

## ELENA Application Form

The EIB accepts proposals in English and French.

For the application of funding under the ELENA facility the following form<sup>1</sup> must be used.

### **Content of ELENA application form:**

1. Applicant's identification
2. Applicant's situation
3. Presentation of the Investment Programme
4. Description of the Project Development Service
5. Overview table: Milestones presentation for measuring leverage factor
6. Estimated cost and finance
7. Declaration by the applicant

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<sup>1</sup> As an indication, chapters 3-5 could be presented in a sufficient way on around 10 pages

<b>1. Applicant's identification</b>					
<b>Organisation Name</b>		Province of Zuid-Holland			
<b>Legal Status</b> <i>(for a private entity please provide a justification of your legal existence e.g. certificate of registration)</i>		Public organisation			
<b>Address of the applicant</b>					
<b>Street Name and Number</b>		Zuidhollandplein 1			
<b>Post Code</b>	2596 AW	<b>Cedex</b>		<b>Town/City</b>	Den Haag
<b>Country</b>	Netherlands				
<b>Person in charge of the project</b>					
<b>Gender</b> (Ms, Mr)	Mr	<b>Title and Function</b>		Sr. policy advisor Energy transition	
<b>Family Name</b>	Van der Maas				
<b>First Name</b>	Arien				
<b>Telephone No</b>	0031 650083916				
<b>E-mail</b>	am.vander.maas@pzh.nl				

## 2. Applicant's situation

### 2.1 Description of applicant, type of public authority/public body or private entity



The province of Zuid-Holland is a regional authority in the Netherlands. The province is responsible for (i.a.) roads, public transport, nature and spatial planning. It also focuses on strengthening the regional economy and facilitating the energy transition.

The province is one of the most densely populated regions in Europe with 3.6 Mln. inhabitants within an area of 3.418 m<sup>2</sup>. It comprises of 52 municipalities. These are local authorities with responsibilities on local roads, social security, schools etc.

Using its position, knowledge and network, the province of Zuid-Holland is working on the transition towards a sustainable economy.

### 2.2 Have you established a Sustainable Energy Action Plan or similar documents (e.g. climate action plan, national building renovation strategy, energy plan, sustainable mobility plan, etc.)? For private entities please present the corporate strategy or any relevant document which refers to the planned investments.

#### **List of plans with short summaries. Please also provide web link if publicly available**

The Province of Zuid-Holland created and adopted an action plan in 2015, named "WATT ANDERS" (WATT DIFFERENT), see <https://www.zuid-holland.nl/onderwerpen/energie/energieagenda/@21901/energieagenda-watt/>

It sets out the provincial energy transition targets with corresponding activities for the themes: electricity, heat, built environment, industry and mobility. This plan is due for an extensive update in 2020. See further the regional targets as described in 2.3.

### 2.3. Local, regional and national targets relevant for the eligible components of the Investment Programme that are being requested to be supported by ELENA.

Please mention if the targets come from any of the above listed plans in Section 2.2

#### **Local targets**

All municipalities in the Netherlands are partner in the 2019 NL Climate Agreement. They have implemented the goals of the Paris Agreement in their local sustainability policies. Most of them set out the ambition to achieve energy-neutrality by 2050 and have formulated intermediate goals for the steps in between

2.3 Local policy goals			
Municipality	Document	Main goals	Regional strategy
Alphen a/d Rijn		Energy-neutral in 2050: energy reduction, sustainable energy production and completely phasing out the use of natural gas	<a href="#">Energieakkoord Holland Rijnland</a>
Den Haag	<a href="#">Kadernota Duurzaamheid</a>	The Hague energy-neutral in 2030; 25,000-30,000 houses in 2024.	<a href="#">Energiespectiekief RES MRDH</a>
Gorinchem	<a href="#">"Beleidsplan duurzaamheid 2017-2021"</a>	By 2032 a large number of houses should be more sustainable and off natural gas.	
Kaag en Braassem	<a href="#">Raadsbesluit</a>	Reduction of 163 TJ in energy usage, producing 170 TJ sustainable energy in 2025.	<a href="#">Energieakkoord Holland Rijnland</a>

	<a href="#">Energiestrategie, urgentie in beeld</a>		
Katwijk	<a href="#">Duurzaamheidsagenda</a>	Energy-neutral in 2050, CO2-reduction to near zero levels. Sustainable heating systems.	<a href="#">Energieakkoord Holland Rijnland</a>
Rijswijk	<a href="#">Energievisie Rijswijk</a>	Collective heat sources are for most part of the town the best solution for heating without natural gas. Residual heat from the Port of Rotterdam industries and aqua thermal have been identified as the most viable solutions.	<a href="#">Energiesperpektief RES-MRDH</a>
Rotterdam	<a href="#">Coalitieakkoord 2018-2022</a>	2030 CO2-production 49% less then the 1990-production; from 2022 CO2-prodction is shrinking, in 2030 10.000 houses are not using natural gas anymore.	<a href="#">Energiesperpektief RES-MRDH</a>
Schiedam	<a href="#">Klimaatbeleidsplan Schiedam 2016-2020</a>	30% CO2 reduction in 2030; 2.5% annual reduction of energy consumption of houses, solar electricity and solar heat production on housing blocks,	<a href="#">Energiesperpektief RES-MRDH</a>
Zoeterwoude	<a href="#">Duurzaamheidsprogramma</a>	Energy-neutral in 2050; 1.5% annual reduction of the total energy consumption of houses, solar electricity and solar heat production on houses.	<a href="#">Energieakkoord Holland Rijnland</a>

### **Regional targets**

The regional targets for improving the sustainability of the built environment are those of the Province of Zuid-Holland. These are the following:

- All new houses and buildings will be constructed free from natural gas as of 2018.
- The existing housing stock must be free of natural gas as of 2040.
- Non-residential construction is to have at least energy label 'C' by 2023.
- All municipalities must have a Heat Transition Vision in 2021 at the latest, which states how and when districts will phase out natural gas.
- All municipalities must have drawn up a regional energy strategy (RES) by 2020, which states how much sustainable energy can be produced in the region, how much space it requires and which priority is given during the implementation of the alternative energy sources.

### **National targets**

The national targets are included in the 2019 NL Climate Agreement; the main general target is to reach a CO<sub>2</sub> reduction of 49% in 2030 (compared to 1990). For the built environment, a reduction target of 3.4 Mton applies for the whole of the Netherlands in relation to the reference scenario.

<https://www.klimaatakkoord.nl/binaries/klimaatakkoord/documenten/publicaties/2019/06/28/national-climate-agreement-the-netherlands/20190628+National+Climate+Agreement+The+Netherlands.pdf> (summary in English)

<https://www.klimaatakkoord.nl/binaries/klimaatakkoord/documenten/publicaties/2019/06/28/klimaatakkoord/klimaatakkoord.pdf> (Complete Dutch version)

## **2.4 Are you a member of the Covenant of Mayors?**

No, but some of the participating municipalities are: The Hague (2008), Rotterdam (2009), Schiedam (2013).

## **2.5 Do you have previous experience with European Commission (EC) funded projects?**

<b><i>List of previous EC programme experience</i></b>						
<b>Project name</b>	<b>EC support programme</b>	<b>Amount received in EUR</b>	<b>Dates</b>	<b>Purpose of the project</b>	<b>Project website</b>	
MET-Certified	Interreg 2 Seas	Observer	1/9/2016 - 31/12/2019	MET-CERTIFIED aims to increase the adoption of insurable and therefore bankable marine energy projects in the 2 SEAS region through the development of internationally recognised standards and certification schemes in the sector.	<a href="#">Link</a>	
STAR2Cs	Interreg 2 Seas	Observer	13/7/2017 - 28/2/2021	STAR2Cs brings together 8 partners to overcome similar challenges across the 2 seas in increasing climate change adaptation. The project is developing and testing a model and supporting tools to help deliver local adaptation, including an e-tool to support adaptive planning, a knowledge and capacity building service to increase participation in 'future proofed' decision making and 8 implementation pathways to deliver local adaptation.	<a href="#">Link</a>	
S34Growth	Interreg Europe	173,655.00	1/4/2016 – 31/3/2020	In the S34Growth project, 10 European regions from 8 countries develop an innovative interregional element to their structural fund policy instruments, supporting the renewal of Europe's industry and competitiveness.	<a href="#">Link</a>	
Smart Pilots	Interreg Europe	160,867.00	1/4/2016 – 31/3/2020	SmartPilots' objective is to improve regional policies in support of Shared Pilot Facilities (SPF) to increase their impact on the Key Enabling technology (KET) Industrial Biotech and the bio-economy.	<a href="#">Link</a>	
SWARE	Interreg Europe	107,165.45	1/4/2016 – 30/9/2020	What SWARE strives for is achieving a better balance between protection and sustainable exploitation of the valuable natural and cultural resources through improving the development programmes and policies of the partner regions, based on the transfer of good practices of other participating regions.	<a href="#">Link</a>	
FRAMES	Interreg North Sea Region	484,242.00	28/9/2016 – 29/9/2019	FRAMES aims on increasing the resilience of areas and communities by working with the Multi-Layer Safety (MLS) Concept. The MLS concept is a policy strategy that integrates measures for: prevention, mitigation via spatial planning and emergency response.	<a href="#">Link</a>	
NEXTGEN	Horizon 2020	116,250.00	1/7/2018 – 1/7/2022	NextGen evaluates and champions transformational circular economy solutions and systems around resource use in the water sector. It aims to challenge embedded thinking and practices by bringing financially sustainable innovations to life.	<a href="#">Link</a>	
NEFERTITI	Horizon 2020	59,643.00	1/1/2018 – 1/1/2022	Under the project NEFERTITI 10 interactive thematic networks will be established bringing together 45 regional clusters (hubs) of demo-farmers and actors involved (advisors, NGOs, industry, education, researchers and policy makers) in 17 countries. The project NEFERTITI focuses on creating added value from the exchange of knowledge, actors, farmers and technical content between networks in order to boost innovation uptake and to improve peer to peer learning and network connectivity between farming actors across Europe.	<a href="#">Link</a>	
CLINSH	LIFE	1,900,000.00	1/9/2016 – 31/8/2020	CLINSH is a European consortium promoting clean waterway transport. Within CLINSH Dutch, Belgian, German and English public and private organizations work together. The main objective of CLINSH is to improve air quality in urban areas by accelerating	<a href="#">Link</a>	

				emission reductions in Inland Waterway Transport.		
SecureNL	CEF	238,920.00	1/11/2018 – 31/12/2022	SecureNL aims at the development and construction of 765 parking places at four safe and secure parking areas (SSTPAs) for Heavy Goods Vehicles (HGVs) that operate with digital real-time information systems, on the North Sea-Baltic, North Sea-Mediterranean and Rhine-Alpine Core Network Corridors.	<a href="#">Link</a>	
JIVE2	Fuel Cell and Hydrogen Joint Undertaking	3,100,000.00	1/1/2018 – 31/12/2023	The JIVE 2 (Joint Initiative for hydrogen Vehicles across Europe) project seeks to deploy 152 new zero emission fuel cell buses and associated refuelling infrastructure across 14 European cities throughout France, Germany, Iceland, Norway, Sweden, the Netherlands and the UK.	<a href="#">Link</a>	
Smart Hy-Aware	Interreg Europe	170,573.75	1/8/2019 – 31/7/2023	SMART-HY-AWARE aims to promote hydrogen-electric mobility by tackling main infrastructural, technological (range anxiety related) and market uptake barriers related to hydrogen for electro-mobility through the improvement of PI linked to Structural Funds in Europe, addressing the transition to a low carbon economy.	<a href="#">Link</a>	

## 2.6 Experience with implementation of similar investment programmes

The province of Zuid-Holland has extensive knowledge and experience of managing large-scale and complex programmes and projects. The province runs large-scale and long-term programmes concerning the energy transition (see 1 in table below), traffic and transport (see 2 in table below) and the development of the regional green and blue space (see 3 in table below). To successfully deliver these programmes the province has to align and interact with a variety of parties on different levels of scale. Together with our partners in the area we work towards the development of plans which contain concrete agreements to develop and maintain projects. These include technically complex designs, but also financing arrangements, land acquisition and governance issues around management and exploitation. To ensure that the programmes and projects are delivered on time and within budget, we use strict programme and project management. Some examples are included in the table below.

