacles associated with Greenhouse Gas emission (such as public health and global warming) and the increase in of energy prices due to more investment i.e. deeper oil fields, research and developing going into improving plants and a tax on Co2 emission. At the same time a supporting financial plan should be installed (subsidies or loans) which gives all citizens access to energy saving or/and renewable energy mechanisms making it more accessible to those who live on a minimum income.



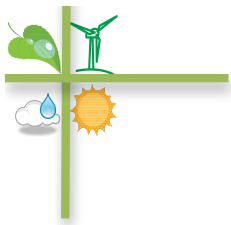
<sup>9</sup> See figure



# Eco-diverCity

## Bibliography

- Bachus, L. d. (2011, May). *Research paper in the framework of the INESPO-project*. Retrieved March 04, 2014, from inespo.be:  
[https://hiva.kuleuven.be/resources/pdf/publicaties/R1422\\_EU\\_Directives\\_and\\_Belgian\\_PA\\_Ms.pdf](https://hiva.kuleuven.be/resources/pdf/publicaties/R1422_EU_Directives_and_Belgian_PA_Ms.pdf)
- Cour, H. L. (2012). *Green production in Denmark contributes significantly to the Danish economy*. Retrieved March 07, 2014, from Danish Energy Agency : <http://www.ens.dk/en/policy/green-production-denmark-contributes-significantly-danish-economy>
- Danish Government. (n/a). *INDEPENDENT FROM FOSSIL FUELS BY 2050*. Retrieved March 04, 2014, from Denmark.de: <http://denmark.dk/en/green-living/strategies-and-policies/independent-from-fossil-fuels-by-2050/>
- Directive/2010/31/EU. (2010). *Energy Performance of Buildings Directive* . Retrieved October 29, 2013, from epbd-ca.eu: <http://www.epbd-ca.eu/>
- Dutch Ministry of Economics. (2010). *Energie* . Retrieved from Rijksoverheid:  
<http://www.government.nl/issues/energy>
- EC 2020 climate and energy package. (2007). Retrieved March 11, 2014, from European Commission, Climate Action, Policies: [http://ec.europa.eu/clima/policies/package/index\\_en.htm](http://ec.europa.eu/clima/policies/package/index_en.htm)
- Euractive. (2014, January 17). *Germany to cut energy rebates for industry, renewable subsidies*. Retrieved March 11, 2014, from Euractive.com: <http://www.euractiv.com/energy/german-government-cut-industry-e-news-533002>
- European Commission. (2013, October 03). *Climate Action*. Retrieved October 11, 2013, from European Commission: [http://ec.europa.eu/clima/policies/package/index\\_en.htm](http://ec.europa.eu/clima/policies/package/index_en.htm)
- European Energy Agency No 5/2013. (2013). *Achieving energy efficiency through*. Retrieved March 04, 2014, from European Energy Agency :  
<file:///C:/Users/van%20Loo/Downloads/Achieving%20energy%20efficiency%20through%20behaviour%20change.pdf>
- Huhne, C. (2013, 27 October). *Green taxes will ultimately cut our bills as well as saving energy*. Retrieved November 18, 2013, from The Guardian:  
<http://www.theguardian.com/commentisfree/2013/oct/27/green-taxes-bills-saving-energy-fossil-fuels>
- IEA. (2011). *Denmark review year 2011*. Retrieved March 10, 2014, from International Energy Agency:  
<http://www.iea.org/countries/membercountries/denmark/>
- IEA. (2013). *in-depth review* . Retrieved March 11, 2014, from International Energy Agency :  
<http://www.iea.org/countries/membercountries/unitedkingdom/>



# Eco-diverCity

IEA. (2014, January 20). *In-depth country review - Germany*. Retrieved March 11, 2014, from International Energy Agency : <http://www.iea.org/Textbase/npsum/germany2013SUM.pdf>

