Energiek Zuidoost - Meeting 202020 targets

Results & roadmap Intensive Lab Session

Amsterdam South East
18-20 June 2013

Gemeente Amsterdam

amsterdam smart city

TRANSFORM

SEVENTH FRAMEWORK PROGRAMME

ABOUT TRANSFORM

TRANSFORM is a FP7 EU funded program to assist Amsterdam, Copenhagen, Genova, Grand Lyon, Hamburg and Vienna in improving their energy & climate strategies and coming to implementation plans for a district in each city.

Goals: bringing strategy to implementation – tangible projects- and learn from each other on strategic, tactic and operational levels.

The TRANSFORM consortium (see above) operates on the levels of SMART energy systems, SMART Spaces and SMART governance – combining space with energy with politics and governance.

TRANSFORM starts in the end of 2012 and will be finished by the summer of 2014. Some of the local projects have been started earlier and most of the cities have previously made an energy strategy. TRANSFORM will benefit from this and will accelerate and optimize existing processes.

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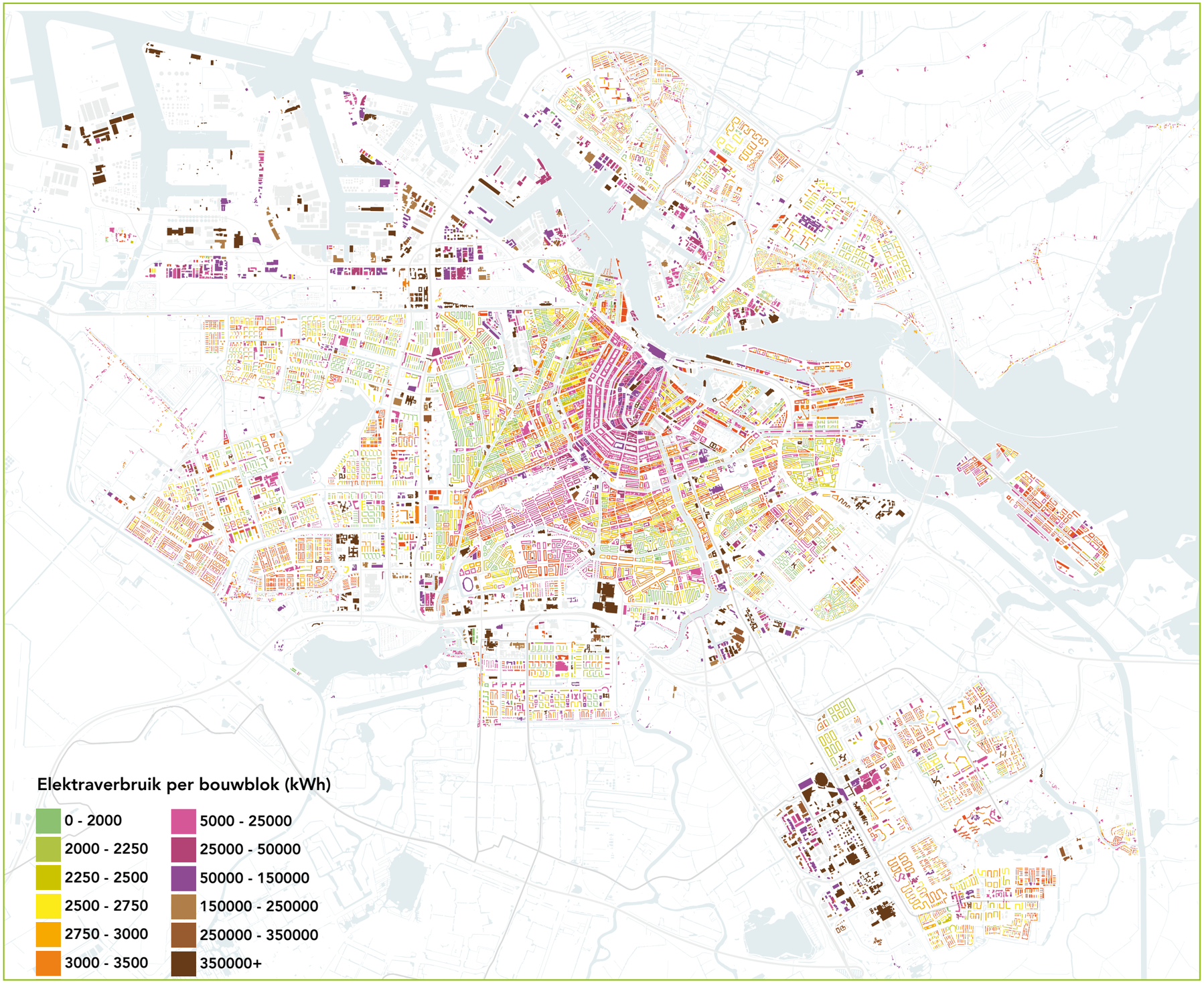
CONTENT

Participants ILS Amsterdam

Figure 1 Electricity use per block (kWh)



TRANSFORM

Intensive Lab Session Amsterdam

This booklet contains the results of the TRANSFORM Intensive Lab Session, held in Amsterdam South-East, June 18, 19 and 20, 2013.

Intensive Lab Session

The session worked as a pressure cooker event to work towards an implementation Plan concerning the sustainability of the area. Local stakeholders and international experts work on the question: how to make Amsterdam South-East meet the European 202020 targets?

The Intensive Lab Session is an essential intervention of TRANSFORM in each of the participating cities. The ILS in Amsterdam is the first in a series of six. The evaluation of the method of the ILS in Amsterdam will be used for the other cities.

Local journey of South East

In the beginning of 2012 local stakeholders of South-East set out together on a journey towards common sustainability projects. Amongst the stakeholders are companies, nongovernmental organisations and public parties. Important stakeholders are the Amsterdam Medical Centre, the Arena Stadium, Evoswitch Datacentre, Stadgenoot Housing Corporation, IKEA, grid company Alliander , NUON/Vattenfall, waterworkscompany Waternet and the Amsterdam Smart City Consortium.

Two paths were taken before:
1. Service design thinking
2. Data Analysis and Energy Atlas

Service design thinking is about creating user-friendly services according to the needs of customers and participants, and about value sharing between stakeholders. This can be financial values, but also other values may be involved like talent, space and marketing.

The sessions, with stakeholders having positions in the area as renters, owners, or as shop owner, service provider, housing corporation and other, resulted in 7 projects targeted at CO2 reduction – and resulted in connections forged between stakeholders in the area.

The second path involved the gathering of data and analysis and resulted in the Energy Atlas for the area. The energy atlas provided insight about energy use and new potential energy sources for the area. Next to the energy atlas, an energy balance was created for the area (rough calculations on demand and supply) and also a monitor system, to benchmark projects against city wide targets on CO2.

Intervention & Action

The Intensive Lab Session was an intervention proposed by the TRANSFORM consortium, in this ongoing process. To bring in extra knowledge, accelerate, and ask prying questions.
A period will follow to get all projects into maturity and get them towards implementation.

Three themes

The Amsterdam Intensive Lab Session focused on three 'themes' with direct or indirect impact on the main TRANSFORM key performance indicators:

- Reduction of CO2 emissions
- Reduction of energy demand
- Increase of local renewable energy production
- More efficient use of remaining fossil fuels.

Next to these indicators, the following values were included in the analysis: economic values (jobs, lower area settlement costs), social values (social interaction, lower energy bills, co-creation) and larger environmental values (noise, air quality, resource efficiency).

Theme 1: sustainable heating & cooling

The leading questions are: "Can the area develop an open, choose your own temperature, plug and play sustainable heat and cold network? What needs to be done?"

At first sight, signs are positive: the usage of gas is high, the area has several low temperature potential sources (datacenters, lake) and the soil is suitable for cold-heat storage. And last, there is a cold grid and a heat grid, that could be used better.

Theme 2: energy service companies

The main question is: "Can Energy Service Companies be the solution to the question of how to retrofit existing housing estates, office buildings (often empty and unused) and large enterprise facilities?"
Intriguing question, seen the complex mixture of ownership, differences in building use, state of the building (energy/technical installation), building age and potential for generating renewable energy. But lies the opportunity in the striking similarity in typology within functional categories?

Theme 3: public action

Amsterdam South East has millions of visitors each year for events and shopping, people who work and live in the area or just use one of the many transport nodes. Can the group come up with an interesting concept for public action, to support the 202020 goals? Get some action going!

Key considerations: PESTLEGS

The Groups analyzed the three themes using the 'Key Considerations', used in the TRANSFORM project on strategic, tactic and operational levels. A method to test projects beforehand on their feasibility is called PESTLE. The individual letters in the word stand for different aspects of the context of the projects. The "P" for example stands for the political aspects. Using PESTLE helps to structure the context and make sure no aspects are forgotten that could be relevant to make the step from policy making to implementation. Using PESTLE also helps in make the context understandable to others and point out to them that a certain measure or project can be successful in one place, but would not work in another context.

The existing PESTLE methodology is used and added with two topics relevant for (energy) planning: Governance and Space. Governance was added to be able to assess the role and instruments of the government, acting in the field of energy transition. Space deals with the influence of the spatial context and brings the link to spatial design. This brings PESTLEGS. The individual letters stand for the following **context aspects** with some examplesf:

P political: political system, party support, sentiments, political minorities, lobby groups.
E economical: trends, feasibility, business model, business case.
S social: social minorities, social policy, ethnic groups, social acceptance of project.
T Technological: current possibilities, trends, ICT, availability of knowledge and instruments to realize the measure.
L Legal: existing legal framework, barriers in regulation, chances, trends.
E Environmental: clean air, water, energy, natural resources, waste, pollution, and ecology.
G Governance: stakeholders, citizen involvement, roles of governmental and private organisations, way of cooperation, use and sharing of data, planning.
S Spatial: physical context, availability of space, combination of functions, density, program, long term development perspectives.

In the Intensive lab session the design teams were asked to apply PESTLEGS on their themes.

Content

This document presents the results of the Intensive Lab. Part 1 gives a cartoon of the whole work process during the Intensive Lab Session. Part 2 gives an introduction to Amsterdam South East. Part 3 gives the results per theme. Part 4 gives a timetable for action and next steps. Part 5 is a collection of presentations held during the meeting.

Local market and city district hall Amsterdam South East

Introduction to Amsterdam South East

Spatial context

The Amsterdam district of Zuidoost (South-east) is 22 km2 and is home to 83.000 residents. The plan area for TRANSFORM is 300 ha and contains 18.000 residents. The area is a complex, green mixed use area including the Ajax soccer stadium, offices, enterprises, leisure and entertainment industry, shopping malls, academic hospital, data centers, residential areas and an energy plant. A combination of a railway and a metro line splits the area in two parts. Roughly the companies are on the west of the lines and housing is east. Within the area the functions are separated. There is a monofunctional office-area, an area with light industry, a housing area and a leisure and shopping area. There are few hotels, restaurants and cafes. The highway A9 towards Almere is another divider in the area. The hospital is south of the highway.

Part of the area consists of office buildings that will transform towards a more mix used area. Part of the residential area has been retrofitted, part of the area has to be retrofitted. A new park will be created next to the railway line, and part of the road infrastructure will be brought underground, covered by a park. The area is perfectly suitable for smart grid developments, both for thermic web and for electricity grid.

Energy

In the plan area a total amount of 475.229 MWh of electricity was used in 2012 and an amount of 38.211 thousand m3 of gas. This is 10% of the usage of electricity in Amsterdam and 4,8% of the usage of gas. The total energy bill for the plan area is 45 million euros for electricity and 16 million for gas. The area as a whole uses a lot of energy compared to Amsterdam. The reason is that there are a relatively large number of businesses in the area and that the businesses are relatively big. The energy pattern in the area varies due to a broad range of functions and buildings.

The exception is the relatively small electricity use in the area for households. The reason is that a part of the households in the area is connected to the city district heating system. A district heating system and a cooling infrastructure is available in the whole area, but only connected to approximately 3% of the gas connections. Heat and cold storage is used in 7 places in the office area.

There are chances in the area to reduce the energy use and to produce renewable energy. The energy household of the area can improve by insulation, using waste heat, use water for cooling, solar energy and windmills.