In addition to substantive knowledge, there is a lot of expertise and capacity in the field of procurement, project management and communication in order to successfully manage the ELENA programme “Duurzame wijkwarmte in Zuid-Hollandse Gemeenten”

Programme name	Role of the beneficiary	Size of the programme	Dates	Purpose of the programme	Website (only in Dutch)
1. Energie agenda WATT Anders	Stimulating, financing, coordinating and implementing	About 135 million euros	2016-2020	<ul style="list-style-type: none"> <li>- Contribute to 7.8 PJ energy savings and the transition in industry, the built environment (residences &amp; buildings) and greenhouse horticulture;</li> <li>- Promote that 20 PJ will be residual heat and geothermal energy in greenhouse horticulture and the built environment;</li> <li>- Enabling 735.5 MW to create power for wind energy on land;</li> <li>- Stimulating innovations.</li> </ul>	<a href="https://www.zuid-holland.nl/onderwerpe/energie/energieagenda">https://www.zuid-holland.nl/onderwerpe/energie/energieagenda</a>
Transition to natural gas-free districts	Support, coordinator and facilitator	6 million euros	2018-2021	Deployment of 12 transition advisors by the province of Zuid-Holland in order to support municipalities to achieve a Heat Transition Vision in 2021.	
Regional Energy strategies South Holland	Coordinator and facilitator	NA	2019-2022	For 7 regions within Zuid-Holland the province collaborates with stakeholders in these areas to create policy strategies for generating sustainable electricity, heat transition in the built environment and the	<a href="https://staatvan.zuid-holland.nl/portfolio_page/res-strategieen/">https://staatvan.zuid-holland.nl/portfolio_page/res-strategieen/</a>

				necessary storage and energy infrastructure.		
Getting started together	Subsidy provider, driver and facilitator	6.5 million euros	2017-2020	Professionalization of local energy initiatives in Zuid-Holland.		
Task onshore wind energy	Director	NA	2017-2020	Identifying areas for realising onshore wind energy: task Zuid-Holland 735.5 MW in 2020		
N211 gives energy	Owner and driver	11.5 million euros	2014-2019	Energy transition in renovation infrastructure with some 20-numerous innovations in collaboration with difference companies.	<a href="https://www.zuid-holland.nl/onderwerpen/energie/energiewegen-0/n211-geeft-energie/">https://www.zuid-holland.nl/onderwerpen/energie/energiewegen-0/n211-geeft-energie/</a>	
Steam pipe Rotterdam Botlek	Driver, subsidy provider	12 million euros	2012-2017	Construction of a steam pipe in Botlek area, so that companies can use each other's residual energy. Saving fossil fuels and CO2 emissions. Signing Greendeal Rotterdam Climate Initiative by 5 parties.		
2 infrastructural programmes	Performer, driver, financier	on average EUR 40 million pro year and additional funds	(annually adjusted, 30 years)	Conservation, improvement and construction of regional infrastructure (roads, waterways, public transport, cyclepaths)	<a href="https://www.zuid-holland.nl/onderwerpen/verkeer-vervoer/programma-zuid/">https://www.zuid-holland.nl/onderwerpen/verkeer-vervoer/programma-zuid/</a>	
Rijnlandroute	Owner and performer	900 million euros	2017-2022	A new road connection from Katwijk to Leiden for economic development and accessibility of the region.	<a href="https://rijnlandroute.nl">https://rijnlandroute.nl</a> <a href="https://www.vinci-construction-projets.com/en/realisations/rijnlandroute/">https://www.vinci-construction-projets.com/en/realisations/rijnlandroute/</a>	
3.The Implementation agenda Rijke Blauwgroene Leefomgeving	Driver, financier, performer, coordinator	About 40 million euros per year	2015-2023	Maintaining and improving a healthy and rich green-blue living environment (nature, landscape, agriculture, water)	<a href="https://www.zuid-holland.nl/onderwerpen/landschap/">https://www.zuid-holland.nl/onderwerpen/landschap/</a>	

### 3. Presentation of Investment Programme

#### 3.1 Location of the Investment Programme

##### Overview of location

The investment programme is located in the province of Zuid-Holland in the Netherlands. For 10 projects the Province has made arrangements with 9 municipalities (the shortlist). These projects will certainly take part in the programme.

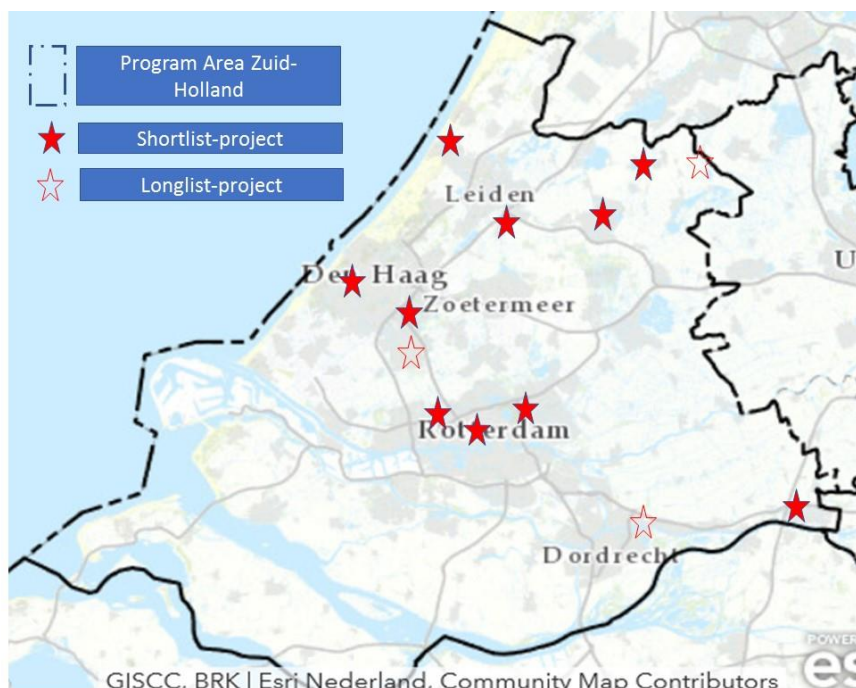
1. Alphen aan de Rijn (Planetenbuurt)
2. Den-Haag (Vruchtenbuurt)
3. Kaag en Braassem (Rijnsaterwoude/Leimuiden)
4. Katwijk (Hoornes)
5. Gorinchem (Gildewijk)
6. Rijswijk (Te Werve)
7. Rotterdam (Bospolder/Tussendijken)
8. Rotterdam (Prinsenland/Lageland)
9. Schiedam (Groenoord)
10. Zoeterwoude (Hoge Rijndijk)

In addition, we have identified and will keep identifying other projects in our province involving energy efficiency and sustainable heating measures in the built environment. At this time their planning does not fit the ELENA programme. However, they can be included over time when changes in their planning might occur, allowing subsequent support of the programme to accelerate further development. Two of such projects are on this *longlist* already:

11. Nieuwkoop (Schoterveld)
12. Sliedrecht
13. Delft

The projects on the shortlist are described in Appendix I “*Overview Projects*” worksheet “*General Info*” and Appendix II: “*Location and short description shortlist projects*”. In Appendix I the information of the separate projects is described and cumulated for the programme. The cumulated information has been transferred to this application.

##### Map





### 3.2 Role of the applicant and other stakeholders in the Investment Programme

#### Role of the applicant in the Investment Programme

##### Province of Zuid-Holland

- Applicant
- Contact to EIB and EC
- Co-financing of technical assistance
- Recruits the ELENA programme team
- Structures and supervises the progress of the technical assistance via the Contact Point
- Facilitates and procures the contracts for the technical assistance via the Contact Point

#### List and role of other stakeholders involved in the Investment Programme

Each project has its own, specific characteristics and stakeholders.

The **municipalities** play a pivotal role for each project in the programme. The local project organisations formulate the required technical assistance and via the municipality the request is directed to the provincial Contact Point. The municipalities are responsible for monitoring the project results and the final investment decisions and report this to the provincial Contact Point.

Common partners in a typical project are:

**The municipality**, mostly as one of the initiators, and often in a directing, facilitating and financing role.

The local **social housing corporations** play a role in each project, being responsible for a great part of the measures to be taken inside the houses, often as an initiating partner and a launching customer of a heat network.

Where aquathermal energy plays a role, the **Waterboard** or the **Drinking water company** plays a role as an initiator and facilitator of the heat source. In other projects the producers of residual heat are (to be) involved.

**Private homeowners** play an important role in most projects: they decide about insulation measures and the connection to a heat network. In all projects communication, participation and marketing is necessary to get the house owners involved. In the Vruchtenbuurt (The Hague) house-owners have even initiated the project.

In some projects the **operator** of the heat source and the district heating network is already known. In this case they are an important partner in the development of the project and are participating in the project organisation. In most projects however, the exploitation of the source and network has to be tendered. The preparation of the tender (and the way of tendering) is in those cases part of the technical assistance.

Appendix IV describes the main stakeholders in each project, including the extent to which they are involved to date. Documents of their participation in the project (e.g. letters of intent or (draft) agreements) are copied in.