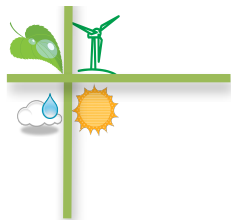
Jung, A. (2012, April 5). *Berlin's Oil Bonanza: Hefty Gas Taxes Fill Up Germany's Coffers*. Retrieved November 18, 2013, from Spiegel Online International:  
<http://www.spiegel.de/international/germany/high-german-fuel-taxes-have-been-a-bonanza-for-government-a-826004.html>

Social Economic Council. (2013, 09 06). *Energieakkoord*. Retrieved 10 31, 2013, from SER.nl:  
<http://www.ser.nl/~media/files/internet/talen/engels/2013/energy-agreement-sustainable-growth-summary.ashx>

Vestas. (online). *Industry Statement on 2030 EU climate and energy framework* . Retrieved March 06, 2014, from Vestas :  
[http://www.vestas.com/~media/vestas/about/graphs/pdfs/2030statement\\_final.pdf](http://www.vestas.com/~media/vestas/about/graphs/pdfs/2030statement_final.pdf)

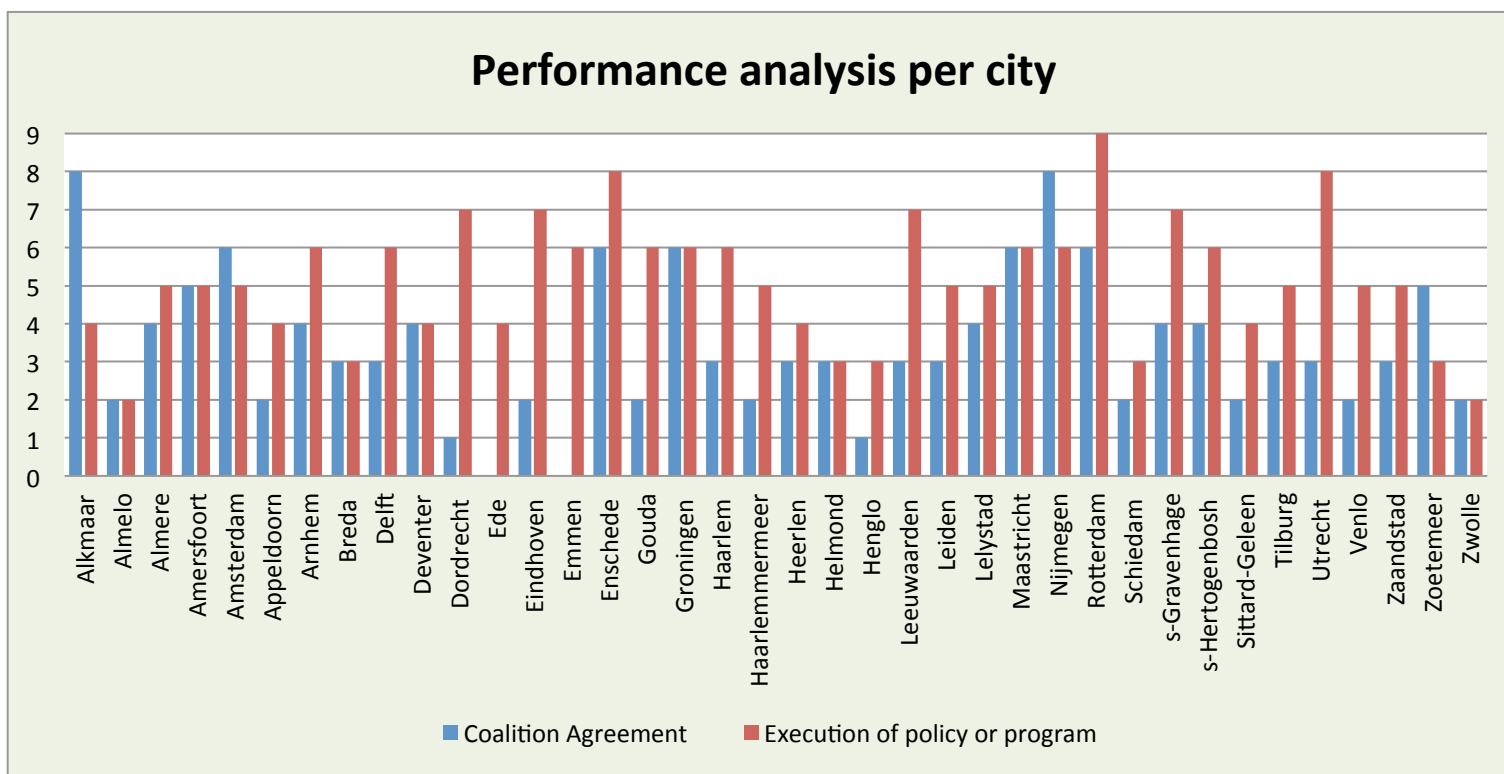
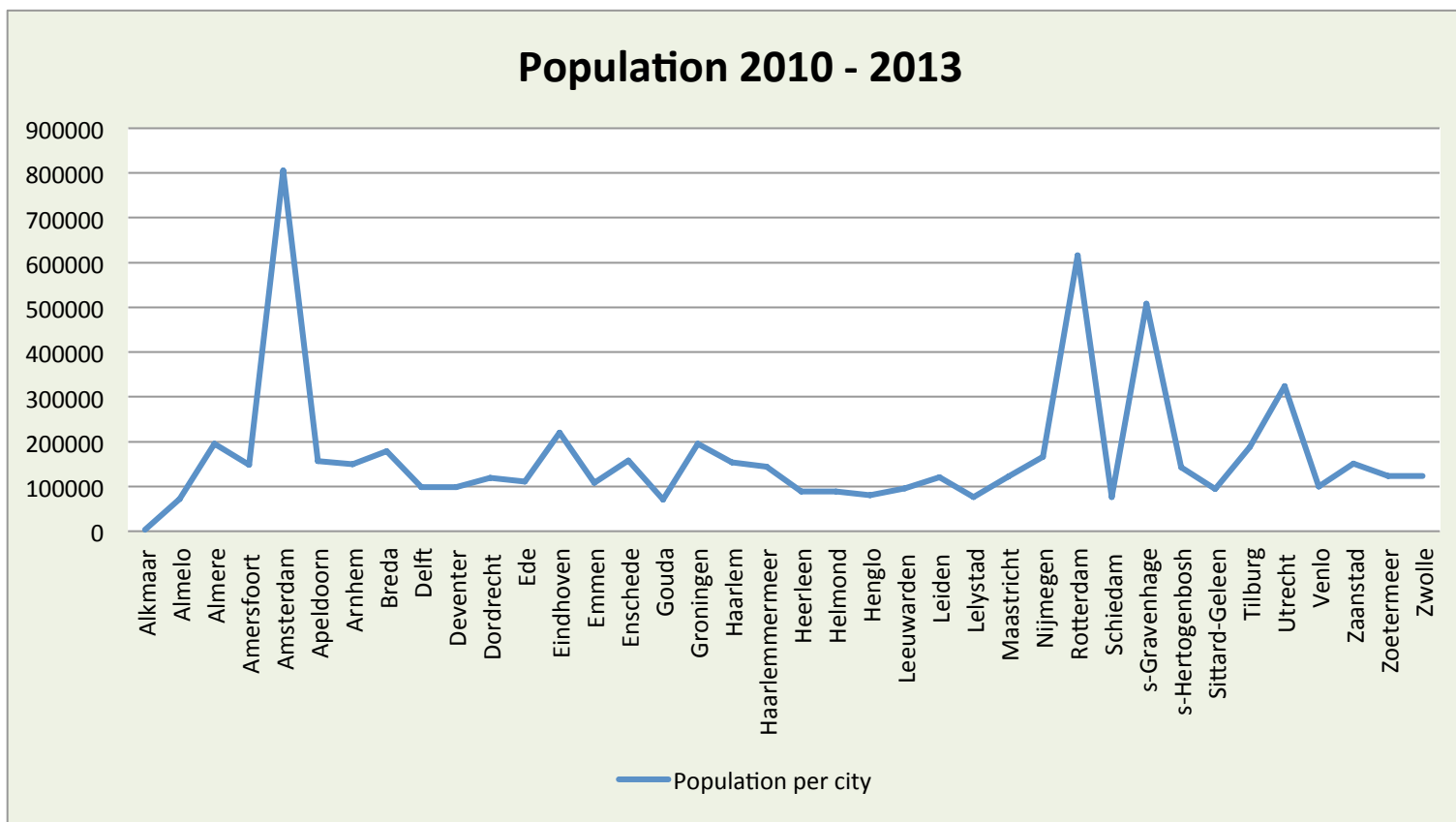
wikipedia. (n.a). *German Renewable Energy Act* . Retrieved March 11, 2014, from Wikipedia :  
[http://en.wikipedia.org/wiki/German\\_Renewable\\_Energy\\_Act#cite\\_note-ee-2](http://en.wikipedia.org/wiki/German_Renewable_Energy_Act#cite_note-ee-2)