Economical context

The average income in the area is 16.722 € per household. This is relatively low compared to South East (24.785€) and Amsterdam (29.708 €). Nineteen percent of the working population is unemployed, which is the highest number in comparison to other districts in Amsterdam (O+B, 2012). It is desirable that middleclass income households settle in the area, in order to create diversity in the area. For large scale leisure and shopping, South East is the center in Amsterdam. With megastores and buildings like ArenA, Heineken Music Hall, Pathé cinema, Villa ArenA XL and Ikea South East attracts a total of nine billion visitors per year. A number of head offices is established around the heart of the area, but the vacancy of office space in the area is 25%. Companies are assembled in associations like the VAZO to addressing and finding solutions to improve the lack of occupancy.

Social context

The area is used by different groups: white collar workers, visitors for entertainment, and people who live there. South East has a very diverse population with over 146 different nationalities (O+B, 2011). 23% of the inhabitants live on a minimum income, and the perceived safety is relatively low (O+B, 2012). On the other hand, in the past years the area has improved his image. A great number of communities are organized in local churches and sports clubs. There are multiple initiatives to improve the image and find solutions for social and economic challenges, like Glamour manifest, Zuid Oost Partners, and Urbanisation.

	Smart Urban Lab		South East		Amsterdam	
	Total (x 1.000)	Average per user	Total (x 1.000)	Average per user	Total (x 1.000)	average per user
Gas (m3)						
- Households	5.483	812	24.029	931	298.040	1.082
- Business	32.729	20.649	44.713	7.232	495.969	4.794
- Total	38.211		68.742		794.009	
Electricity (kWh)						
- Households	19.758	2.708	79.785	2.705	747.771	2.454
- Business	455.470	217.097	531.033	65.478	4.025.936	29.106
- Total	475.229		610.818		4.773.707	

Table 1 Electricity use in the area of the Smart Urban Lab, the district of South East and the city of Amsterdam

3 days of work

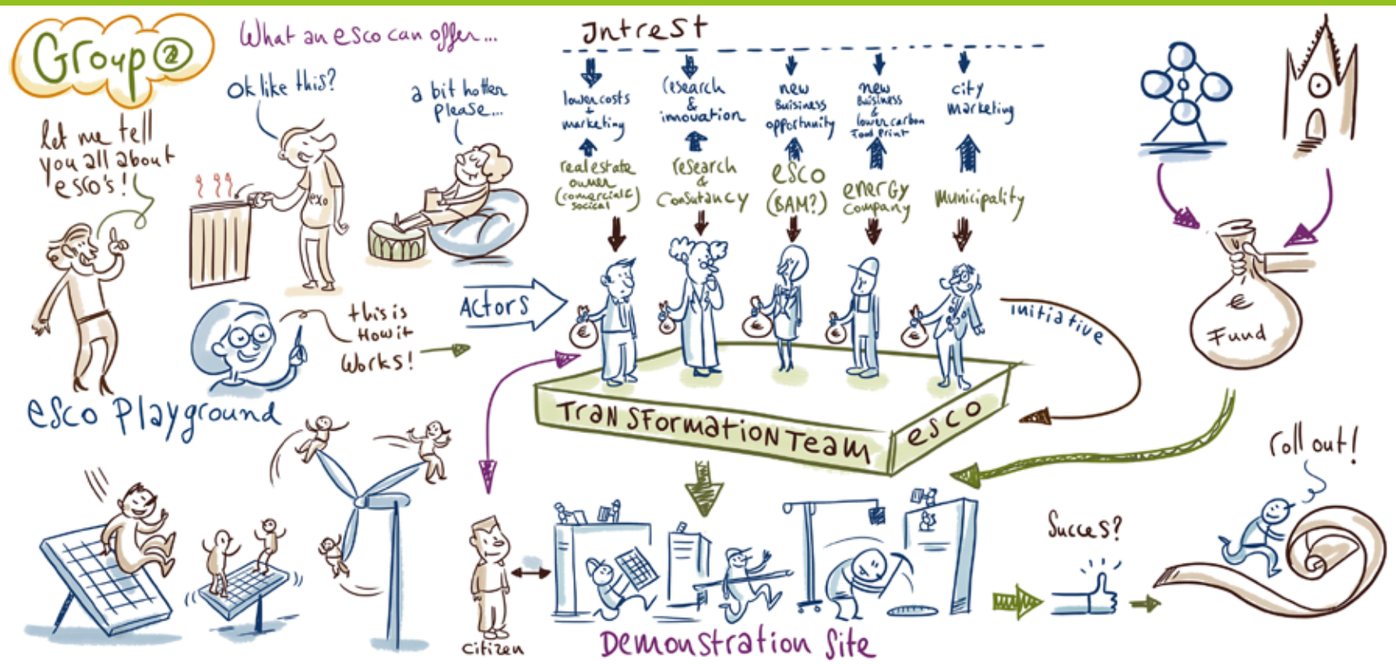
START: Day 1 → **Area Visit**

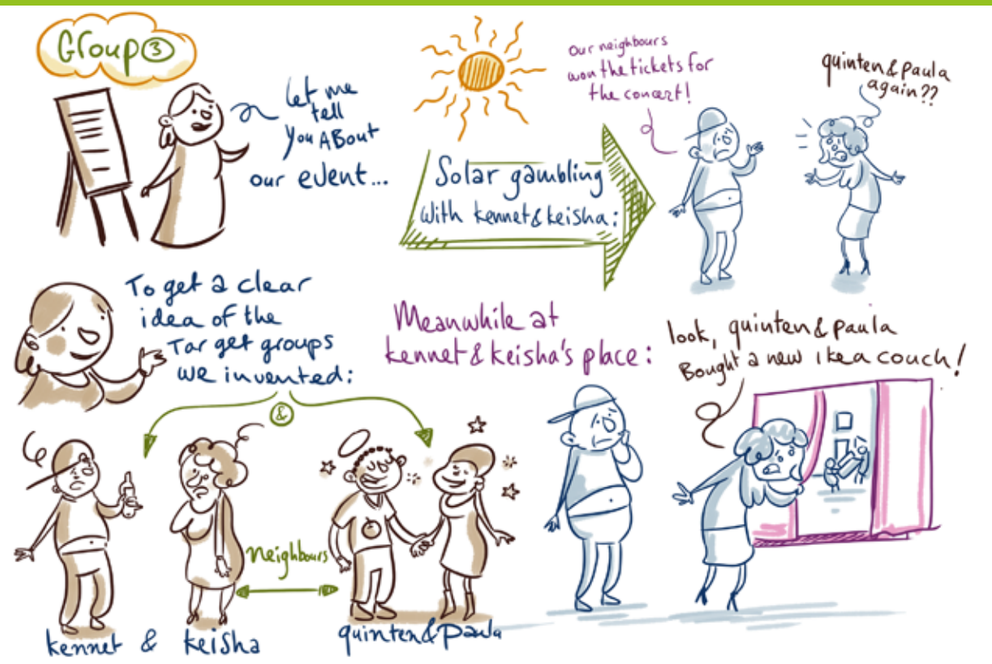
Meeting the stakeholders


Help! What System is running in each Building?!
But it takes at least 20 years to restructure all Buildings
Take it easy, 2040 is so far away!
For example!
So Hurry!
2040
After lunch ..... a chat with the alderman
emile jeansch
i'm not responsable, But i do wat i can.
We have To organise Tupperware parties!
this Will Save you money!
cool!
Interviewing...
Raymond van Bulderen
Vattenfal (Nuon)
Finding investors in nuon projects ...
no no you are a monopolist!
project
Thanks to Swedish Regulation :
You Should Bring your Carbon Footprint Down!
ok Boss!
AMC
own power Plant
Primary proces
over capacity
But! (there's always a But)
We Don't want to have a commitment to others...
Matthijs maris AMC Hospital
Bummer!
Because i want very Hot temperatures
im sorry !
Can you please lower down the temperatur of the grid?
90°
So not possible to connect the low temperatures of the data center to the Grid .....
data center

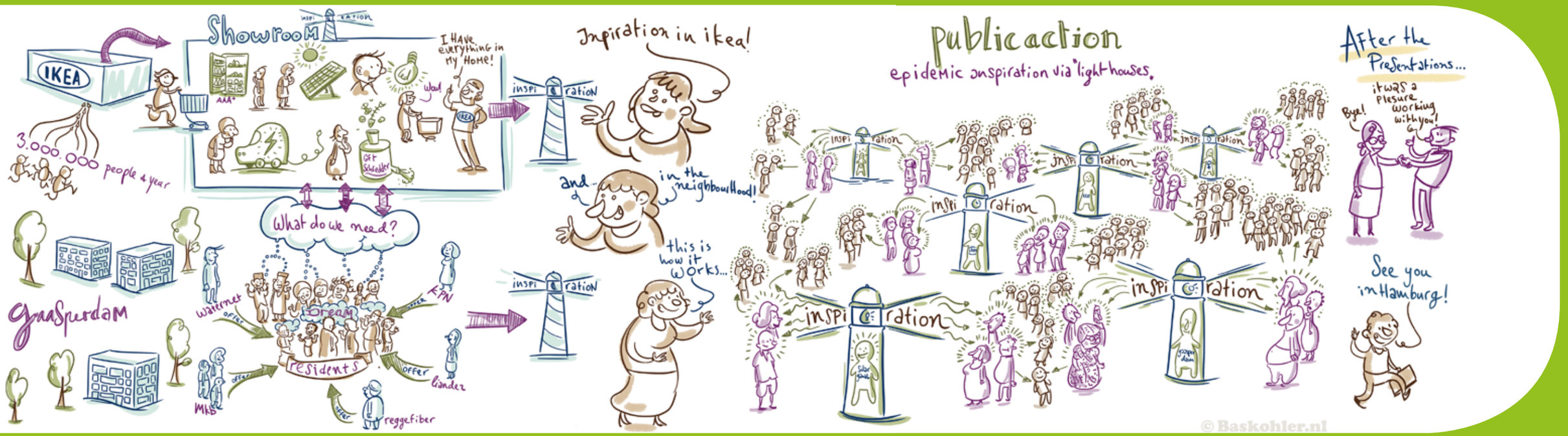

Day 2
Teamwork: analyze . . .
draw conclusions . . .
and . . .
DAY 2 19th of June
Lets Wrap up & Work & work & work
We have to inspire people!
inspiration
Group 1 "Heating & Cooling group"
We have lot's of Heat But we need a Demand For it...
a Demand FOR Demand!
So how's the drawing going?
So much subjects, so much idea's so much to Draw
So hurry up then!
And then Work out more and more and more
esco
kilowatts
gambling
target groups
30 Degrees
20 Degrees
ikea
(While Some others enyoy an icecream out Side)
Were just investing..
in Cooling Possibilitys
What is an esco?
I don't earn an extra cent!
your price is as high as normal energy!
Hospital
Regulation
Stadium
Surplus energy
irregular energy
Demand
cheaper (should Be)
Food
greenHouse
losing Heat
House Heating
CO² needed
irregular energy use
energy use
Time
event for area


Group② "Esco group"
i learned a lot!
ESCO!
A real esco
B EPC (energy performance Contract
C eee (energie efficiency engineer)
D User Behaviour
yes i'm putting it lower!
Group 3 "Event Group"
thinking about Target groups...
So Difficult in this pluriform neighbourhood
High educated area (g-5)
Showroom
i wanne Buy it!
IF ikea sells it...
ikea everyone
residences
marketing trick: Start With the Children!
wee!
i want solar energy!!
Sun!
rain?
Sun?
clouds!
sun!
sun!
Solar GAMbliNG
estimate the kW production on the stadium roof Today!!!
Tickets Here
everybody in Amsterdam visits ikea twice a year!
ikea
i was there 3 times already!
So stop!
Proud ikea woman
interested in Solar energy?!
leave me alone
i'm just A visitor!
And dinner at the ysBreker