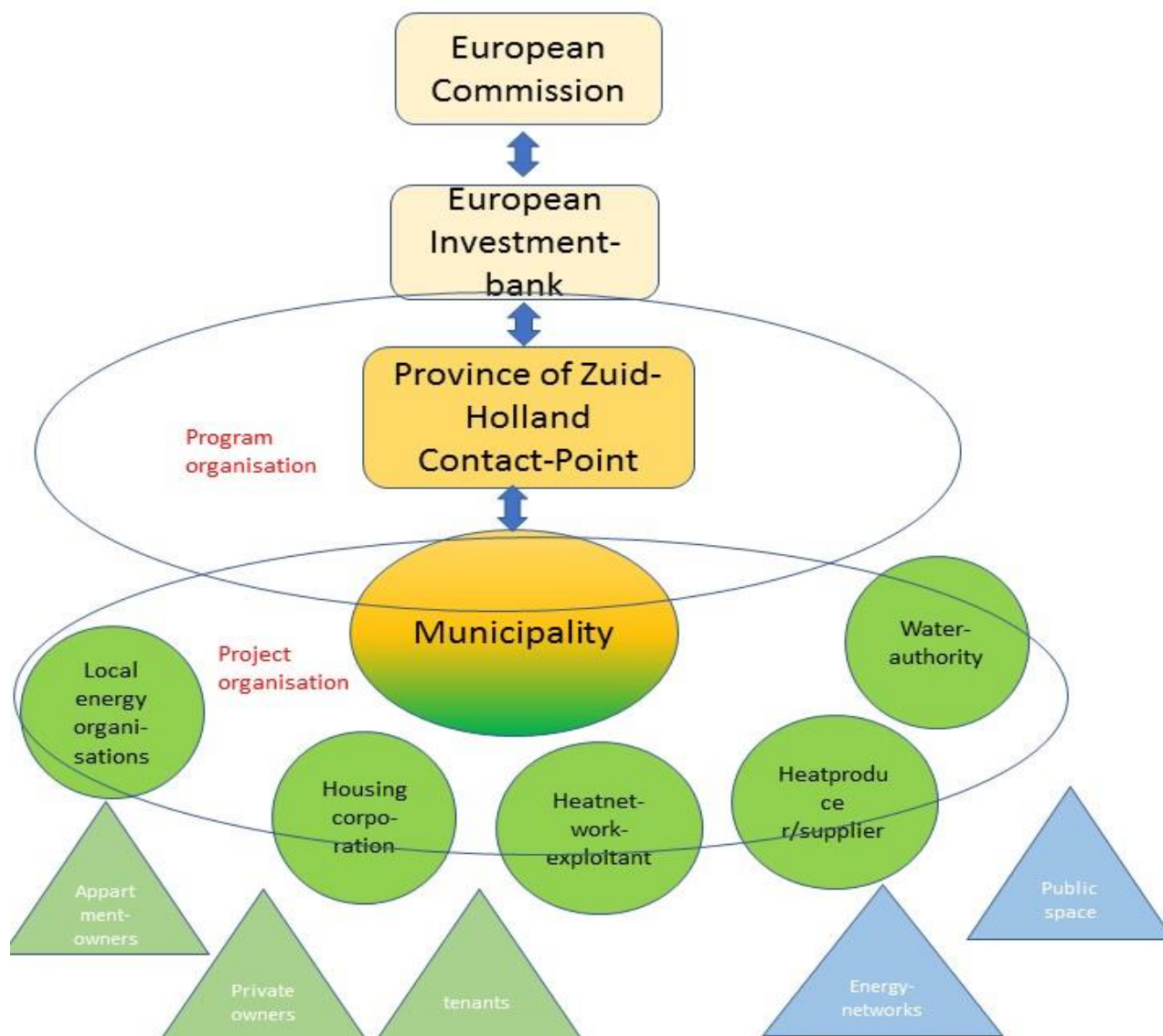
Other stakeholders that are less directly involved in the projects include:

- The tenants are the final users and have the right of consent. Via communication and participation they will be involved.
- Unions of Owners of apartment buildings sometimes play a role as launching customer. In all cases they need special attention because of their specific financing situation and decision making structure.
- The distributors of the gas and electricity networks are involved as the projects have an impact on the use of these networks.
- The building of a heat network has an influence on the public space and all the on- and underground infrastructure. All parties in public space are therefore involved. The municipality has a coordinating role in the allocation of space and coordination of works in the public space. Combining with other spatial actions in the neighbourhood can speed up the planning (it can in fact be a reason for the selecting a project, e.g. in Alphen aan den Rijn), but also a risk for delay. As the measures are situated in existing urban areas, we don't expect great impact on the environment. Environment Impact Assessments are not expected to be required.

- In all projects a financing model has to be worked out. Local, regional and national financing partners have to be interested to invest in the projects. This concerns public as well as private organisations. To get them involved, the financial and marketing part of the technical support will be used.

**Diagram showing relationship between all parties**

(Next page)



**3.3 Description of the planned Investment Programme, giving details on the eligible components that ELENA is being requested to support**

**Overview of planned Investment Programme**

Municipalities and end-users together face the challenge of making the heat supply of residential areas more sustainable. Besides the more traditional high temperature heating networks, utilising low and/or middle temperature heat sources seems the most viable option for heating large parts of the built environment in Zuid-Holland in a sustainable manner. All over the province projects are developed by municipalities and their partners. Accomplishing a more sustainable heat supply requires investments in the entire chain: from the energy source itself, all the way to alterations in the homes of end-users. We have identified three essential links in the heat supply chain that translate into our investment priorities for this ELENA application:

- Energy Efficiency (EE) in housing units.
- District Heating (DH) networks
- Renewable Energy (RE) sources

Together with the municipalities we identified 10 projects, all of which are currently in the stage of preparing for Final Investment Decisions (FID) in order to commence the realisation phase. This Investment Programme is based on these 10 projects (the shortlist), but there are more projects in development. As for these projects the planning is less rigid, they are on a longlist and may become part of the programme in case projects on the shortlist face delays.

The 10 individual projects invest in the three priorities as follows:

Project	Energy Efficiency	Renewable Energy	District Heating
Alphen aan den Rijn			
Den-Haag			
Gorinchem			
Kaag en Braassem			
Katwijk			
Rijswijk			
Rotterdam (2 projects)			
Schiedam			
Zoeterwoude			

**Description of each eligible component that ELENA is being requested to support***Energy efficiency:*

In most projects (6 out of 10), improving the energy efficiency of houses plays a major role. Depending on the actual state of the houses and buildings, the concrete measures will be implemented based on energy audits and detailed technical research (as part of the Technical Assistance). Common measures to be taken are insulation of floors, walls and roofs, and sealing of cracks and in some cases replacement of windows. In some specific cases these measures will be combined with placing solar panels.

*Adaptation of houses to be connected to a district heating system*

In 6 out of 10 projects, measures to adapt houses in order to connect to district heating network have to be taken. (In the other projects these measures are also planned, but not as a part of this ELENA programme). These measures include: removing the gas heating installation, placing a delivery set and the indoor pipes to the network. Depending on the quality of the house and the temperature of the heat to be delivered, additional measures are planned such as: renewing the radiators, renewing the internal heat network, an hot water booster, and adapting the electric installation for induction cooking. In some projects individual heat pumps can be part of the new heating system.

Investments in energy efficiency and adaptations for connecting to a district heating system will be carried out in one integrated process. In the ELENA programme the investments are therefore not separated. In two projects (Gorinchem, Alphen aan den Rijn) investments in energy efficiency and adaptations for the heat network in public buildings might be part of the project.

*Realisation of a new district heating network*

In 9 of the 10 projects, the realisation of an district heating network is part of the project. In 8 projects a new network will be constructed. In 2 projects it concerns the expansion of an existing network (Rotterdam).

Depending on the heat sources available and the state of the houses to be heated, the network will be designed for a delivery temperature of (about) 90 °C (Rotterdam, Schiedam), 70 °C (Alphen a.d. Rijn, Den Haag, Katwijk, Gorinchem., Rijswijk) or a combination of 40 and 70 °C (Zoeterwoude). The measures include the building of the network from the heat source/delivery point to the delivery set in the houses that are to be connected.

#### *Realisation of one or more heat sources*

In 3 or 4 projects (Rotterdam, Schiedam and possibly Rijswijk), the district heating network will be fed by the regional residual heat network. In Schiedam the heat transfer station will be part of the eligible costs. In 5 or 6 projects heat from water is used as a source for the network, where the heat generation installation is part of the eligible costs. In one project (Zoeterwoude), also local residual heat is considered as a useful source to be developed. As the heat demand varies depending on the season and knowing that the heat production from water peaks in summer, underground heat storage is part of all aquathermal projects. As in most projects a 70 °C network will be developed, one or more central heat pumps are part of the heat production unit. In some projects (Zoeterwoude), the choice between individual heat pumps and central heat pumps (or a combination of them) has to be made, depending on the insulation state of the houses.

The last part of the heat production unit is a peak and calamity unit, necessary for extremely cold periods and in order to guarantee heat in case of maintenance and failures. In most projects this will be a natural gas driven unit when starting the heat network, with the intention to change to a renewable energy powered back-up unit as soon as possible.

The components of the new heating system are interdependent: house-owners and -users will only accept a heat network when it is affordable and trustworthy. For a 70 or 40 °C network, insulation to at least a B resp. A energy label is required in order to guarantee a warm house. Moreover, a heat network and heat source will only be developed when the demand for this particular type of heat source is guaranteed. So the production, distribution, delivery and insulation measures have to be developed in coherence.

Energy Efficiency in buildings <sup>2</sup>		Details or Value				
For each building, where available						
Characteristics	Floor Area to be retrofitted [m <sup>2</sup> ]	Average 87 m2 per house				
	Specific energy consumption before [kWh/(m <sup>2</sup> a)]	Average 230				
	Specific energy consumption expected after [kWh/(m <sup>2</sup> a)]	Average 130				
	Energy class of building before	Average D/E				
	Energy class of building expected after	Average B/C				
Proposed measure	Type of proposed measure	for each building specific measures based on energy audits to be made: <ul style="list-style-type: none"><li>• Insulation of roof, floor, walls</li><li>• Replacing windows</li><li>• Sealing of cracks</li><li>• Isolation of heat pipes</li></ul>				
Summary of buildings						
Characteristics	Total number of houses (or home equivalents) to be retrofitted	3.645				
	Total Floor Area retrofitted [m <sup>2</sup> ] Specific investment [EUR/m <sup>2</sup> ]	315.440 135				
Energy consumption	Breakdown of energy consumption by energy use in	Heating	Cooking	Lighting	Hot water	Appliances

<sup>22</sup> Only projects that invest in buildings have been included in the calculation.

	the buildings (e.g. heating, cooling, lighting, domestic hot water, etc.) [MWh/%]	65%	2%	3 %	15%	15%
		The focus of the programme is on heating. The gas consumption is in generally 80% for heating and 16% for hot water production. Cooking is only max. 4% of the gas consumption. This will mostly be replaced by electric cooking, but has a minor effect on CO2-production. Therefore it is neglected in our calculations.				
<b>Describe each proposed measure</b>	Envelope insulation	Yes				
	Windows	Yes				
	HVAC	Where a district heating network will be developed, existing heat systems will be removed and heat delivery stations will be put in place. In some situations (low temperature heat networks), individual heat pumps can be part of the system.				
	Lighting	Not in the programme, but in the individual energy audits for home owners and users installing led-lighting can be part of the advice.				
	etc.					