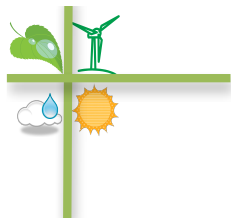




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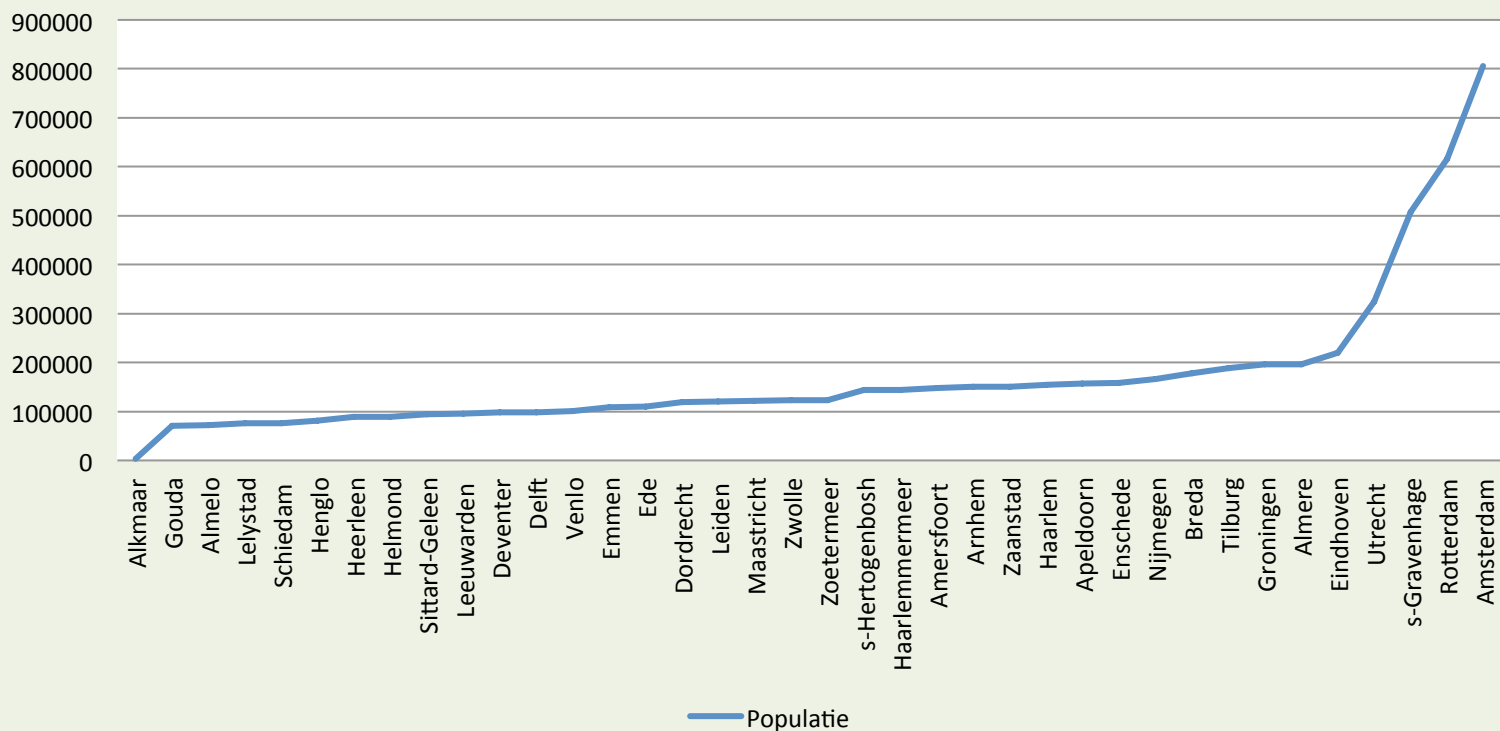
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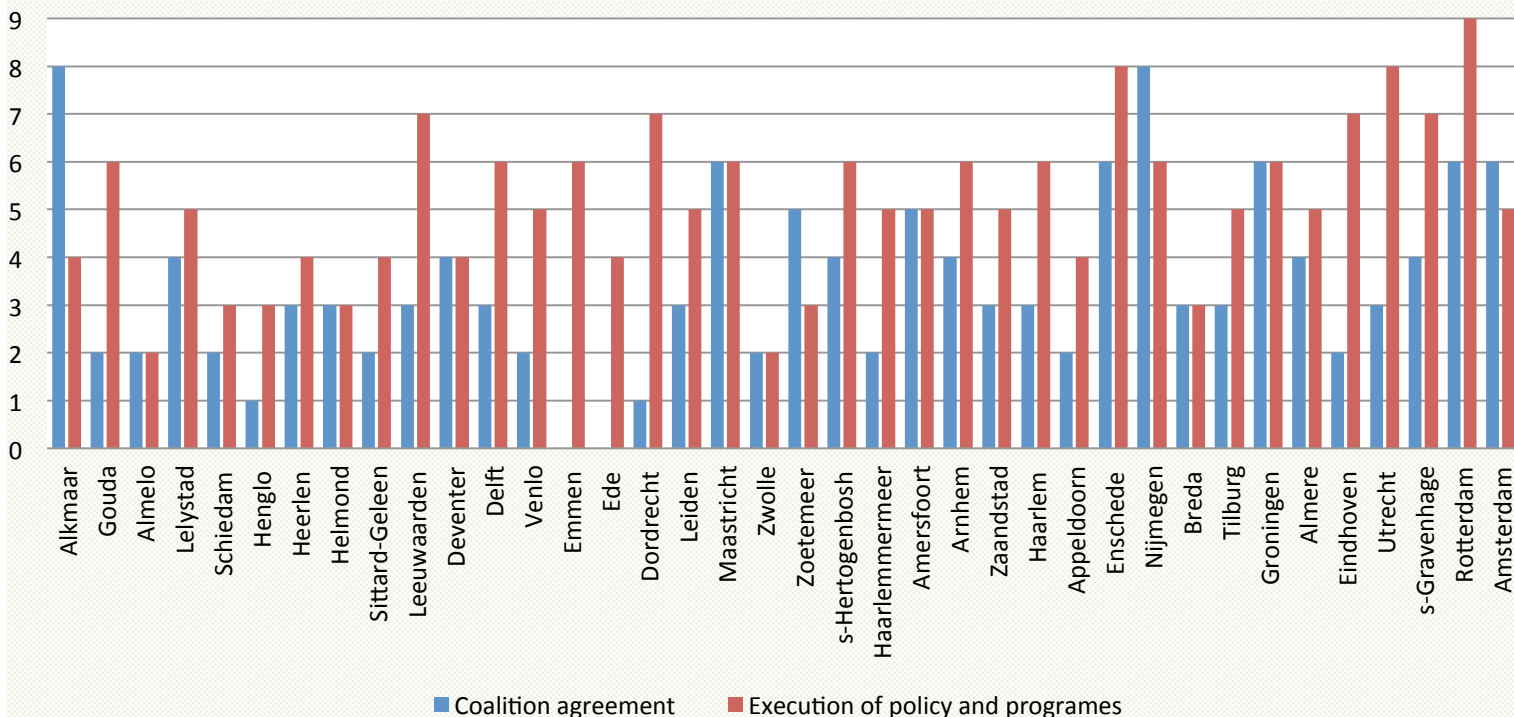