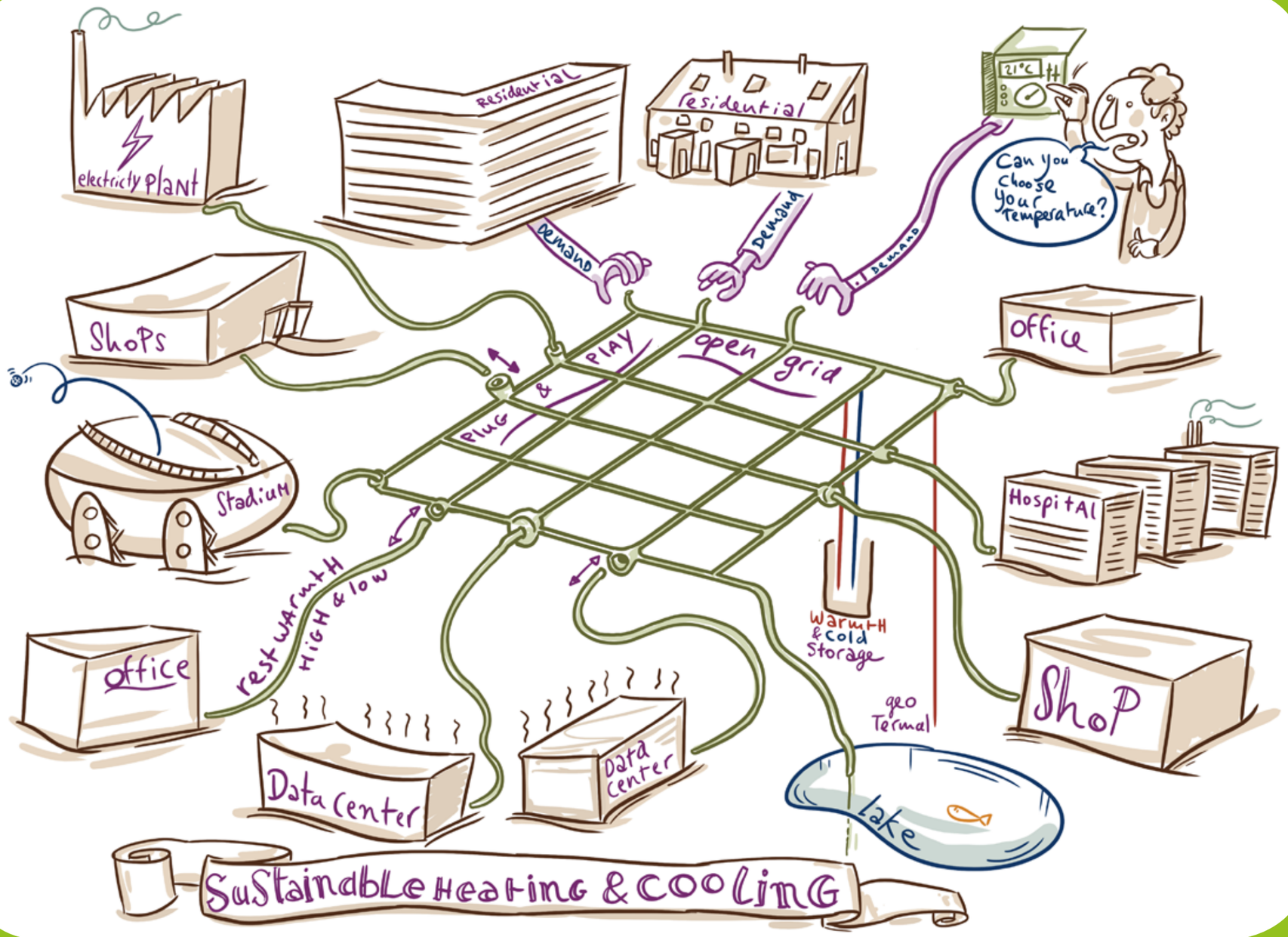

Group②
What an esco can offer...
let me tell you all about esco's!
Ok like this?
a bit hotter please...
this is How it Works!
esco Playground
Jntrest
lower costs & marketing
research & innovation
new Business opportunity
new Business & lower carbon Foot Print
city marketing
real estate owner (commercial/social)
research & Consultancy
esco (BAM?)
energy company
Municipality
Actors
initiative
Fund
TRANSFORMATION TEAM esco
roll out!
Succes?
citizen
Demonstration Site


Group③
let me tell you ABout our event...
Solar gambling With kennet & keisha:
our neighbours won the tickets for the concert!
quinten & paula again??
To get a clear idea of the Target groups we invented:
Meanwhile at kennet & keisha's place:
look, quinten & paula Bought a new ikea couch!
kennet & keisha
neighbours
quinten & paula

Day 3 → Final presentations



Theme 1 Sustainable Heating & Cooling



Context

In Amsterdam South East a broad range of program is present: shopping, leisure, housing, offices, hospital, datacenters and light industry functions. Therefore the energy demand for heating and cooling differs, depending where you are in the area, and most important, in what season. Although at some points the heat demand is high , rough calculations show that area produces enough waste heat to cover its demand…Can the area sustain itself?

The energy pattern in the area varies due to a broad range of functions and building qualities. The area as a whole uses a lot of energy compared to the energy use in Amsterdam. (add demand in numbers graphically) Currently, gas and waste heat of an gas fired electricity plant are used as sources for heating. Cooling is mostly 'traditionally' resolved through cold machines, powered by electricity. Also, a district cooling is available, with a lake as the source.

The area has different levels of connectivity of sustainable energy infrastructure. The district heating and cooling is available in the whole area but only connected to app 15 % of the buildings. Heat and cold storage (UTES) is used in 5 places in the office area.

The service of thermal energy is nowadays offered by a number of companies, depending of the service which is used. (add graphic of chain) . The gas grid is owned by grid operator Alliander and the suppliers of gas are numerous. It's up to the consumer to select one. The district heating and cooling are both owned by grid operator and producer Nuon/Vattenval. Heat and cold storage is self-owned by the user but the governance on the soil is done by province of Noord Holland.

The participants of the Intensive Lab session where given the assignment to create a strategic plan for sustainable heat and cold solutions for the area. What are the options to do so? How to organize this transition? Who to involve? Etcetera.

Findings

The analysis started with the making a long term fossil free perspective was drawn, to research the resilience of the idea's and plans which are made today. To TRANSFORM or not is the question.
The bigger area of stadsdeel Zuidoost was studied and three areas with different strategies were appointed. The study area appears to be the most promising to make the shift to total renewable sources the coming years, due to the abundance of sources, the possibilities to develop matching infrastructure and the assumption that a great part of the building stock will be renovated in the next decade. Within the (Add chart)

Parallel, an energy flow chart was made and indicated that the supply of local waste heat and renewable energy production by UTES triples the demand.
Looking more closely at this energy system, the group named three essential remarks:
-Seasonal storage Is needed if local waste heat and /or renewable energy are used.
-The quality of energy of these local sources are low in temperature (in the range of. 6-35 o C)
-The local sources integrated with the existing district heating system offer potentially a wide range of energy services: 6-90 o C(add graphic with sources and temperature)

End-users are not enough involved in the thermal energy planning for the area so far, the design team stated. It was not clear what the desires of the end users are for thermal energy are. Although essential input for the thermal energy plan, the renovation calendars of the building stock are not known.

Conclusions

'Is not a matter of availability, it's a matter of organization'.

1. Pick your energy

The area is able to sustain itself in thermal energy. Because of the wide range of energy qualities (temperatures) available it's possible to match the type of energy end-user wants, in line with individual building qualities.

2. Open infrastructure

To enable local sources and storage capacity an 'open infrastructure' is needed. In this 'open infrastructure', end-users can also deliver energy to a grid or to local storage possibilities. The organizational form needs to be researched, but one of the options mentioned is to separate the grid from supplier(s).

3. Technical innovation

To combine difference sources and integrate storage is a complex system. The envisioned system as a whole is not existing but throughout Europe parts are operational. Innovation is needed on the integration of the separate parts (operational control, ownership, etc). One of the challenges is to incorporate existing infrastructure as much as possible.

4. Stakeholder management

To develop 'pick your energy, towards implementation, the whole thermal energy chain should join the planning process. Building owners, grid operators, thermal energy producers, consultancy/knowledge institutes and municipality should organize themselves to come to implementable actions.
The demand for sustainable thermal energy is not clear at the moment. The end-users need to be more engaged in the planning process to inform them about the possibilities and to develop services end-user desire.

PESTLEGS

There is a city district heating system with high temperatures. This grid is initially financed by the city, but is now owned and maintained by NUON. The heat in grid in the area of South East is waste heat from the electricity producing power plant of NUON. The cold network is also owned and maintained by NUON. In the workshop the group thought of other systems. A system based on waste heat with variable and low temperatures in addition to the existing city heat system.

Political: There is political support for the existing city district heating. It is part of the climate and energy policy of the city of Amsterdam. In the current situation there is no political involvement concerning new heat or cold systems or adapting existing systems to new suppliers and users.

Economic: The economic feasibility of a new system is questionable, the experts in the group state. Great costs for infrastructure might be a hurdle. Using the underground as infrastructure might cut costs. This needs further research. A third sustainable energy system might conflict with investments already done in city district heating and cooling infrastructures. Offering a third heat service might mean a loss of users of the other systems. An integral assessment of (grid)values is needed.

Besisdes the focus on energy related goals, the envioned system contribute to the development of a compatative environment for datacenters. The possibilituies of the use of waste heat contributes to the greenning of this sector. If the business case of the whole system can be optimalized, the area becomes attractive for the demand side, so for more sectors than just datacenters.

Social: It's envisioned that users will accept other heat/cooling services as long the price level is competitive with existing price level. Secondly, reliability is essential. The production of heat is very reliable, the hurdle is seasonal storage (see technical).

Technical: Technical innovation is needed to combine multiple temperature levels in one grid. Within this system the (seasonal) storage of heat needs attention: Heat and cold storage works in practice not so well as predicted.
To make the system work, there is a great dependency on the type of heat demand. Two main questions arise:
1. Are the buildings equipped to use the heat from the grid? Or are big investments needed?
2. Is a low temperature grid able to produce hot tap water in an energy efficient way?
Both issues need to be research, of which the first need to be done with involvement of local building ownwers and users.

Legal: There is a need to change legislation and existing agreements/contract formats. The combination of local production, storage, use and the interaction between users demands a new regulatory framework with new legal conditions. This is similar for the guarantee and monitoring of the quality of the heat delivery.

Environmental: The CO2 reduction of a waste heat system in this area has great potential: app 300 Ktonne CO2. Both the hospital and the datacentres could cover this demand.

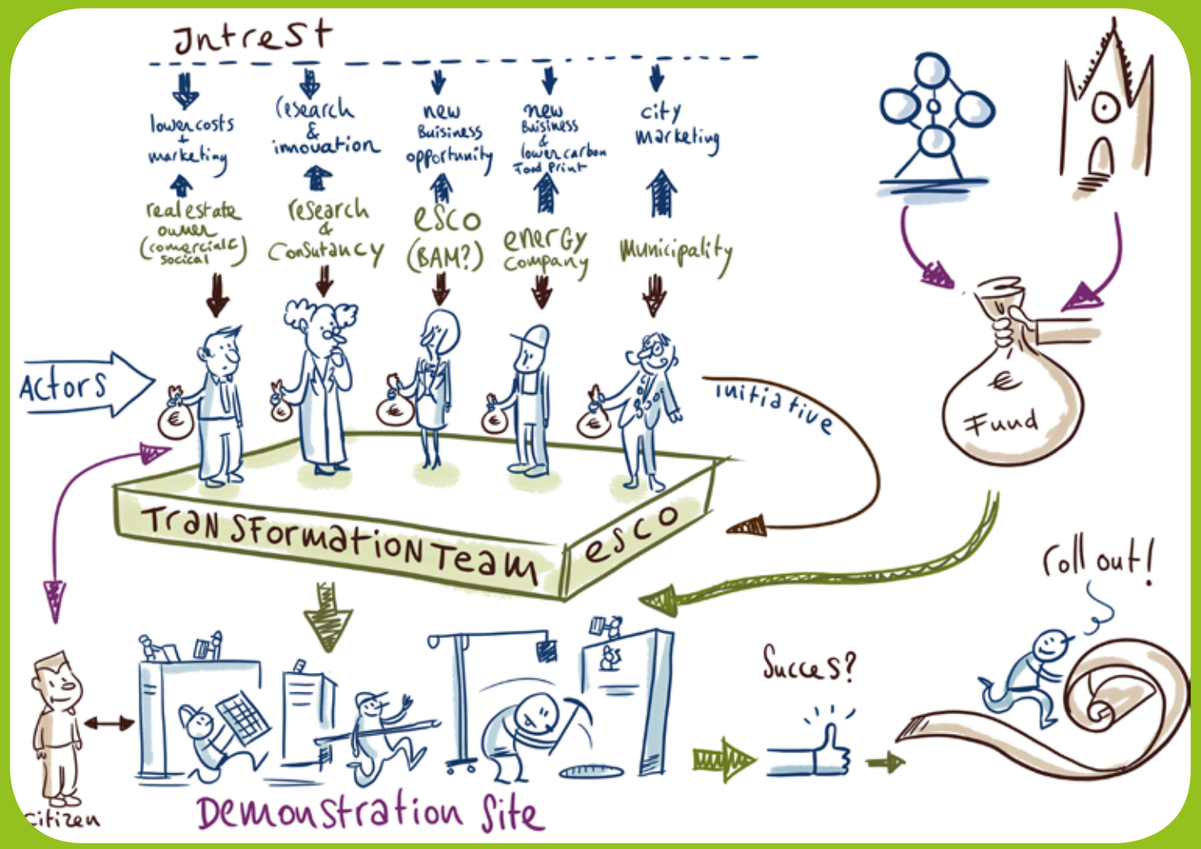
Governance: To tackle this complex transformation process, leadership is needed. Since there is not a particular party responsible for the whole energy chain yet, this should be organized. A governance model which includes the whole chain is needed to draw the path towards implementation.