<b>PV in buildings</b>		<b>Details or Value</b>
		In some projects PV- panels are part of the eligible costs. In other projects the individual advice for energy savings may also concern the installation of solar panels.
<b>Characteristics</b>	Number and Type of PV panels	2040 (types will differ depending on the choice of the owners of the buildings)
	Surface of PV panels installed [m²]	3265
	Total expected capacity [kWp]	612
<b>Energy output</b>	Energy output expected [kWh/kWp]	830

<b>Connecting buildings to the heat network</b>		<b>Details or Value</b>
<b>Characteristics</b>	Number, type and efficiency of new boilers	Boilers will be replaced by a delivery set that connects to a district heating network.
	Number, type and efficiency of old boilers	Most of the homes are heated by boilers of diverse types and age. Apartment buildings are sometimes heated by a collective heating system with larger centrally placed boilers.
		Gas cooking systems will be replaced by electric cooking systems (induction). Where necessary the electric installation will be renewed.
		Where necessary radiators will be replaced by types fitted for lower temperatures.
		The in-house connection between the heating network and the place of delivery set will be made.

**District heating**

<b>District heating</b>		<b>Details or Value</b>
<b>New or replacement</b>	Outline of new network or replacement works	New district heating networks
	Fuel to be used	Depending on the location of each project (see Table Overview Projects/General info):

<i>Characteristics of the heat source:</i>		aquathermal (surface, effluent, drinking water), or residual heat (local low or regional high temperature). For peak and emergency moments, central gas boilers will be used in some projects, until other sources become available.
	(Old Fuel used, if applicable)	All buildings are now heated by natural gas
	Generation capacity [MWth]	Will be designed in each project
	Efficiency [%]	To be determined in each project
<i>Demand</i>	Size and details of clients connected / to be connected	5526 houses to be connected, average heat demand 6.96 MWth/year (after insulation)
<i>Lines</i>	Length of transmission lines [km]	NA
	Length of distribution lines [km]	28
<i>Heat price and heat supply</i>	Average cost of current heat tariff [EUR/MWh]	92.1 EUR/MWh for natural gas, which is currently the predominant fuel for residential heating (2019 prices)
	Expected future energy heat tariff for customer [EUR/MWh]	The tariff is a result of the business case of the project, but is maximised by law. In most projects the policy is: 'no higher costs for the consumer. The expected tariff will vary between € 73 and € 108, averaging € 103.
	Annual heat production [MWth]	for the buildings to be connected: 43.386
	Annual heat sold [MWth]	for the buildings to be connected: 40.430

### 3.4 Description of the approach to implement the Investment Programme, including the proposed procurement plan

#### ***Main implementation steps, including the main decision-making steps and parties***

The Investment Programme will be implemented in cooperation with the Province, the Municipalities and the other partners in the projects. On the Programme level the Province and the Municipalities organises the Technical Assistance. The Investment Decisions will be made within the projects by the parties participating in these projects. The Municipalities are responsible for linking the projects to the programme.

The Province will centrally manage and coordinate the investment programme. It is responsible for arranging the project development services based on the needs expressed by the individual projects. Moreover, the Province will be able to identify the need for similar types of technical assistance across the various projects, thereby optimising the provision of PDS and strengthening knowledge-sharing between the projects. In addition, the Province will be able to disseminate these learning experiences to other projects in Zuid-Holland, the Netherlands and Europe.

For the organisation on a programme level, see 4.3

The municipalities and the Province have committed themselves to the Programme by signing a letter of intent. (See Appendix IV). They intend to sign a contract about the realisation of the investment programme based on the EIB-Province contract. A model of the contract has also been added to Appendix IV.

In each project, agreements have been made or are to be made between the municipality and main stakeholders involved. In each project the social housing associations are involved and in many projects the operator of the heat network or the source keeper of the heat network is one of the leading parties. The commitment at this stage differs across the projects; from informal agreements, to letters of intent and actual cooperation agreements. Formal documents have been added in Appendix IV.

#### **Proposed delivery mechanisms**

*Energy Efficiency and adaptations for the heat network*

Energy efficiency and adaptation for the connection to the district heating network will be delivered by the owners of the buildings. They take the Final Investment Decision.

**Social housing corporations (SHCs)** own some 68% of the target properties and need to make 37% of the overall IP investments. Typically, they need the consent of 70% of tenants before works can start. Therefore, communication and financial design form the central part of the preparations. Once the required level of consent is reached, the Board can make the FID and procure the works. In most cases, such works (insulation and heat system adaptation) take approximately one year. All SHCs involved have already been contacted and consulted and responses have been predominantly positive – because the projects (switching away from gas) are a national social and environmental priority. SHCs see this as their responsibility to contribute to the national policy goals; they also see direct benefit to their tenants. Therefore, well-organised tenant consultations are expected to bring the desired outcome well within the timeframe needed for ELENA implementation. The table below shows the corresponding SHC for each of the 10 selected projects:

Short-listed project	Social Housing Corporation involved
Alphen a/d Rijn	Woonforte
Den Haag	N/A
Gorinchem	Poort 6
Kaag en Braassem	Woondiensten Aarweide, Stichting Meerwonen
Katwijk	Dunavie
Rijswijk	Vidomes en Rijswijk Wonen
Rotterdam Bosp-Tussendijkenolder	Havesteder
Rotterdam Prinsenland-Lageland	Havesteder
Schiedam	Woonplus
Zoeterwoude	Rijnhard Wonen

Some 20% of properties in the programme are privately owned flats (of which 8% are apartments in multi-family buildings of > 25 apartments). In these cases, the owners decide together through their **home owner association** to invest in EE and DH connection. These investments cover about 2% of the total IP. For each local scheme, a comprehensive proposal will be developed for the HOA, consisting of technical measures, financing options and procurement of the construction works. Once the FID is made, works typically take a year to complete.

The **private owners** of individual, ground-bound houses comprise 12% of the IP portfolio and represent 5% of the total investment. They decide each for themselves about the EE measures to be installed and the connection to a heat network. Most PDS for this category will focus on preparing technically, financially and practically viable refurbishment specifications, ideally in the form of package deals. Once a package is accepted by an owner, the works can start immediately and could be completed within 6 months.

In a few projects, public buildings are involved (1% of the investments). In these cases, the building owner prepares the measures and decides to invest. The investments will be realised within a year.

#### *District heating networks and heat sources*

For the delivery of the district heating networks and heat sources generally two main steps have to be taken. The first step is to make a business case for the heat system: a global design, insight in the demand and production possibilities and consent about the organisational and financial framework. In most projects this step has to some extent already been taken, but must be detailed and finished. At the end of this step, one or more parties must be contracted to produce, transport and deliver the heat (the heat network and source operator). In some projects these parties are already known or selected, in others this has yet to be done.

The second step is the detailed design and preparations for the construction of the source and network, including the contracting of a constructing party. It is in general the operator of the heat network and the source, that contracts the constructing party and so is taking the Final Investment Decision. After ordering, we expect that it will take at least 1,5 year to build the network and/or the source. These concern 55% of the total investment.

Short-listed project	Heat source		Heat network
	Water board	Heat producer/supplier	Operator of heat network

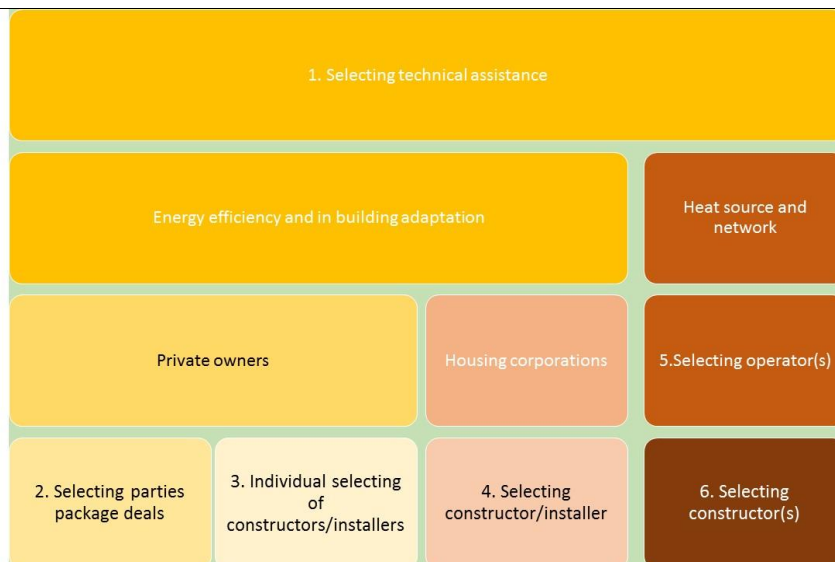


Alphen a/d Rijn	<b>Hoogheemraadschap van Rijnland</b> owns the effluent-pipe and has to agree in order to use it as a heat source. They are participating in the project and will sign the Letter of Intent	The heat producer (the same as the operator of the heat network) will be selected by a tendering process finished end 2020	The operator will be selected by a tendering process by end 2020
Den Haag	N/A	As owner of the water transportation pipe, <b>Dunea</b> has expressed their intention to deliver heat, derived from the pipe. They are going to sign the intention agreement.	<b>Netverder (Stedin)</b> (public owned network operator) is invited to develop the heat network and is intending to sign the intention agreement.
Gorinchem	<b>Waterschap Rivierenland</b> has given a letter of support	<b>HVC</b>	<b>HVC</b> has signed the intention agreement and is selected to realise the heat network and the sources. HVC is a publicly owned company for waste processing and heat distribution
<b>Short-listed project</b>	<b>Heat source</b>		<b>Heat network</b>
Kaag en Braassem	N/A	N/A	N/A
Katwijk	<b>Hoogheemraadschap van Rijnland</b> is one of the leading parties in the project and expressed their will to participate in the heat production.	See: heat network	A market canvas is in progress. By early June 2020, the City council will discuss the role of the municipality and commercial partners. After that, the selection procedure of the operator can commence.
Rijswijk	<b>Hoogheemraadschap van Delfland</b>	See: heat network	The network operator has to be selected. This is planned in 2020-2021.
Rotterdam Bosp-Tussendijkenolder	N/A	<b>AVR/Warmtebedrijf Rotterdam</b> is and will be contracted by Eneco	<b>Eneco warmte-bedrijf</b> has an existing concession for the heat network in the neighbourhood and will start building in 2021
Rotterdam Prinsenland-Lageland	N/A	<b>AVR/Warmtebedrijf Rotterdam</b>	Based on further investigation of the best solutions, the tendering of a heat network operator is expected in 2021
Schiedam		<b>Eneco</b> transports regional heat along the neighbourhood	<b>Eneco warmte-bedrijf</b> has been selected after a market consultation. As owner of an adjacent part of the regional heat network, they are in a preferred supplier position.
Zoeterwoude	<b>Hoogheemraadschap van Rijnland</b>	<b>Heineken Hoogheemraadschap van Rijnland, Warmtebedrijf Rotterdam</b>	It is expected that after further development of the plan, selection of the heat network operator can be realised in 2021.