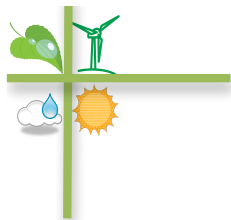
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## Populatie



## Population vs. Performance

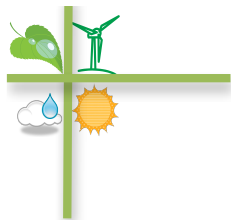




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## Annex 2

Local Government	Responsible Alderman	Portfolio	Political Party	Responsible Alderman	Portfolio	Political Party	Responsible Alderman	Portfolio	Political Party
<b>Alkmaar</b>	J.P. (Jan) Nagengast MBA	Klimaat & duurzaamheid	CDA	wethouder A.J.A. (Anjo) van de Ven	Inkoop	OPA			
<b>Almelo</b>	Drs. J. Andela	bouw- en woningtoezicht, Milieu, Water	VVD	Mw. A.J. Timmer	Verkeer en vervoer,	PvdA			
<b>Almere</b>	Ed Anker	milieu, vervoer & bouw- en woningtoezicht	CDA	Henk Mulder	Duurzaamheid, Ontwikkeling groenblauw	PvdA			
<b>Amersfoort</b>	J.C. (Hans) Buijtelaar	Mobiliteit	VVD	C.J.M. (Cees) van Eijk	Duurzaamheid en milieu	Groen Links			
<b>Amsterdam</b>	Maarten van Poelgeest	Klimaat en energie	Groen Links	Eric Wiebes	vervoer, luchtkwaliteit	VVD	Carolien Gehrels	Waterbeheer, Bedrijfsvoering en Inkoop	PvdA
<b>Appeldoorn</b>	Olaf Prinsen	Milieu, mobiliteit en infrastructuur	D66						
<b>Arnhem</b>	Margreet van Gestel wethouder	Milieu	VVD	Martijn Leisink	Mobiliteit	D66			
<b>Breda</b>	de heer O. S. Akinci	Mobiliteit, Duurzaamheid	Groen Links						
<b>Delft</b>	Stephan Brandligt	Duurzame ontwikkeling	Groen Links	Milène Junius	Verkeer & mobiliteit	CDA			
<b>Deventer</b>	M.P. Swart	Verkeer en Vervoer	VVD	J.P.H.M. Pierrey	Duurzaamheid en Milieu	PvdA			
<b>Dordrecht</b>	P.H. Sleeking	Milieu	BvD	J. Mos	Verkeer en vervoer	VVD	E. van de Burgt	Eneco + Evides	CDA
<b>Ede</b>	B. van de Weerd	Verkeer en vervoer, milieubeleid	SGP						
<b>Eindhoven</b>	Staf Depla	Inkoop	PvdA	Joost Helms	Mobiliteit, verkeer en vervoer & Duurzaamheid en milieu	VVD			
<b>Emmen</b>	Nynke T.Houwing-Haisma	milieu en duurzaamheid	VVD	B.D. Wilms	verkeer en vervoer	CDA			
<b>Enschede</b>	Hans van Agteren	Verkeer, Duurzaam	BB						
<b>Gouda</b>	Wendy Ruwhof	Verkeer en Vervoer, milieu en duurzaam	Groen Links						
<b>Groningen</b>	Joost van Keulen	Verkeer en vervoer	VVD	J. Sethon	Duurzaamheid en milieu	CDA			
<b>Haarlem</b>	Lukas Mulder	Duurzaamheid, Mobiliteit	Groen Links						
<b>Haarlemmermeer</b>	Jeroen Nobel	Wonen, Groen en Recreatie	PvdA	JCW Nederstigt	Duurzaam en Milieu	D66	Cees Loggen	Mobiliteit	VVD