The solution could be the creation of a consortium that incorporates the different interests and external finance possibilities. For example: datacenters, an esco, building owners, municipality, griod operator. (see theme 2, ESCO)

Spatial: In the first stage the spatial implementation is no issue, there is enough space. But attention is needed if the the underground is used as storage. In order to saveguard the quality of heat/cooling, the storage facilities need to be spatilly organised to prevent interference.

Also, the planning and development of this type of energy systems the relation with spatial and programmatic planning needs to be researched. The main questions are if spatail organsation of demand and supply is needed for a feasible business case and secondly if non planning now will cause problems on the

Theme 2 Energy Service Companies



Context

In Amsterdam South East retrofitting is a challenge. A complex ownership structure and a divers use of the buildings give rise to an individual approach per building. In European policy and in the US, Energy service companies (ESCO's) are mentioned as possible solutions to cope with this complexity. Are Esco's suitable for South East? And would they be able to fill the gap between building users, building owners and take the opportunities of the area as a whole to upscale the retrofitting?

The ownership in the area is complex. In most cases the building is used by someone else than the owner. The owners are often housing corporations, or less involved parties like foreign real estate investors or pension funds. For tenants retrofitting is not financially interesting, because of the short term to regain the investments. Rental contracts are usually for 5 yrs. If owners are interested in retrofitting, they are confronted with split incentives. The benefits of their investments will firstly go to the tenants, because the commodity costs are not part of the rental contracts. This goes for commercial buildings as well as for social housing.

Another barrier to invest in retrofitting is the low energy price for big users. Dutch tax regulation offers big users a lower tax rate than small users. The low energy prices result in a long payback time of retrofitting investments: 10-20 years. A long term commitment is needed to set measures in a financially sane perspective. A complication on the long term is the fluctuation in energy prices.

The owners and tenants are unfamiliar with the concept of ESCO's. Is it not common to subcontract energy services. It will take a shift in thinking to outsource the energy services and to build up trust towards esco's.

Findings

The design team was asked to research the concept of ESCO and to define what part of the district would be suitable for ESCO services. Once started the design team discovered that the perception of an ESCO was broad. A definition was set to guide the assignment: An ESCO is a commercial service aimed at reducing the energy use. The possible services were categorized in two major activities: services applied to buildings and services directed at whole energy systems/district. The possible services were placed on a scale from light to heavy, differing in scale, investment and energy savings. The investment done by the ESCO is a variable. The following list was produced:

Building system transformation
- Energy audit/ Energy monitoring
- Energy optimization
- Energy procurement
- Energy performance contracting (investments by ESCO)
- Retrofitting/ refit / building envelop (investments by ESCO)

Energy system transformation
- New energy models (investments by ESCO)
- Energy storage (investments by ESCO)
- Renewable energy (investments by ESCO)
- Integrated energy system for district (investments by ESCO)

The areas where the ESCO's are most promising are situations with a great energy savings potential and the possibility to increase the value of the property. This holds for old and partly empty buildings. The ESCO brings energy savings and increases the reliability of the buildings operations. Consequently the building becomes more attractive, while maintenance costs drop.

The chances and challenges differ per sector:
- Housing: housing corporations are long term responsible stakeholders. Restraints are the split incentives, right of tenants to choose your own energy provider, tenant participation.
- Offices: big potential for insulation.Constraints are owners at a distance, lack of familiarity with ESCO's, diversity of ownership, lack of information about investment moments.
- Light Industry: Least chance because of high investment costs and mostly short term contracts.

Conclusions

The conclusion of the workshop was process-oriented. The actions that should be undertaken are threefold.

1. Set up a Transformation Team

So far an ESCO has been a private business model looking at individual buildings. By making ESCO's part of the public energy strategy development, it can scale up. Therefore a Transformation Team is needed. The team will act as an enabler to get things started and to overcome the existing constraints. All primary stakeholders in the energy system transition take part in the team: municipality in the lead, research & consultancy, real estate, ESCO's and the energy company.

2. Introduce ESCO's, owners and users

The involvement of the building owners and users is essential. An introduction of the ESCO's to the owners and users can make them aware of the opportunities. At the same time it will direct the attention of the ESCO´s to the actual needs in the area and the relevant investment moments.

The transformation team should work on concrete areas. Two playgrounds are advised: one office area and one residential area (figure X). For the office area there should be a focus on cooperation, while the housing area should pay more attention to legal restrictions.

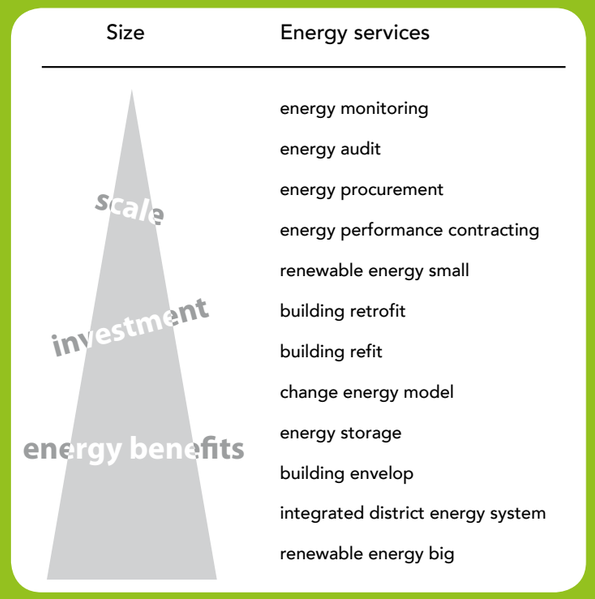


Figure 2 Arrangement of energy services: small -> big

PESTLEGS

Political: As mentioned in the other themes, carbon emission reduction is strongly supported. The social economical spinn off, which is generated by this relatively new industry, even more.

Economical: The basis of a healthy business case is the triple win: for the esco, building owner and building user.In the big picture, the esco concept(s) seems to be a feasible construction. Difficulties arise when there is a long payback time, if split incentive occurs and/or if behavior is of great influence on the energy use. Financial risk increase when a long payback time is needed. Energypirces might change as well as users of the building.
Experts state that value increasement of real estate is core motivation to invest , not environmental impact.

Social: Trust is an issue. Building owners are not used to the ESCO concept, and contracting is normally for more than 10 years. With changing energy prices this is perceived as risk full. Moreover the ESCO market is relatively new. The little experience with energy performance contracting brings hesitation to parties. This cultural hurdle is hard to take. Proven results or some kind of energy insurance might be needed to have the investing ESCO segment started.

Technical: No major constrains are foreseen, proven technology is widely available. The only risk is how technollogy is operated in practise. The users is often not familiar with the technology. Education and high frequency monitoring might be the solution for this.

Legal: In the legal field, three main isssues were adressed by the designteam:

- investments done by an ESCO are mostly real estate investments. In current law, this is very risk full. If owner goes bankrupt within the payback time, investments might be lost
- to do focused acquisition the ESCOs need data of use and building conditions, which are not accessible (open) yet
- Housing corporations cannot raise the rent enough to pay the investments, while the benefits in lower energy costs for the users is big enough.

Environmental:
The area as a whole consumes app. 10% of the electricity use and app. 8% of the gas. This big use offers great potentials for energy reduction. The energy atlas indicates the area as high potential for solar, because of the big flat roofs. Note: not al these roofs are strong enough to bear the extra load of solar panels.

Governance: Although the ESCO sector is mostly private sector driven, there is a need indicated for governmental suppport. Four topics were listed:

- To bring experience and knowledge together
- To suppport the start up of a local ESCO market (system transition)
- To help to beneifit from opportunities on the area level and building level. This involves stakeholdermanagement and legal & regulatory issues
- To overcome the p of risk/trust.

Space: In the area the old offices which are not used at the moment are presumed as very suitable for an ESCO. The buildings have old fashioned, written of installations and because there is no user, the refit can take place with a minimal disturbance. The question is if the real estate owner is willing to invest, taken in account the poor market. In the light industry area opportunities are few because of short rental periods and probably high investments are needed.
Very suitable is real estate owned by the user or rented properties with long term rental contracts.

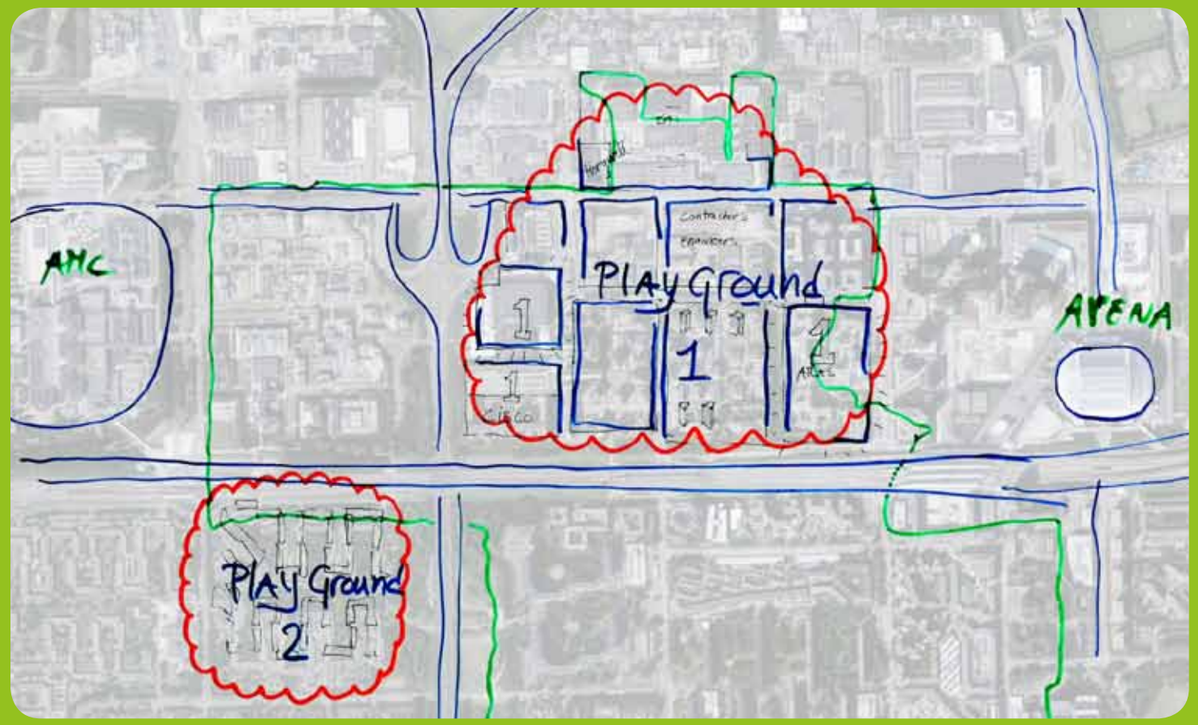


Figure 3 Proposed locations for playgrounds

Theme 3 Public Action

Context

Amsterdam South East attracts many visitors, residents, workers every day. How can we work together with these people, making use of existing opportunities, in order to raise awareness on energy issues, increase public investment in e.g. renewable energy or organize demand for isolation of houses? Can local stakeholders organize public events in South East together?