**Proposed Procurement plan, including expected timeframe**

In the development of the projects and in the programme several procurement processes will occur:





#### 1. Selecting technical assistance:

The technical assistance will be procured on request of the projects by the province, according to the European, National and provincial procurement rules. Most of the assistance will be procured at the start of the programme. See 4.4 for more detailed information.

The following procurement process will be part of the individual project plans:

#### 2. Selecting parties for package deals

Using the technical assistance, package deals for private owners will be developed within the projects. The package deals will be tendered to select the constructors, installers and financiers. Depending on the size of the project, private or public tendering will be used and one or more parties will be selected in line with the applicable procurement rules. The contracting will take place after the project design has been completed: hence mostly in the second or third year of the programme.

#### 3. Individual selecting of constructors/installers

Owners cannot be obliged to use the developed package deal. They could also opt to contract constructors and installers themselves. This remains possible during the entire period of the programme.

#### 4. Selecting constructor/installer by housing corporations

We expect that within the projects the housing corporations will prepare the technical measures by themselves (using the technical assistance). They will procure the required constructors and installers according to their own procedures. The contracting will in most projects take place in the second and third year of the programme.

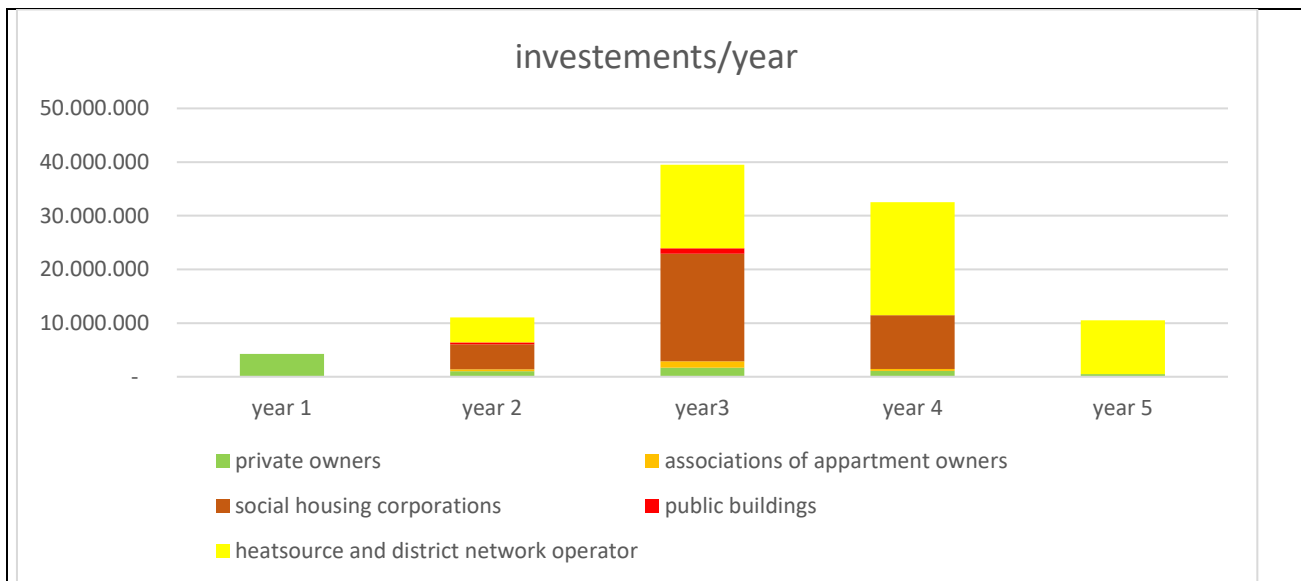
#### 5. Selecting of the heat network and heat source operator

For half of the projects the heat network and heat source operator has to be selected. Based on the studies conducted using the technical assistance, the parties concerned decide about their role in the network exploitation. Depending on their respective roles, they will select the appropriate tendering procedure: public, private after selection or in-house procurement. Special advice on the tendering rules will be part of the technical assistance. We expect that projects who have to select an operator will need the first year of the programme for this procedure.

#### 6. Selecting the constructor of the heat network and source

The (selected) operator will in most cases detail the construction plans and take care of getting all the licenses required to build the network and source. When the operator is a public service or an special sector organisation, the tendering of the construction contracts will be done in accordance with the European and national rules. In five projects public tendering can be expected (50% of the investments in heating, 30% of the total investment). The procurement of the construction contract is in some projects expected to take place in the first year, but for most projects this will be either the second or third year.

All together this in the total planning of investments as shown in the graph below:



### **Monitoring and/or quality assessment procedures**

#### *Monitoring progress of projects and the programme as a whole*

The municipalities are responsible for the progress of the projects as described in their project plans. They report twice a year to the provincial contact point about the realised and expected use of the technical assistance, the realised and expected final investment decisions and realised investments.

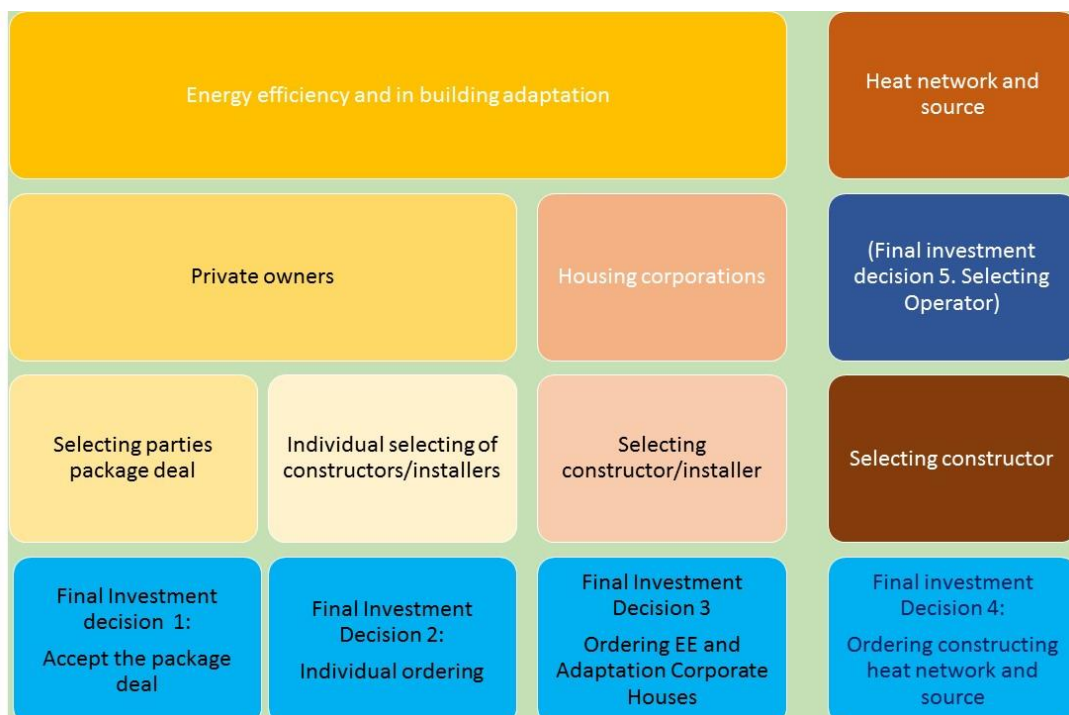
The provincial contact point will monitor the municipalities. When projects are delayed or speed up, the provincial contact point will together with the relevant project teams adjust the distribution of the technical assistance and/or the size and number of the participating projects, in order to assure the realisation of the programme results.

#### *Monitoring of technical assistance used*

The way the technical assistance will be procured and monitored is described in 4.4.

#### *Monitoring of investments*

As described before, the final investment decisions are taken by many parties in the projects. There will be 5 types of investment decisions:



**FID 1: Energy efficiency and adapting for the heat network by private owners using the package deal**

The supplier of the package deal informs the project organisation about how many owners have accepted the package deal and the total costs involved. To demonstrate the implementation of the agreed investments, the supplier will send copies of the contract and invoices, which will ultimately be administered by the provincial contact point.

**FID 2: Energy efficiency measures and required adaptations for the district heating network taken by home-owners through private ordering**

When owners decide not to use the proposed package deals, but organise their investments themselves, the investment can't always be monitored. In case they use subsidies or financing facilities, the municipality sometimes can collect copies of contract or invoices. In other cases owners can be asked to inform the municipality about their investments. Only as far as the municipalities can produce copies of contracts or invoices and report them to the provincial contact point, they will be counted as part of the ELENA investment programme.

**FID 3: Energy efficiency measures and required adaptations for the district heating network by social housing associations**

The social housing associations, being part of the project organisations, will produce copies of the contracts and invoices with the selected constructors/installers to prove the realisation of the investments.

**FID 4: Construction of the district heating networks and the heat source**

The network and heat source operators will procure the realisation of the networks and sources. They will produce copies of the contract with the selected constructors to prove the realisation of the investments. We expect that the networks only partially will be realised within the period of the Elena programme.

**(FID 5: Public tendering heat network and/or source operator)**

In some projects a public tendering of the right to realise and operate a heat network is planned. When the tendering documents ensure that the realisation of the network is completed within a fixed time, this can be considered as a FID. At this moment it is not yet clear whether such a tendering will occur in one or more of the projects.

The municipalities will be asked to report about the progress of the preparation and the realisation of the projects conform the schemes and the directions of the EIB. The province will set-up an online portal, where municipalities can directly upload and access information about the steps that are to be realised: tendering, ordering and delivering the investments, including the documents to prove the steps. This way, there is always up-to-date information about the progress of the projects.