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<b>Heerlen</b>	Nico Aarts	Mobiliteit	Stads partij	Fred Gillesen	Milieu en Duurzaamheid	D66
<b>Helmond</b>	JBCW van de Heuvel	Aanbestedings- en inkoopbeleid, Milieu en duurzaamheid	D66	FPCJG Stienen	Verkeer en vervoer, afval en riolering	CDA
<b>Hengelo</b>	Jan Brown	Verkeer en Vervoer	PvdA	Janneke E. Oude Alink	Duurzaam, Milieu, Beheer	Groen Links
<b>Leeuwarden</b>	Issabelle Diks	Duurzame ontwikkeling, Full sustainable city	Groen Links	Henk Deinum	Watercampus	PvdA
<b>Leiden</b>	Frank de Wit	Milieu	D66			
<b>Lelystad</b>	Wout Jansen	Verkeer en vervoer, duurzaamheid en water, aandeelhouder Nuon	inwoners partij			
<b>Maastricht</b>	Albert Nuss	Mobiliteit, Duurzaamheid	PvdA			
<b>Nijmegen</b>	Jan van der Meer	Klimaat & energie en Groen en water	Groen Links	Henk Beerten	Mobiliteit	D66
<b>Rotterdam</b>	Jeannette Baljeu	verkeer en transport	VVD	Alexandra van Huffelin	Duurzaamheid	D66
<b>s-Gravenhage</b>	Rabin Baldewsingh	Duurzaamheid en Milieu	PvdA	Peter Smit	Verkeer en vervoer	VVD
<b>s-Hertogenbosch</b>	JWF Hoskam	Verkeer en Milieu	VVD			
<b>Schiedam</b>	J.A. Grijzen	Milieu	Groen Links	P.Groeneweg	verkeer en vervoer	PvdA
<b>Sittard-Geleen</b>	Peter Geenen	Mobiliteit	CDA	Ruud Guyt	Duurzaamheid	PvdA
<b>Tilburg</b>	Roel Lauwerier	Verkeer en vervoer	VVD	Berend de Vries	Milieu, water, natuur & landschap	D66
<b>Utrecht</b>	Frits Lintmeijer	Verkeer	Groen Links	Mirjam de Rijk	Milieu en Duurzaamheid, Groen en water	Groen Links
<b>Venlo</b>	JHGM Teeuwen	Verkeer; Natuur, Groen en Water; Milieu	CDA	Geert Snijders	Water en Groen	Rosmalen Belang
<b>Zaanstad</b>	RJ Linnekamp	Milieu en landschap	Groen Links	D. Straat	Mobiliteit	VVD
<b>Zoetermeer</b>	Patrick van Domburg	Bouwen, wonen en milieu	VVD	Hans Haring	Verkeer en Vervoer, Milieu	D66
<b>Zwolle</b>	Erik Dannenberg	Zwolle Duurzaam, Milieu water en landschap	CDA			