Many people are in the Amsterdam South East Smart Urban Lab Area daily, having different rhythms of coming and going. Shoppers visiting IKEA and home improvement stores like PRAXIS or other furniture stores. Employees working at the Hospital, banks, offices of e.g. Vattenfall and Cisco, datacenters, car showrooms, and at other companies and enterprises. People that visit the cinema's (Pathe), the soccer and event stadium Amsterdam Arena, music halls (Ziggo Dome, HMH), cafes and restaurants. The area has a big shopping center (Amsterdamse Poort), with a daily fresh market and hosts several (African) churches and sporting facilities.
Residents live in different neighborhoods – separated from the office and company blocks by rail and subway lines. The area is easily accessible, with multiple train and subway stations, highway access ramps and a good bike and pedestrian infrastructure.

Millions of people flowing yearly through the area. Large companies with many customers and employees are present, they often have sustainability programs or goals. The whole area breaths quantity: people, consumption, events, coming and going of trains, cars, trucks and data. There is thus a great potential to involve people in the 'energy transition' in some way or the other. But how? And why? With which urgency? What storyline?

The Intensive Lab design team was asked to create a strategy for one or more public events in the area, that can be carried out the coming year – with a focus on involve people in the European 202020 goals and a focus on realizing movement in the area.

Findings

For the analysis, Amsterdam South East was divided into specific areas (housing, shopping, offices, companies, enterprises) that offer different possibilities. The group looked for matches between those areas. Think of: using the roofs of storage buildings for solar PV owned by residents who live on the other side of the railway, or the influence of AJAX as a soccer club and the link with local sport facilities.

A second overlapping analysis was made using daily rhythms and use patterns (e.g. office workers from 8.30 – 18.00 or football match during the weekend, going to the movies on Friday night.), in order to get a clear picture of possible target groups. Also the specific demographics and cultural backgrounds were taken into account: the area has many different nationalities, different income classes, that are mixed, a relatively young population, a strong local organization through ethnic groups – who communicate via local television or radio. And a strong focus on food, sports and religion.

The group found a strong local organization between and within groups, that can help carry public events. Companies are organized in local associations, and there are people active in improving the area by taking 'acupuncture measures', small but with big potential impact. At the same time, the area feels 'anonymous', with many empty offices and a car oriented infrastructure.

The design team reworked the traditional themes of awareness and behavioral change – often seen as key to energy efficiency, demand reduction and sustainable energy production. In the case of Amsterdam South East, following above mentioned findings, the development of awareness was linked to having 'fun', and the opportunity of playing a game and win a prize. Behavioral change was connected to people showing good examples to each other, make people owner of the action and not just a bystander, and it was linked to profit and values (in terms of money, free time, attention, …). Specific target groups were shoppers and employees. Lastly the group learned from other public initiatives that were shared: start small, if successful – scale up!

Conclusion

A movement will start with buzz, testing and some fun. Central in the proposition is the idea of 'Lighthouses' – the people of south East that are testing and using new products and are enthusiastic about it.

1. Comfortable Living in Gaasperdam
Let's improve the quality of living by developing concepts with residents and the grid company, waterworks, solar PV suppliers and optic fibre company. Concepts that people are willing to buy and use. This project takes place in Gaasperdam, also suitable for a larger ESCO retrofitting scheme. Schools and schoolchildren will join in the development of ideas. The project can start by an agreement of all companies to work together, and approach residents together.

2. IKEA as a showroom for sustainable solutions
IKEA can be the incubator of innovation in the region. Every year 3.000.000 people visit the IKEA. The company stands for day to day activities and practical solutions. Let's develop a sustainable model house at display at the entrance, in cooperation with other companies (linked to Gaasperdam project). People can see, compare, touch and… buy. Savings are visualized in euro's and the amount of additional grocery products that can be bought weekly. This concept can easily be adopted by big retailers like Praxis (home improvement) or the furniture shopping mall behind the soccer stadium.

3. Reaching out through an employee program
Good examples foster new behavior. The closer and the more personal the examples are, the bigger the chance people will follow the examples. We start with the employees in the area – who can inspire friends, family and others. Let's start with the IKEA employees: they know the products at display in the model house. Through an employee program (with energy game, discounts, training, test periods) they are tempted to buy and use the products in their own homes… and talk about it with others. In that way the buzz can start…. Other target groups are tenants from Stadgenoot (housing corporation nearby) or workers at NUON headquarters.

4. Have a bet… on the sun
Solar gambling will be the new trend in Energetic South East. People on the local market can estimate how much solar energy will be produced in the area with daily, weekly and monthly prizes. Visitors of soccer matches will be challenged to estimate the amount of solar energy produced during the match. In doing so, people will get aware of new energy sources and get interested in the numbers that go with it. Prizes can vary from a shopping voucher for South East to the ownership of a new tree.

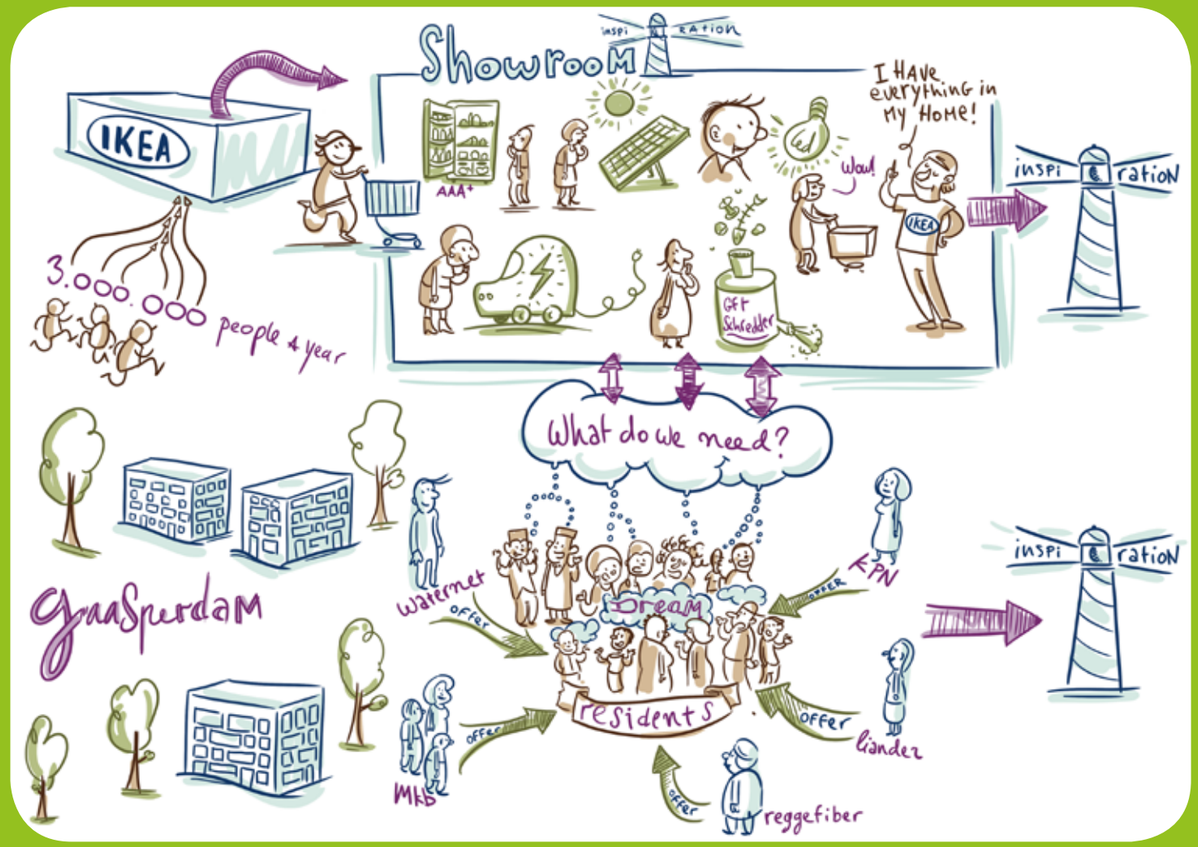
PESTLEGS

Political: The goals are in line with the general 202020 sustainability goals. The proposed projects are directed towards the involvement of the community. Political backing for the projects is desirable, but is especially necessary for the project Community Lighthouse. Here a strong political involvement can bring parties together and combine sustainable with social goals.

Economical: This differs per project. The community lighthouses will need partnership with mostly semi-public parties like schools and welfare programs. The other projects are aimed at stimulating sales of sustainable and local products. IKEA is interested in the project and will use it as a marketing tool. Solar gambling is about stimulating the local economy. If solar gambling will be succesfull, it can be scaled up to the city level with partners like AJAX.

Social: The projects are about raising awareness and citizen involvement. The social impact will be the biggest for the community lighthouse project. This project combines sustainability goals with education, integration, health and safety goals. The solar gambling should help bring in energy as a topic in day to day conversations.

Technical: There are no technical problems or technical goals. The projects are aimed to promote the state of the are technology.



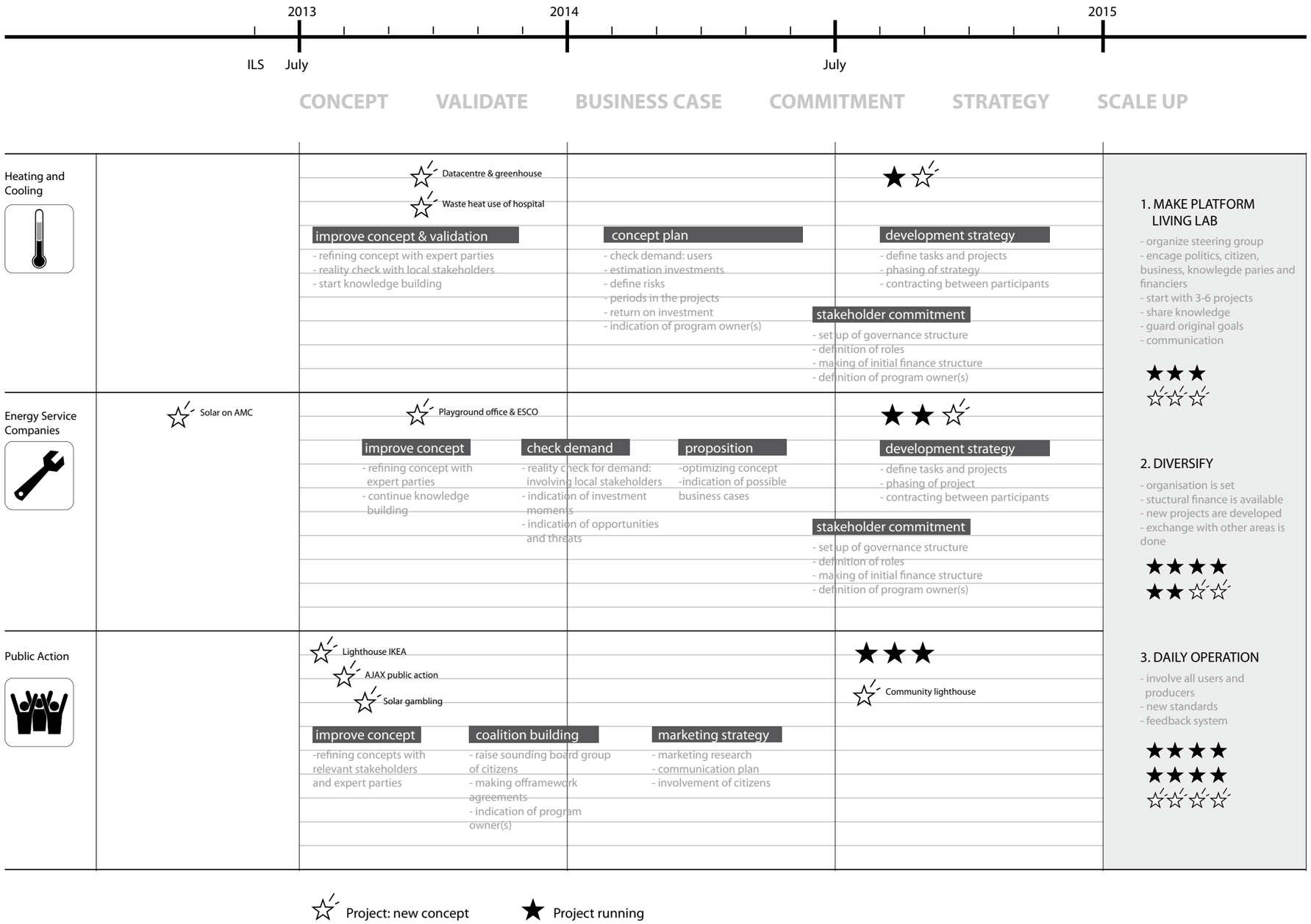
Legal: Although there seem to be no legal barriers, it is interesting to make a check on the role of the local government in regard to its integrity in working with private companies and in the involvement in lotteries.