### 3.5 Expected overall investment cost, indicating the share of investment dedicated to each component of the programme and the specific costs

#### Summary:

Investment component	Total Investment cost (EUR)	% of total investment cost	Simple payback period
Insulation of homes and buildings	€42.286.000	45%	15
Sustainable heat sources	13.659.000	15%	25
District heating	€37.714.000	40%	35

#### Cost of individual investment programme components:

Energy Efficiency in buildings		Details or Value
Investment Cost	Overall expected cost [EUR]	€42.352.000
	Expected average cost [EUR/ m²]	€134
	Estimated cost of each measure to be implemented [EUR]³	Envelope insulation :TBD
		Windows: TBD
		HVAC: TBD
		Lighting: TBD
Other: TBD		

In the overall expected costs of energy efficiency measures the costs of removing gas systems are included (where applicable), as well as adaptations to the home-installations (electricity and heat) necessary to connect on the new heat network.

PV in buildings		Details or Value
Investment Cost	Overall expected cost [EUR]	Part of the energy efficiency measures in some projects.
	Expected average cost [EUR/kWp]	TBD

Replacement of boilers in buildings		Details or Value
Investment Cost	Overall expected cost [EUR]	Boilers will be replaced by delivery sets, the costs are included in the costs of energy efficiency measures.
	Expected average cost [EUR/ kW]	

Replacement of HVAC systems in buildings		Details or Value
Investment Cost	Overall expected cost [EUR]	NA
	Expected average cost [EUR/ kW]	

District heating incl. heat source upgrading		Details or Value
Investment Cost	Overall expected cost [EUR]	€51.374.000
	Expected average cost per linear meter installed pipeline [EUR/m] (excl. costs of heat source)	€/m 1836

<sup>3</sup> Some municipalities can provide these specifics for their project. Others don't. In this stage, it is not possible to give this level of detail.

As for aquathermal or residual heat, the stated investment costs are including the costs of the realisation of the heat producing installation (heat changer, heat pump, soil heat storage, peak/backup installation). The expected costs are € 13.659.000.

### 3.6 Preliminary financing plan for the Investment Programme

#### Preliminary Financing plan

Financing plan per investment priority:

- **Energy Efficiency (EE) in housing units**

Owners of houses will have to invest in energy saving measures and in adaptations of their installations before they can connect to district heating.

*Social housing associations* will be able to finance these investments to a large extent out of their existing maintenance budgets. They can finance investments guaranteed by the Waarborgfonds Sociale Woningbouw. It is also expected that in 2022 tax breaks for sustainable investments will become available again. The investments will lead to cost reductions (less maintenance and less substitution of heat boilers) and in some occasions to higher incomes as tenants can be asked to pay an energy performance contribution in addition to the rent ([EPV](#)). From 2020 onwards subsidies will become available for social housing associations to make their properties free of natural gas and to connect them to district heating networks ([SAH](#)).

Example A is a (typical) apartment of a social housing association that will transition from gas infrastructure to a district heating infrastructure. Social housing associations can opt for a grant under the SAH scheme. These types of apartments represent 68% of the total number of homes in the applications and 31% of total investments.

<b>Example A: Social housing company Apartment</b>	
<i>Improvements</i>	<i>Costs (€)</i>
Insulation	
Roof/Floor	€ 1.500,00
Facade	€ 1.500,00
sealing cracks, isolation pipes	€ 1.000,00
Adapting Heating system	€ 2.000,00
Electric cooking	€ 1.000,00
<i>Other</i>	
connection fee (to networking company)	€ 3.000,00
<b>Total</b>	<b>€ 10.000,00</b>
Grants: Connecting to district heating (SAH)	
Connecting to district heating (SAH)	
Improvements (40% of total costs, max.€ 1.200))	€ 1.200,00
Grants for connection fee (30% of total costs) *	€ 900,00
<b>Net Investments ****</b>	<b>€ 7.900,00</b>
yearly saving energy costs**	€ 128,53
Yearly savings removed heat boiler ***	€ 146,67
<b>Savings</b>	<b>€ 275,20</b>
Pay back perio	28,71
Inflation	1,4%
IRR	2%
*The SAH grant for the connection fee to the network company can increase to a total of € 3.600 should the necessary connection fee increase.	
** the energy-savings are divided between the social housing association (75%) and the tenants (25%)., only the association-part is counted in.	

\*\*\*No replacement and maintenance of a gas-based heat boiler anymore.

\*\*\*\* Net investment of € 5.600 is covered by maintenance budgets of the housing association. In some projects (for example Hoornes in Katwijk or Groenord in Schiedam) additional grants have been assigned where these budgets prove insufficient.

For social housing associations, the rate of return under current conditions is very low. In order to improve this, the following measures are undertaken (both on a national and local level):

- Cost reductions by scaling up the solutions for insulation and heat network connections. Development of new subsidy programmes to stimulate innovation.
- Re-opening the tax reduction facility for social housing associations (SEEH) to stimulate insulation measures (national level).
- Access to project grants (e.g. Proeftuinen Aardgasvrije Wijken, up to € 8.000/WEQ).

With the availability of these additional facilities, the participating housing associations expect that they can realize the projects and fulfil the obligations they agreed to in the National Climate Agreement

*Private owners and owners associations* each have their own financial situation and possibilities. Most of the investments in energy saving can be redeemed through a lowering of structural energy costs. The investments can be financed by own capital, private loans or publicly guaranteed loans. As energy savings are an important goal of national, regional and local sustainability policies, grants are available as well on all three levels of government.

Example B is an (average) privately owned house that will transition from gas infrastructure to a district heating infrastructure. Heat pumps are part of the collective grid and are installed by the network company. In the calculations there is an one-off connecting fee that is paid to the network company. The chosen fee determines whether investments in district heating economically are viable. Costs for house owners are depicted in the table below. This type of dwellings represents 12% of the total number of homes in the application and 5% of total investments.

<b>Example B: Private house, familyhouse in a row</b>	
<i>Improvements</i>	
Insulation	
Roof/Floor	€ 3.000,00
Facade	€ 3.000,00
Heating system (radiators)	€ 2.500,00
Electric cooking	€ 1.000,00
	<b>€ 9.500,00</b>
<i>Other</i>	
Connection fee	€ 3.000,00
	<b>€ 12.500,00</b>
<i>Grants and fiscal policy</i>	
SEEH (Energy efficiency) *	€ 6.000,00
Net investments	<b>€ 6.500,00</b>
<i>Yearly savings</i>	
yearly saving energy costs	€ 171,37
Yearly savings removed heat boiler	€ 146,67
	€ 318,04
Payback period (years) **	20
inflation	1,4%
IRR ***	4%
*The SEEH grant can reach an amount of € 10.000 for each house. When there are additional investments that will lead to additional energy savings the maximum amount can increase to € 15.000	
** The payback period is relatively long. The payback period for an investment in solar panels is six to seven years. A longer payback period is acceptable because of the increase in comfort and an increase in the sales value of the house.	
*** For private owners the rate of return is rather attractive, as regular interests on savings are very low and private or public loans for energy efficiency measures are possible with interests of 1.5 to 3 %.	

### • District Heating (DH) networks

Investments in district heating will be financed by the heat network and heat source operators. These companies are perfectly able to get loans from financial institutions to finance these investments. Whether these investments will be realized is dependent on the (financial) feasibility of the business case. There are two important uncertain parameters that influence this feasibility:

- The price they can charge connected households. The prices are maximized by law and now linked to the price of natural gas (heating from a heat network is generally not more expensive than heating by natural gas). It is expected that new price regulations will be developed in the new Heat Law, which will most likely be introduced in 2022.
- The timing in which households can connect to the new energy infrastructure, and thus the amount of energy supplied to these households.

As there is no legal obligation for consumers to connect to a heat network, the price of the delivered heat and the costs of connecting to the heat network should be attractive in order to persuade them to connect. In the business cases developed for the different projects a heat network is the most attractive alternative for using natural gas. A business case becomes feasible when a large number of households can be timely connected to the network and when the costs of the in-house adaptations can be financed. In most projects the social housing associations are therefore important as a launching customer (and thus responsible for financing the in-house adaptation costs). Several subsidies and fiscal schemes are available (see 3.7) in order to make a heat network feasible (see table below).

Investments*	/dwelling
heat sources	2.704,63
heat networks	7.467,55
<b>Total investment</b>	<b>10.172,18</b>
Subsidies (SDE, others)	1.220,66
	<b>8.951,52</b>
EIA	984,67
net investment	<b>7.966,85</b>
Connection fee **	3.000,00
<b>Investment</b>	<b>4.966,85</b>
annual income ***	978,25
Yearly costs ****	710,00
<b>Result before financing</b>	<b>268,25</b>
<b>Inflation rate</b>	1,4 %
<b>Return on Investment</b>	5%
* The total investments of the programme/WEQ	
** the connection fee used in the example above	
*** based on the average heat demand /WEQ and the average expected prices/GJ (80% of the maximum price allowed)	
**** based on the feasibility study of the Katwijk project.	

### 3.7 Information on subsidies or grants received or to be received for the planned Investment Programme

List of subsidies or grants received or to be received

The number of available subsidies, guaranteed loans or fiscal schemes to accelerate the energy transition is extensive. The most important and impactful arrangements are written out below. Subsidies are subject to continuous evaluation and adaptation, but based on the National Climate Agreement the expectation is

that the number of subsidies, guaranteed loans and fiscal instruments available will increase over the next three years.

For house owners (private, associations of apartment owners, housing association), the following subsidies are the most important:

1. Grants for energy savings for owners/occupants.

<https://www.rvo.nl/subsidie-en-financieringswijzer/seeh/eigenaar-bewoner>

Summary:

- Available until 31/12/2020. After this date, the scheme will be integrated with another scheme (ISDE, see below).
- Available national budget: € 84 mln, Fixed prices/measure taken; max./house: 10.000, by very high insulation max. 15.000.
- Grants are aimed for house owners and occupants that invest in insulation measures like:
  - o (low-E, HR++, triple) Glass
  - o Floor/Roof/Wall/Façade insulation

2. Grants for connecting houses to district heating (SAH). Social housing companies can apply.

Summary:

- Available from 01/05/2020 - 31/12/2023
- Available national budget: € 200 mln. for three years.
- Grants are for (social) housing associations who are aiming to connect houses to a district heating network. Following activities fall under the scheme:
  - o Removal of gas infrastructure
  - o Electric cooking system
  - o Replacing (parts of) heating system
  - o Connection fee to the network company.
- Grant is maximized: 40% of costs for insulation, max. € 1.200, 30% for connection to the heat network, max. 3.800.

3. Grants for renewable energy

<https://www.rvo.nl/subsidie-en-financieringswijzer/investeringssubsidie-duurzame-energie-isde>

Summary:

- Available until the end of 2020. Scheme will be extended for another period but with adjusted requirements.
- Available budget in 2020: € 100 mln.
- Grants are aimed at renewable energy. Private owners, public bodies, (foreign) businesses can apply for the following energy sources:
  - o Heat pumps
  - o Solar water heaters

4. Loans for energy savings

<https://www.energiebespaarlening.nl/>

Summary:

- Available for the duration of the ELENA programme
- Loans are available for private owners and associations of apartment owners. Individual homeowners can take a loan for a maximum of € 65.000. Loans are for insulation and renewable energy. Duration of the loan is up to 10 years with a 1.4%-2.1% interest rate (depending on the size and duration of the loan).

The Warmtefonds (operational by Q3 2020) gives people with limited or no payback capacity access to loan facilities.

For the realisation of heat networks and heat sources besides the ISDE-subsidy (3.) the following subsidies and fiscal facilities are important:

5. Stimulating Sustainable Energy (SDE++)

<https://www.rvo.nl/subsidie-en-financieringswijzer/stimulering-duurzame-energieproductie-sde>

Summary:

- Available from the fall of 2020 in three tenders a year
- It's an exploitation grant for the price difference between sustainably produced energy and common produces energy.
- Open also for aquathermal and residual heat and heat pumps.
- Tendering criterium is the costs/saved amount of CO2

6. Energy investments tax reduction (EIA).



<https://english.rvo.nl/subsidies-programmes/energy-investment-allowance-eia>

EIA is a fiscal scheme which allows a company to deduct investment costs from profits before taxes to lower taxes. The use of EIA leads to an increase in net profits of 11% on average. EIA can also be used for investments in district heating. It cannot be combined with SDE++

*Summary:*

- Available for a broad range of investments aimed for energy transition, including district heating
- A maximum of € 124 mln. of investments can be applied for per individual company

#### 7. Project grants

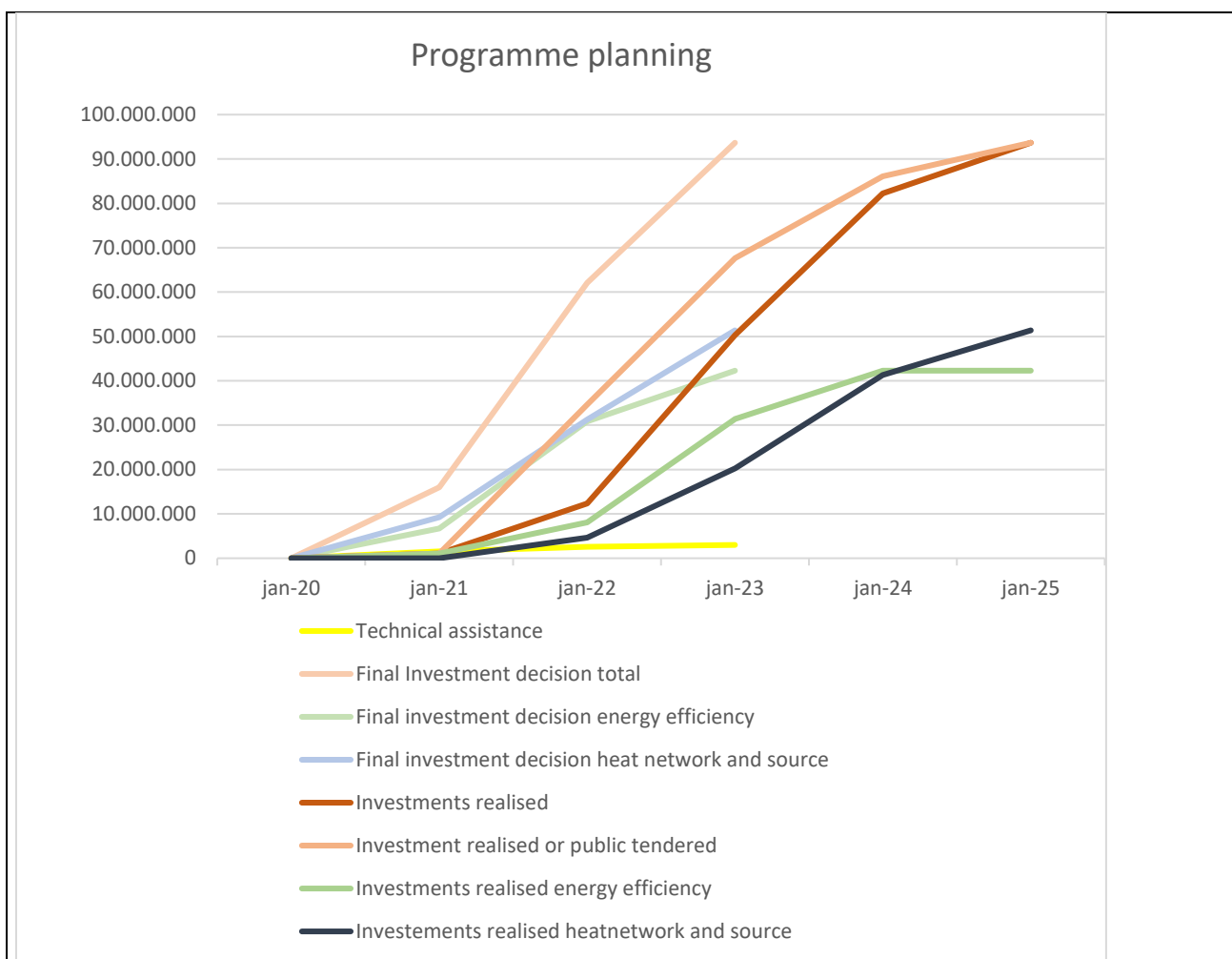
The national Programme for Natural Gas Free Neighborhoods (Programma Aardgasvrije Wijken) supports selected municipalities with grants up to 40.000/WEQ to learn how to phase out the natural gas network. Katwijk has already received a grant, other municipalities are applying for either the current or next year.

### 3.8 Preliminary implementation timetable for the Investment Programme

Investment component	Expected start date	By end of ELENA	Expected end date
Energy Efficiency (EE) in housing units	2021	100%	2024
Renewable Energy (RE) sources	2022	50%	2025
District Heating (DH) networks	2022	50%	2025

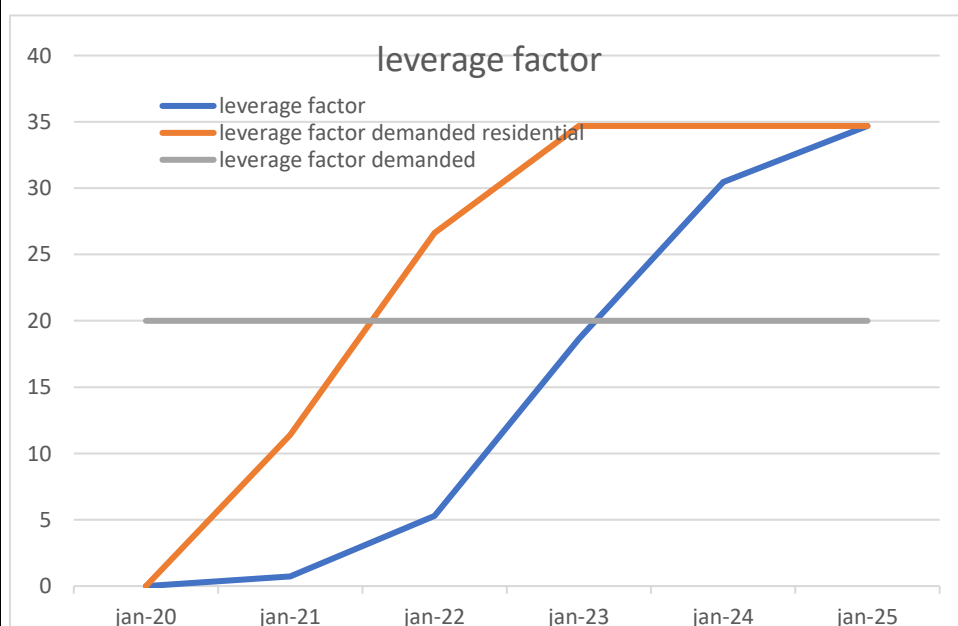
\* another 30% will be based on signed contracts for

In the graph below the cumulative use of technical assistance and the cumulative investments (decided, procured and realised) are presented, conform the planning of the projects.



Each investment component will occur in the different projects with their own planning. In section 5 more detailed information is given.

The planned development of the leverage factor (based on the ordering and on the realisation of the investments) is presented in the graph below.



### 3.9 Main foreseen risks that could affect the implementation of the Investment Programme and risk mitigation measures planned

Each project that is part of the programme has its own political, social, technical and financial challenges. The main project risks are presented in the list below. Each project has its own risk management. The projects will be monitored on progress and development of the risks.

For the programme as a whole, the main risk is that not (enough) investments will be realised in time. In that case, the programme goals are not reached in time and consequently received subsidies must be returned. Another risk are potential administrative mistakes that could lead to non-compliance with the grant conditions. These risks and the mitigation measures are described below.

nr	Description	Cause	Effect	Measures to reduce the risk	residual risk
<b>Main Project risks in general</b>					
1	Private owners (associations) do not want to invest in Energy Efficiency measures	They cannot afford it	Project (partially) not realised, or delayed	* reduce costs (collective procurement) * using existing grants and financing instruments * using project grants	limited
2		It is too much work/they cannot decide	Project (partially) not realised, or delayed	* reducing individual efforts by developing integrated propositions * (individual) communication and marketing)	medium
3	Consumers (private owners and tenants) do not want to connect to a heat network	adaptation measures are too expensive	Not enough customers for the heat network (see 7)	* reduce costs (collective procurement) * using existing grants and financing instruments * using project grants	limited
4		heat prices are not attractive	Not enough customers for the heat network (see 7)	* good pricing by the explorer	medium
5		heat delivery company is not trusted	Not enough customers for the heat network (see 7)	* communication about consumer protection * guarantees from local authorities * organising consumer influence on the heat production and network	medium
6	There is no (commercial) operator for the realisation of the heat network	heat prices cannot guarantee enough return on investment	heat network not realised	* reducing costs (see 9)	medium
7		the sale of heat is uncertain (related with 3/4/5)	Heat network not realised	* stimulating the demand by good offers (see also 3/4/5) * using housing corporations as (sure) launching customers * guarantees by local government of the demand	high
8		future market regulation is not sure	Heat network not realised	* complying with legislation in development	medium
9		the cost of the network and the heat source are too high	heat network not realised	* reducing costs of development by good design, good phasing, using grants and financing facilities	limited
10	Permits for realisation are not delivered (in time)	unexpected influence of soil quality, nature conservation, archaeology, spatial fitting of the network and the installations	Heat network and source are not realised or realisation is delayed	* good technical inventories * good communication with stakeholders * integrated design	limited