Environmental: The impact of the projects cannot be predicted in quantitative terms. The projects are about raising awareness, behavioural change, new initiatives and energy efficiency by using new efficient products.

Governance: Governance is important in the projects. Especially in the community lighthouse project cooperation between different parties is essential. Schools, community centres, welfare organisations and housing corporations should be involved in organising activities. The target groups are children, parents and inhabitants. The project will win strength if it succeeds to reach out to other organisations like energy companies, sports associations or a nutrition centre. The case of IKEA the governance is simple. IKEA and the grid company Liander will take the lead. A strategy for the solar gambling to start small on the local market and if possible grow to a larger scale and include major organisations like AJAX, Ziggodome and the hospital.

Spatial: The spatial implications are limited. The projects will run in existing buildings and existing locations.

Roadmap



Advice

The roadmap differs from a planning. During the workshop it was mentioned that the workshop was a journey, while we don't know the destination yet. The participants were asked to give advice over the next steps to take concerning the three chosen topics. The roadmap as drawn in the scheme here is the result of their advice with an interpretation in time to 2015.

Buzz

The energy transformation in South East is not a lineair process, nor a process with a limited number of projects. There are and will be other projects in the area concerning other aspects of energy and sustainability. This workshop is to contribute to the BUZZ in South East and the roadmap is an inspiration to make vision and wish more concete in time.

Roadmap

There are various phases that come back in every project. They all start as conceptual ideas and develop towards specific projects in implementation. The general phases per project are: concept development, concept validation, making the business case, get committment from decisionmakers, making the implementation strategy and execute the plans. When several project are running, it is time to scale up within the area and outside of the area.
A steering group will help to keep on track. This moment is estimated to in the turn of the year 2014 / 2015.

White and Black stars

General ideas are at the start for new developments. A white star is the transformation of a general idea into the preparation of a specific project. The organisations who are going to act in a later phase are already involved in this phase. A black star is a running project, where actions take place. The white star is the writing of the play, a black star is the start of the play.

Projects

Datacentre & Greenhouse

Using the waste heat of a data center(s) to heat a new greenhouse. This project researches the possibility to use this type of waste heat and decreasing the CO_2 emissions in the area. Moreover, the project is an experiment to green the data industry and links the city to food production with innovative forms of urban farming in the greenhouse.

Hospital Waste heat

The AMC hospital owns a private powerplant to ensure power for the vital parts of the hospital. Most of the time, the total capacity of the poweplant is not used. Recent ideas are to bring this capacity to the electricity market. If the hospital succeeds in doing so, a big amount of heat is generated to. The possibilities to use this heat in the local district heating system will be examined.

Playground ESCO

A project that invites the ESCO industry to start a small project to overcome the assumed main hurdle: trust. The journey to implementation of an ESCO will reveal the real barriers and helps the ESCO industry to develop suitable services.

Lighthouse IKEA

Showcase within the IKEA store of a sustainable house equipped with solar panels, insulation and IKEA's sustainable products, and a normal house without energy saving measures and basic products. By visualizing the reduction in energy usage and the amount of saved money in € and actual groceries, it will create greater public awareness.

AJAX Public Action

Encouraging the Ajax supporters to use sustainable energy and generate a public motion in a relatively short time. One of the possible concepts is an innovative construction of crowd funding which enables Ajax to support local social facilities with investing in solar panels. Through savings on the energy bill the solar panels energy can be refunded and the structural cost for energy will drop.

Solar gambling

Raising awareness by playing! Present a working solar panel on the local market and let people bet. People can place a bet for free on the estimated amount of energy the solar panel will produce. Prizes are coupons for services and products of local retailers: a free meal, a haircut or groceries. Monthly prizes are bigger: a ticket for the Ziggodome or Pathé, and the yearly prize could be a solar panel or an e-bicycle.

Community Lighthouse

Inspiration lighthouses are schools, libraries, community centers and youth centers in South-East that run a program for children (and their parents) on renewable energy and energy efficiency. The program is based on learning about renewable energy in a light, playful way in order to challenge people to undertake new initiatives. State of the art technologies are presented in an understandable, visual way.

Smart living Gaasperdam

Combining several new, innovative products and services on energy reduction and smart living for the residents of Gaasperdam. In that way, companies can make smart product combinations and present a package at once to the residents. This new impuls in the are raises the comfort of current residents and make the area more attractive for new residents.

Appendices

1. Programm
2. Participants
3. Presentations
4. Evaluation
5. Team Amsterdam

Appendix 1: Program

Day 1, June 18
Team & local context

10.30 Start	@ local town hall south east Anton de Komplein 150, Amsterdam Zuidoost
10.30 - 10.45	Welcome to the Intensive Lab! Forming the Design Teams + assignment by Stef le Fevre
10.45 – 11.00	Team Preparation
11.00 – 13.00	Visit the Smart Urban Lab by bike
13.00 – 14.00	Warm Lunch served (cantine)
13.15 – 14.00	Talk with local Alderman Emile Jaensch Q&A on challenge & South East in general
14.00 – 15.00	Prepare for Meeting the Stakeholders!
15.00 – 17.30	Meeting the Stakeholders (see separate program)
17.30 – 18.30	Synthesis: first findings & prepare the next day
18.30	Diner served @ location

Meeting the Stakeholders
15.00 – 18.00

15.00 – 17.30	Information Market: South East! facilitator: Laura Hakvoort Energy atlas, real estate information, socio-economic information (Gerard Lont en Marlies Geijsel)
15.00 – 15.45	Meet an Energy Supplier facilitator: Bob Mantel Raymond van Bulderen (Nuon/Vattenfall)
15.30 – 17.30	What happens in South East? Local initiatives. faciltator: Femke Haccou Saskia Beers (glamour manifest), Arno Gorissen (ZOSamen), Edwin Gerritsen (Ajax football club), Jill Hanssen (Ikea), Joost Brinkman (Accenture)
15.30 – 17.30	It's a matter of Real Estate! facilitator: Ronald van Warmerdam Marc Brentjens (Breevast), Tim Mooiman (Stadgenoot), Cees Gehrels (Pronam)
16.30 – 18.00	It's about waste heat: Hospital & Datacenters! facilitator: Bob Mantel Matthijs Maris (Amsterdam Medical Center), Jan Wiersma (Evoswitch), Sipke Bouwmeester (Equinix) & Jaak Vlasveld (Green IT).

Day 2, June 19
Making the Product!

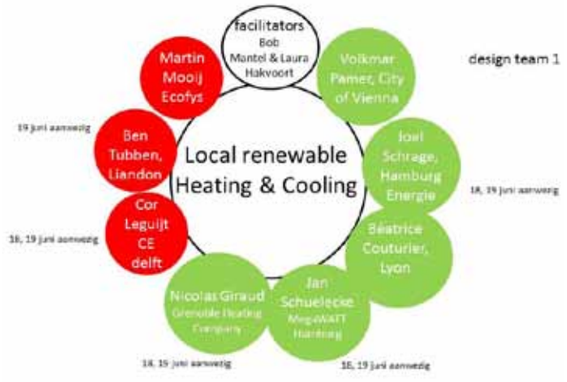
8.30	Welcome @ south east cityhall, Anton de Komplein 150
8.50	Inspiration for the Day (by Stef le Fevre)
9.00 -12.00	Work in the teams Round 1
12.00-13.00	Warm lunch
13.00 – 16.30	Work in the teams Round 2
16.30-17.00	Break with snack
17.00 – 19.00	Pitch of results by each designteam to local stakeholders: getting feedback
20.00	Dinner @ De Ysbreeker, Weesperzijde 23

Day 3, June 20
Presentations & Evaluation

8.30	Welcome @ south east city hall, Anton de Komplein 150, Amsterdam
8.50	Inspiration for the Day (by Stef le Fevre)
9.00 – 11.30	Finish the product!
11.30 – 13.00	Final presentations
13.00	Goodbye for all regular participants
13.30 – 16.00	Evaluation 4 rotating tables (only SULCO's, WP2 + 3 + organization)
16.00 – 18.00	SULCO meeting (led by Christof Schremmer)

Appendix 2: Participants

Designteams



Designteam 1 Heating and cooling

Bob Mantel	City of Amsterdam
Laura Hakvoort	City of Amsterdam
Ben Tubben	Liandon
Cor Leguit	CE Delft
Nicolas Giraud	Grenoble Heating Company
Jan Schuelecke	MegaWATT
Béatrice Couturier	City of Lyon
Joel Schrage	Hamburg Energie
Volkmar Pamer	City of Vienna
Sylvain Koch-Mathian	Lyon/ HESPUL

Designteam 2 ESCO

Ronald van Warmerdam	City of Amsterdam
Geert den Boogert	City of Amsterdam
Jordy Entius	BAM
Bart Hueben	Royal Haskoning DHV
Ilse van de Voort	Royal Haskoning DHV
Vivienne Bolsius	Amsterdam Smart City
Martin Mooij	Ecofys
Emily Hvidtfeldt	City of Copenhagen
Daiva Walangitang	AIT
Monika Sturm	Siemens

Designteam 3 Public event

Femke Haccou	City of Amsterdam
Sharona Ceda	Urgenda
Anne Stijkel	Wij krijgen kippen
Pauline Westendorp	Wij krijgen kippen
Justus van Oel	Stichting Doen
Justine Italianer	Amsterdam Smart City
Jan Gerbitz	City of Hamburg
Tina Hjollund	City of Copenhagen
Gloria Piaggio	City of Genoa

Stakeholders

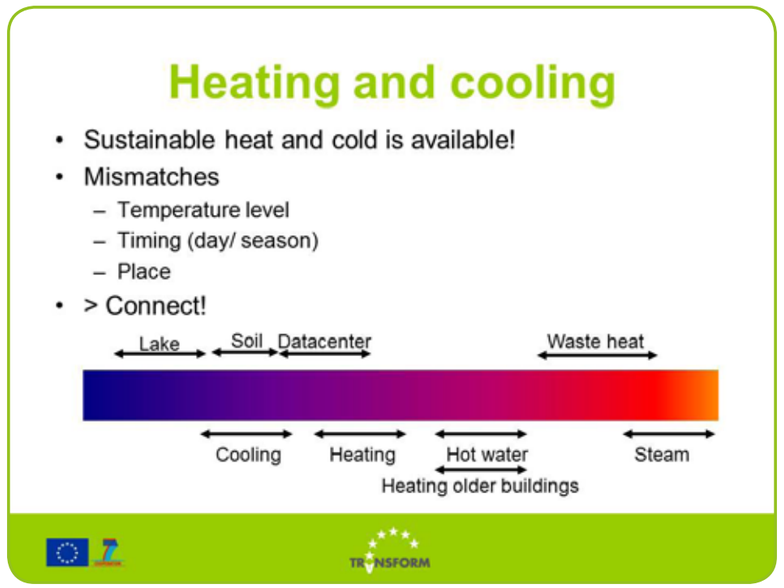
Raymond van Bulderen	Nuon/Vattenfall
Steven Kerstel	Nuon/Vattenfall
Tim Mooiman	Stadgenoot
Marc Brentjens	Breevast
Cees Gehrels	Pronam
Joost Brinkman	Accenture
Edwin Gerritsen	Ajax
Matthijs Maris	AMC
Jan Wiersma	Evoswitch
Sipke Bouwmeester	Equinix
Jaak Vlasveld	Green IT
Nick Verouden	PING
Saskia Beer	Glamour Manifest
Sietske	Glamour Manifest
Laurens Schuitmaker	Glamour Manifest
Jill Hanssen	IKEA
Arno Gorissen	Zuidoost Partners
Marlies Geijsel	City of Amsterdam

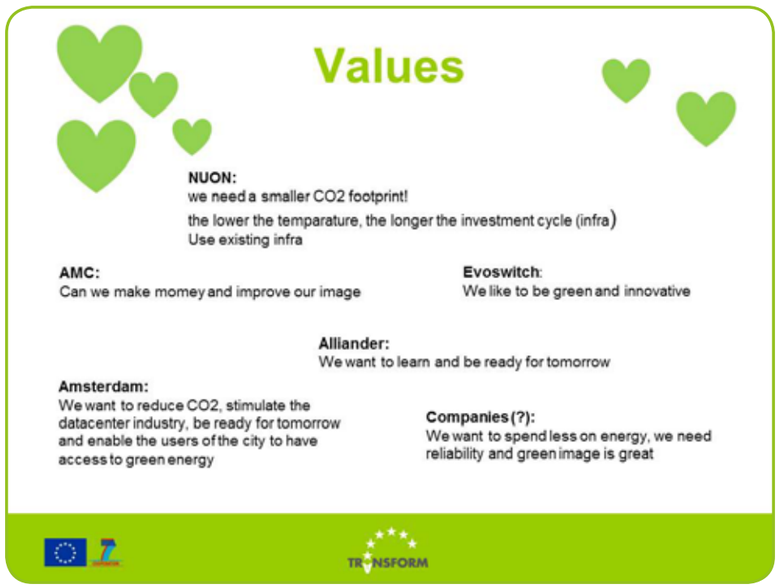
Other participants

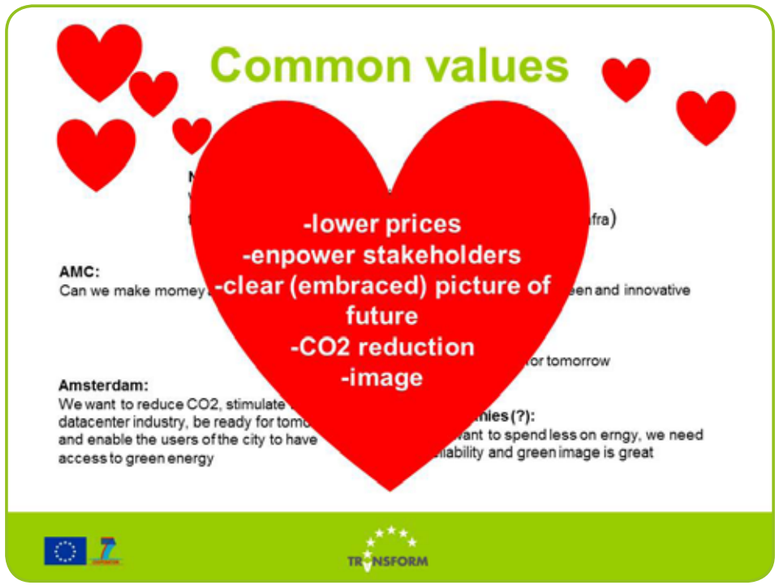
Ilaria del Ponte	City of Genoa
Mirella Marrazzo	City of Genoa
Arnaud Rocher	INGEVALOR
Hanneke Bresser	City of Amsterdam
Ruben Voerman	City of Amsterdam
Karin van Heeringen	City of Amsterdam
Frodo Bosman	City of Amsterdam Climate & Energy
Saskia Muller	Amsterdam Smart City
Emile Jaensch	Alderman District of South East

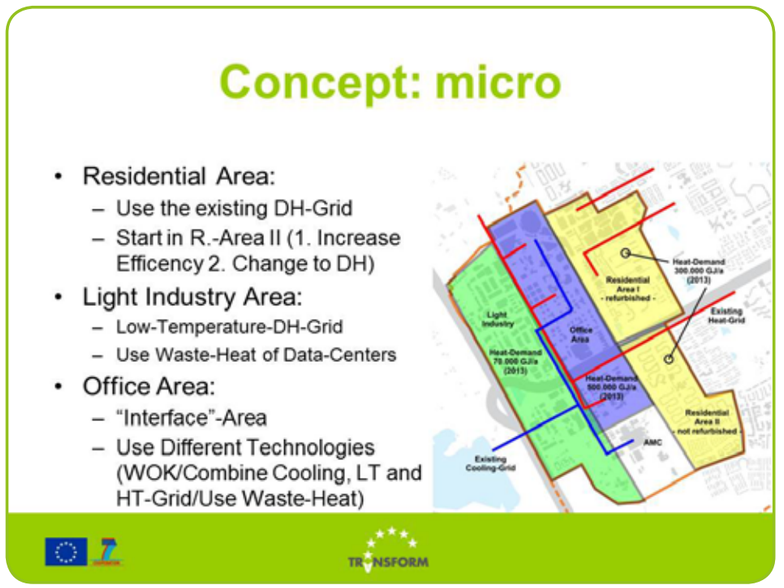
Appendix 3: Presentations

Presentation 1 Heating and Cooling









‘The base of cooperation’

Match needs
- Define strategy and claim needed funding
- Create trust
- Make energy exchange legally possible

Needs from Amsterdam Smart City

- provide data and generate more data (local investment flows and needs stakeholders)
- support stakeholdermanagement (active local stakeholders)
- set clear goals for the area (short term& long term)
- ensure commitment of municipality involvement for the next two years
- integrate spatial planning/landuse planning with grid development and stakeholders needs
- generate political commitment for work in this area (and relevance @ city scale

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Considerations

Large share of electricity in the (world) energy supply
- From renewable sources: wind, solar, bio

Local generation of renewable energy
- Integrated PV, geothermal, urban wind, …

Variencies over the year in demand and supply

Demand side energy reductions
- Insultation, efficient appliances
- Low temperature heating systems, high temperature cooling

Future of the power plants in the energy system?
- Back-up, peak facity, next to renewable sources

Future of waste heat from power plant?

> Transition to ‘real’ waste heat
- Renewable sources (bio, waste)
- Where gas cannot be replaced (industry)
- Do not count on abundant availability of waste heat

Consequences for the area

Business area, west of the railway track
- Heating and cooling demand
- Waste heat available, but out of phase
- > Open network , low temperatures
- > Feedin in surplusses of heat and/ or cold to balance the system
- > Seasonal storage in aquifers
- > Heat pumps per building (blocks)

Housing, Bijlmer area
- Partly renovated of recently new built
- High temperature heating systems
- > District heating

Housing, south of A9 highway (Holendrecht)
- Renovation expected in coming years
- Opportunity to reduce temperatures
- > Use return temperature of Bijlmer area
- > Consequence: seperate system for domestic ot water

Presentation 2 ESCO

Why transformation team?

- To be an enabler and get things started!
- Integrate all primary stakeholders in energy system transformation
- Integrated area development
- Overcome the constraints
  - Diversity ownership
  - Split incentive
  - Trust
  - Long term reliability
  - Contracting / legal
  - Scale
  - Free riders

Rephrased Assignment

ESCO Energy Service Company

Question rephrased (to make it simpler):
What is a formula like ESCO able to do in making a district more energy efficient? How can an ESCO scale up?

Hypothesis rephrased (to make it simpler):
ESCOs can play an active role in contributing to the goals of CO2-reduction, energy-reduction, impact on costs,
- it can create investment plans and bring in investment capital.
- It is a new, active player, creating solutions in complex transformation cases -
- It functions as a market player, making profit (business to business)
- It should create win-win-situations for owners and tenants/end users (triple win !) or miracle !!

So far ESCO has been a private business model looking at single parts of the proces. By integrating it as part of the public energy strategy development, it can scale up. This could strengthen the energytransformation and align the specific activities of the ESCO and of the urban planning.

Definition

ESCO Energy Service Company

What is an ESCO?
Commercial service, extending to several functions —
"Phase 1" to "Phase 2"
From light to heavy, low to high energy savings,
low to high investment cost

Who could be the ESCO?
There are several possibilities:
- Company specialised in energy services
- Energyprovider
- Developer/builder with specialised knowledge on energy
- Foundation supported by local stakeholder(association) (non-commercial)
- ...

Products and functions:
- What functions/ which buildings / and what kind of energy use is best for the instrument ESCO in this area?
- Offices, public buildings, hospital, social housing, hotels, Commercial, street lighting

-What are unsuitable functions? new low energy houses, minimum project size !! Recently renovated buildings !!

Based on which argumentation is this distinction made?
suitability depends on the expected wins, the costs, and the period to regain the investment. More difficult in low cost light industry where companies easily come and go and are not willing to invest then long term public buildings.

Success factors and chances

- **Success factors of an ESCO:**
- Energy savings potential, especially old, partly empty buildings
- Property value increase – by increasing attractiveness, reducing maintenance costs, reliability (esp. in a contested office market)
- good investment opportunity for capital owners (other options gone ..)
- → Platform-idea: Coordinating several owners on a block -- necessary to find a joint operation of ESCOS
  (1 coordinator or tendering for 1 ESCO) - guidance through the city is needed in order to scale up and provide for a roll out of the approach

Fail factors and risks

- **fail-factors**:
- ESCO controlling itself, mistrust, not enough capital for development phase or for investment.
- **Constraints:** too low energy costs, legislative framework/regulations in social housing, lack of information on the building, technical installations (plans, technical specifications, measured data → cost factor for the ESCO!)
- Limited scope: focus on individual buildings, does not relate to the overall development/transformation
- short–to mid-term perspective (5- 8 years) for business clients

- **Risks:**
- for the ESCO: financial market risks (interest rates), change of ownership – change of plans (→ exit strategy in contracts for both sides needed)
- for the client: energy prices need to be flexibly built into the contract, what output quality does the ESCO provide ? → how to select a capable ESCO ?
- Notice: ESCO has a disincentive to invest in the building itself, like isolation between the walls. If the client goes bankrupt and sells the building, the ESCO can't take the investment out of the building.

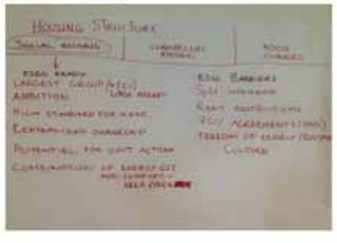
Role of the government

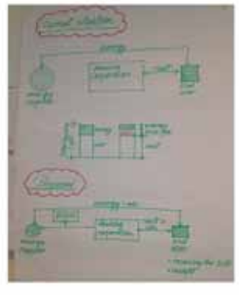
- **City support** through neutral guidance, tendering, expertise, legal advice, standard contract, research, urban planning&development, energy strategy , public communication, → integrating and coordinating effort needed by thrustworthy longterm partner (see platform idea).

→ City + ESCOs, stakeholders, owners, researchers, citizens
→ Private and city approaches to be integrated: Public activities (zoning, public spaces, infrastructure …) linked with overall energy strategy and private (ESCO-initiated) activities.
→ Bringing the ESCO in position/ make it possible to scale up
→ Communication and promotion: raise awareness

Case: Housing Holendrecht

CASE: Social Housing





Social Housing – high savings potential, largest group (85%)
1 big owner - refitting needed in any case
Business case: raise rent, reduce energy costs, tenants pay total costs like today
→ advantage for housing corporation: image, attractive houses, efficient in-house infrastructure, lower life-cycle costs
→ ESCO: if it is the housing corporation, investment can be planned
→ tenants: better fittings, refurbishment combined with energy system improvement; potential to lower total costs after payback period ??

Problems: energy procurement vs. Individual freedom to choose; energy labelling limited raise of rent - not high enough

Specific remarks per function

Housing:

Housing corporation is an interesting long term responsible party that could involve an ESCO.

Current constraints:
Corporation can't take the rent up, even if the total costs for the tenants would decrease. This is because of national regulation. A better energylabel gives the opportunity to raise the rent just a little. Investment costs and hassle would be for corporation. (split incentive)

70% of tenants must agree with refurbishment (national law). They will be more willing if other work is done in the apartments at the same time.

End-users have the right to choose each their own energy provider...

Chance: 30% of tenants don't want to return after outplacement. New tenants can be directly askes a higher rent.

Offices:

Lot of buildings with bad insulation: late 70-ties
Officemarket is bad. Energy as new selling point: high datacapacity and energy intensive without paying more and with green image (branding).

Moment of decision to join in a new district energy system (heating/cooling) differs per building. Only when the climatemachines are written off, a new moment of choice exists.

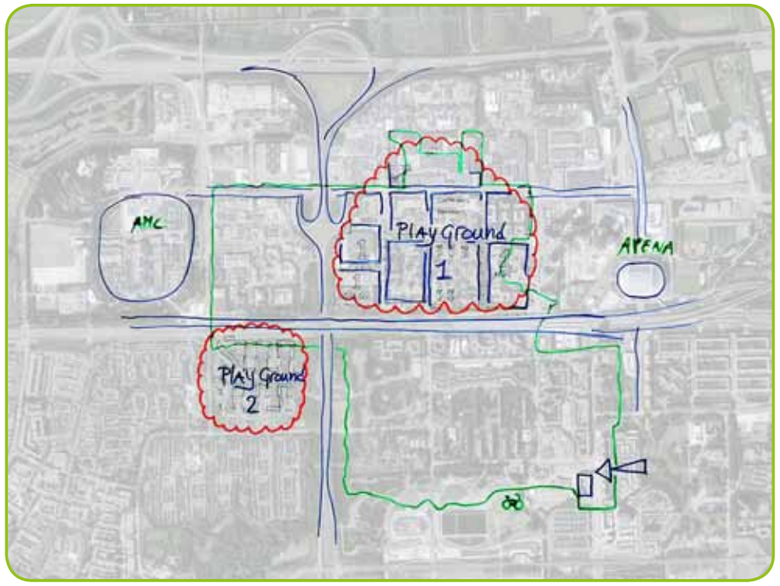
Other opportunity: empty office, easier to renovate.

Opportunities: there are firms/companies in the area with knowledge about energy and construction.

Industry (light), Breevast:

endusers pay electricity and gas to Breevast if they want to buy cheaper.
Datacenters don't join: have their own contracts with energysuppliers.
Breevast looked at possibilities for a joint system with heatcoldpump.
Conclusion: not possible: investment to big (3 years rent equivalent) and old system still working. Other problem: still heat in the Breevast area left and not possible to sell it. And how stable is the system if one datacenters leaves?

Possibly interesting:
Join an initiative on a larger scale
New buildings could more easily join a new system.



Presentation 3 Public action

public action

- awareness
- infection
- action

Behaviour change on the short and long term

To come to action, people need to be inspired or touched by topic, people and form. To get people into action to think of and act to the 20-20-20 goals it needs to be low brow, and easy. In this presentation we focus on 3 approaches to get people of South East into action:

- awareness
- infection
- action

It is all about behavior change on short and long term.

ZET IN OP ZONNIG ZUIDOOST!

PLACE YOUR BET ON SUNNY SOUTHEAST!

The Public Action group proposed the following:

Rising awareness by play and fun.
50% of the Dutch people like to gable. They like to win! This proposition is about a game on the local market of Amsterdamse Poort. (every day the sunshine is different, each day the clouds are different, so nobody can exactly know the answer, it is only a guess. This uncertainty factor is essential in this game)

People can guess the amount of kWh's one solar panel is producing each day. Each day there is a price. This price is provided by the local retailers. They supply a coupon with a discount, a small gift or another small service.

This way people are invited and challenged to think about solar energy in a fun way. They will talk about it and exchange their tactics. The kWh they bet on, is something that you can save yourself. This is the role of the lottery ticket sellers, to not just be a ticket sell person but also an informant about solar energy.

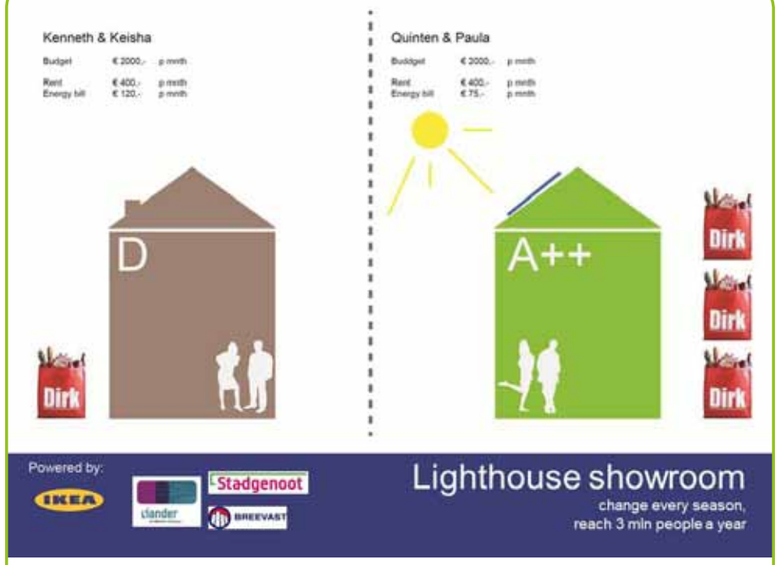
The retailers are involved by the prices and can be informed about energy efficiency of their store at the same time.

And the 20 20 20 goals are getting more and more aware through daily street talk.

Social side effect…

addiction to gambling…

Start tomorrow on the market and start small!



Second approach is infection
To use the strategy of infection you need places and institutes which are good in infecting people with new trends and purchases. No better store then IKEA. 3 million people each year visit IKEA Amsterdam Zuidoost. The region of Amsterdam is 1,5 million people. So on average everybody is visiting the showrooms of IKEA twice a year.

IKEA is an sustainable company, with small wrappings, do it yourself constructions and all recycled paper, IKEA wants to contribute to the world. They sell a lot of stuff that can decrease your energy bill. They can provide two showrooms of two families, both with the same income and cost structure. But the one has solar panels, good isolation an A+ equipment. The investment is higher but the save costs every month. So, on the end they can buy or do nicer things.

continued presentation 3 Public action

Another infection is through the employees of IKEA. They are the best ambassadors of IKEA stuff and energy savings. It's connected to the PLAYGROUND 2 of the other group.

Their house become lighthouses, just like the showrooms of IKEA. They will inform their friends on a natural way about the changes they made in their house, and the benefit they experience.

Third infection is through existing community centers and schools. To put solar panels and energy efficient equipment in the community centers, people will see an example. Not just the physical part but also the social/guiding part is important. A team of people need to give workshops/training about energy bill savings, energy efficiency in your own house hold. Showing how it works at the community center will inspire people to copy that.

Schools can give educational programs to children which indirectly reach the parents.

This way people can get infected by the energy saving virus. On the playground, in the IKEA and at their neighbors suddenly the conversations are about energy.

Now get ready to get into action.
All these approaches and ideas are nice but are all needed to be implemented. The action plan of the Public Action team shows a strategic scheme where to start and what the midterm and long term goals can be.

Appendix 4: Evaluation

ILS workform

Positive evaluation of the ILS-method: interactive, enough information and variety of workforms and high quality of expertise present, availability of the stakeholders, good atmosphere, focus on product.

The presence of stakeholders is valued very much. Suggestion is to involve the stakeholders more during the next Intensive Lab Session. It is important that stakeholders are present at the same time, to provide stakeholder exchange.

The international experts are important. They bring in knowledge, examples and ask the right questions.

The ILS helps in building a stakeholder platform. For the next ILS, stakeholders should be involved in the organization of the ILS - to be precise: to formulate the assignment and search for the question behind the question.

Therefore it should be clear what the position of the ILS is in a bigger transformation process/agenda as a central road-map. It would help for the ILS if the next steps are already clear. Place the Intensive Lab into the context.

Sometimes the Amsterdam workshop was too dynamic. (1) People coming and going, (2) multiple principals: local stakeholders, local politician, SMART-city, director Climate & Energy, and (3) two "end"-presentations.

Good interaction in and between groups.

Important addition to the program: ensure enough time for the presentations, ensure time to discuss the assignment with the local stakeholders to search for the question behind the question, urgency or 'to what problem is this the solution?'

It was added that PESTLE was not clear as a 'guiding principle' in the Intensive Lab. It's place should be more clear or another method could be used like the triangle 'smart spaces, smart infrastructure, smart social design', as a guiding principle to tackle the 202020 indicators.

Evaluation questions in advance

1. What did go well in the Intensive Lab Session? What do we want more of in the next one? What do we leave in Amsterdam and what do we take to the next Intensive Lab session
2. What are the experiences with the Smart Urban Lab Amsterdam, what is good, what could be improved? What are the lessons for other SUL's?
3. What do we take to WP 2 and 3? What are essential learnings in terms of key considerations?
4. What can we take to the EC from the project until now? FP7 procedures? Content wise? From the SUL's? Agenda wise? Horizon 2020?

Content: most important insights and questions

- Bring business models (private sector) into a city's system thinking (public sector), in order to roughly understand the scope, size and impact of the assignment.
- EC should support more collaborative implementation and demonstration projects, with a focus on research and development, instead of industry politics.
- EC: need for directive to make detailed energy data available to cities.
- EC: is it possible to create a level playing field in Europe for energy investments? Because due to difference in context, investments in green energy are likely to fall to the same areas in Europe.
- Heating & Cooling: A vision was developed for South East, an inventory was made of possible and different kinds of heating, and a realistic case study for SouthEast with proposals was made. However, very few examples of implementation of these vision in Europe are . There is a need for further research on: technical feasibility, transitio nal aspects, like feeding in and out of sources, changing of functions and owners, planning aspects like: matter of scale (planning a building versus planning a infra-structure), legal aspects, investment cycles, demand organization.
- ESCO's were found to be not uniform but pluriform, different levels of services and complexity, and scale in ownership. The question is, if this pluriformity can be handled by one company.
- ESCO: The reason for non-success so far is pluriform:
  - ESCO & Housing: split incentive; financial benefit, right to choose your own energy provider, tenant participation
  - Offices: big chance for success… tackle problem of owners at ad distance… Asks for information: when is the natural moment?
  - Light Industry: Least chance for success: short invest-ment cycles, satisfaction with actual systems, no need for change
- ESCO: tension between flexibility in the energy market and choice for providers and ESCO life cycle of 15 yrs. It is about TRUST on the long term.
- ESCO: New ways of looking on how to scale-up planning and implementation of ESCO's in an area by coordinated action. This hypothesis needs testing in playgrounds.
- ESCO' overview of possibilities and specific constraints per subsector (housing, offices and light industry).
- Public events: make energy interesting by introducing gaming elements and winning opportunities like gam-bling about solar panel benefits.
- Public events: IKEA can play an important role. Combine an example house in the IKEA with a project aimed at local employees.
- Local conditions for success should be more explicit. Why would it work here? When would it work somewhere else?

The Amsterdam Transform Team

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WP 3 Energy atlas

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WP 4 Public action

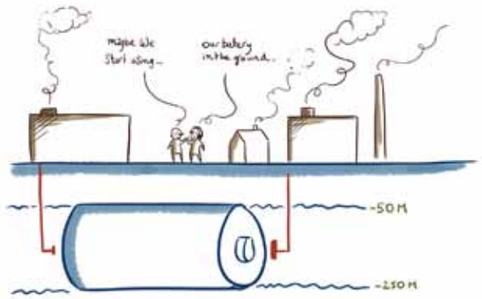


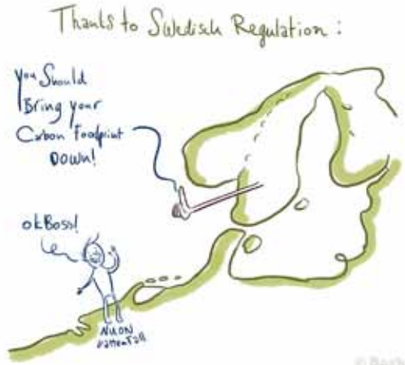










maybe we start using...
our battery in the ground...
-50 M
-250 M

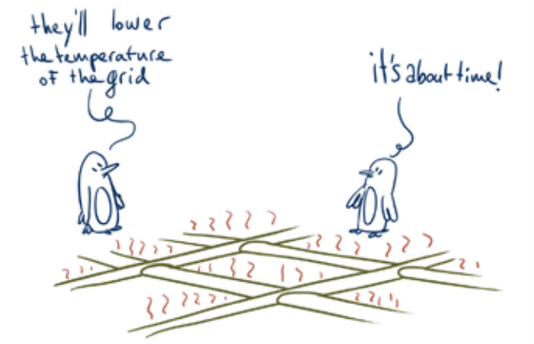

Thanks to Swedish Regulation:
You Should Bring your Carbon Footprint DOWN!
ok Boss!


Datacenter
Heat


as a Starter I like to have an empty building...
We have lots of them!
ESCO Menu


interested in Solar energy?!
leave me alone
im just A visitor!


Buying energy together
Cosy
yes


they'll lower the temperature of the grid
it's about time!


Cool Technology!
unfortunately nobody knows why and How to use it


Heating
Cooling
Defining a Strategy...
Starts under an umbrella


i feel a mismatch in temperature...
...and time and place!


kennet about energy use?
i'm Surviving!
I don't care


esco Playground