11	responsible authorities take a no-go decision	There is no sufficient political support for the project	The project is not realised	* local authorities have signed an intention-declaration about realisation of the project * open communication with all the stakeholders to keep support for the project	medium
Programme risks					
11	One or more projects are delayed, not or partly realised	One of the project risks (main risks see 1-10) occurs	* programme goals are only partially realised	* monitoring the progress of the projects and take appropriate action to accelerate stagnating processes * exchange projects of the shortlist with other projects in Zuid-Holland	limited
			* the leverage factor will not be realised (in time)	* the programme takes into account an amount of uncertainty, based on the risks described. * timely signalling of stagnation and suspending the technical assistance when no progress is made / reducing the amount of technical assistance	limited
12	Investments cannot legally be proven	The procuring, ordering and realisation of investments is not properly administered.	* the leverage factor cannot be met	* proper agreements between EIB and the province and between the province and the projects about administration of the investments (see also 3.4 of the Application form)	limited
13	The relation between the project development services and the investments is unclear	* description of the PDS-request and/or use of the PDS is not directly related on the investments	* the legal basis of the subsidy expires	* in the 'request form' for PDS the relation regarding the underlying investments will have to be described. * In the monitoring of the PDS the relation regarding the underlying investments will have to be described.	low
14	(Afterwards) the procurement rules are not correctly followed	* cumulated PDS requests are not correctly combined	* non-compliance with grant conditions	* inventory and planning of the requested PDS at the start of the programme	low
<b>3.10 Please outline the expected results in terms of increases energy savings, renewable energy production and reduction of greenhouse gas emissions</b>					

Investment component	Final energy consumption (GWh/year)			RE generation (GWh/year)	GHG emissions (t CO <sub>2</sub> eq/year)		
	before	after	Savings	-	before	after	savings
<b>TOTAL</b>	<b>93.6</b>	<b>59.8</b>	<b>33.8</b>	<b>32</b>	<b>18,900</b>	<b>8,500</b>	<b>10,500</b>

For each shortlisted project, a separate uniform calculation is made using the following steps:

- Conversion factors used: Gas use in m<sup>3</sup> is converted in kWh with the conversion factor 10 kWh/m<sup>3</sup>. The CO<sub>2</sub> emission factors are based on EIB carbon footprinting methodology, which for natural gas is 202 tCO<sub>2</sub>/GWh and for electricity in the Netherlands is 477 tCO<sub>2</sub>/GWh.
- New district heating networks are based largely on renewable heat sources. The top-up supply is provided by 80% heat pumps assuming COP of 4 and 20% peak gas boilers with 98% efficiency. The DH network losses are assumed as 7%.

### 3.11 FTEs expected to be created and/or maintained plus any other expected relevant results, if available

275 jobs will be maintained and/or created through the supply chain as a result of the project.

### 3.12 Description of previous preparatory assessments and studies carried out for the Investment Programme

On the project level, several studies are made to determine the best solutions and the feasibility of the projects.

A short overview:

Municipality responsible	Project name	Title/link	Organisation	Date	author	Summary
Den Haag	Warm in de Wijk Vruchtenbuurt	<a href="#">Haalbaarheid studie TEO, TED en geothermie retour-Vruchtenbuurt in Den Haag</a>	IF technology	28-6-2018	F. Niewold	A district network fed with heat from surface water or raw drinking water pipes is feasible, if an national grant for natural gas free neighborhoods is available. Further detailing has to be done.
Gorinchem	Warmtenet Gildenwijk	factsheet warmtenet Gildewijk	Greenviss	15-11-2018	D. de Greeff	Heat sources are available, Poort 6-building as a starter. Heat network can be fed by biomass, earth heat or surface water. A feasibility study is in progress.
Kaag en Braassem	Rijnsaterwoude/Leimuiden	<a href="#">Haalbaarheid studie TEO in Kaag en Braassem</a>	AT Osborne /IF	19-9-2019	F.Nieuwold e.a	Heat from the Braassem-lake is technically feasible but in Rijnsaterwoude only a rate of return of 4-8% is to be expected. Grants as SDE++ can be increase the rate of return. A first step in further development can be insulation of houses to make them low-temperature-heating ready.
Katwijk	Wijk Hoornes	<a href="#">Second Opinion Warmtenet Hoornes</a>	DWA	29-04-2019	P. Heijboer, E van Mourik	A district heat network is for Hoornes the most feasible alternative for natural gas. When accounting the costs of adaptation in the houses, heating with the use of surface water is not feasible for the entire district (2700 houses). However, a first phase of 500 houses is possible, using the available national grant.
Schiedam	Groenord	<a href="#">Uitvoeringsplan 3.2 Nieuwe Energie voor Groenord</a>		28-5-2019		For the Groenord neighborhood a district heating network at 70 °C, fed by the existing regional heat network is the best alternative for natural gas. Adaptation Package B (only adaptation of the installations) is the most feasible and chosen by the housing association.

The conclusion of most studies is that for a feasible business plan for all parties (consumers, owners and the heat network and source operator), at some point along the production chain grants and financing facilities are still needed. For most projects it is concluded that the grants and facilities currently available are enough to start a first phase of the development of the heat network.

On a local, regional and national level different models are developed and used for determining the best alternative for natural gas. In these models the realization of a heat network in the areas on our shortlist is the best or a next best solution, depending on the premises of the model. This confirms the choice for developing the district heating networks. The [national guideline](#), introduced for the development of local heat transition plans, is based on validated government data and can be complemented with specific data available on the local energy sources.

#### 4. Description of the requested assistance from ELENA

##### 4.1 Name of ELENA operation

**Sustainable Homes and Sustainable Heat in South Holland (3SH)**

(Duurzame wijkwarmte in Zuid-Hollandse Gemeenten)

##### 4.2 Indicative work programme for the technical assistance ELENA activities to prepare the Investment Programme

Overall, the ELENA TA will be used for the following tasks:

- Engage with home-owners and Home Owner Associations (HOA) – this will be carried out in the form of ‘townhall meetings’ for general information and discussions at regular intervals, as well as targeted visits to the residential areas to persuade both private and social residents of the benefits of the scheme. Each sub-project is different and at a different stage of development. Therefore, engagement will depend of the specific context and cannot be quantified in terms of number of meetings, rather as days input by the contracted experts.
- Engage with municipalities on planning and permitting – all 9 municipalities are involved by default are have already signed letters of intent. Continuous engagement will be necessary to ensure their respective projects are moving forward and barriers are being removed. The consultants will assist with identifying bottlenecks and how to resolve these, as well as to further facilitate the communication between municipalities and other stakeholders.
- Carry out energy audits of the proposed building projects – a significant number of energy audits will be delivered for the projects and buildings where this has not already been done. For social housing, the audits are expected to be for the entire multi-residence building, while for private homes the audit will be individual. The annual numbers of energy audits presented in the table are indicative.
- Carry out feasibility studies, largely focusing on DH networks and heat sources – one of the recourse/financial barriers for the programme as a whole is the high cost for municipalities to commission feasibility studies. With ELENA’s support, each municipality will be able to request funding, however given the difference in project size and complexity these studies will also vary in cost and timeframe. As such, the best way to estimate annual progress is by the overall budget expenditure and number of input days.
- Prepare technical and investment plans for each project site – this is an important element since the only through ELENA there is an opportunity to integrate well the EE refurbishment of buildings with the development of sustainable heat networks. The consultants will support both SHCs/HOAs and DH Operators with developing viable plans – but most importantly, will assist the municipalities with launching the required tenders and permitting procedures.
- Tendering and contracting for suppliers, building and construction companies, energy supply and services companies, etc. – this is a typical challenge for large infrastructure projects and the participating municipalities will benefit significantly from consultants helping to structure and draft tender documents. Each sub-project will have its own scope for this activity and as for the other tasks the deliverables are difficult to quantify other than by an aggregate days input.
- Financial engineering and financial facilitation – this is critical element of the investment programme since each sub-project needs to demonstrate economic viability to both suppliers and end-users. The consultants will look into the economic and business model of the proposed DH schemes and advise on issues such as: improving the economic performance, accessing public grants and subsidies, exploring financing options through banks, funds and co-operative solutions.
- Project management – co-ordination, accounting, legal support, monitoring & reporting for each sub-project, which could be a challenging task given the multiple elements involved in parallel, Each municipality will define their needs for project management and make a request to the Province for external input expressed in number of days.

- Monitoring and reporting, as well as liaison with EIB – preparing progress reports and responding to queries is envisaged to be outsourced.

More specifically, the following overall activities will be implemented for the programme as a whole, mainly using external services:

Activity	Investment priority	How does activity relate to investment priority	Expected results	No. days of work	Est. daily rate	Total costs
Energy audits	EE, PV	Insight in insulation measures possible	Draft for insulation measures pro house	673	520	350.000
Facility Studies	EE,PV,WN	Choice of system	Clarity about technical choices	304	760	231.000
Financial engineering	WN	Sound business case	Business case	320	920	294.000
Marketing	EE,PV,WN	Attractive offer for private owners, organisation/business case heat grid	Attractive offer for home-owners and operator of the district heating network	359	640	230.000
Project management	EE,PV,WN	Effective preparation	In time delivery of the final investment decisions	356	800	285.000
Communication/ participation	EE,PV,WN	Commitment of owners and tenants, willingness to invest and to connect to the heat network	Investments by private owners, consent of tenants and apartment owners, signing delivery contracts for district heating, support of local government and society	1185	600	695.000
Technical studies	EE,PV,WN	Trustworthy solutions for house owners, trustworthy design of heat source and network	Design, calculations and sketches	1103	680	750.000
Tender Process	EE,PV,WN	Selecting the appropriate supplier	Commissioning	229	720	165.000
				<b>4503</b>	<b>705</b>	<b>3.000.000</b>

#### 4.3 Description of the existing or planned structure/organisation of the ELENA supported staff who are managing the preparation of the Investment Programme

**Commissioning party of the programme:** Province of Zuid-Holland

Political level: Regional Minister for the Energy transition

Administrative level: Project Manager Energy transition

Responsible for fulfilling the administrative and financial duties to ensure a correct completion of the programme, as well as arranging the financial and staff capacity in order to do so.

##### Political programme consultation

Consists of the Regional Minister of Zuid-Holland Regional Minister for the Energy transition and his/her municipal counterparts who are politically responsible for the individual projects. Gathers incidentally, most notably at the following moments:

- the start of the formal application process
- the conclusion of the formal application process
- the signing of any formal agreement
- and when deemed necessary

##### ELENA Core team at the Province of Zuid-Holland

Which includes advisors from:

- Team Heat
- Team Process Advisors for the Energy transition
- Team European and International Affairs
- Dept. of Finance and Legal Affairs
- Internal Project Organisation Desk.

Tasks: monitoring the progress of the projects, ensuring good cooperation between the projects and the procurement team and audit team. Responsible for all contact with the EIB during the implementation period,



including requests for modifications and delivering progress reports. Contacts with the EIB during the implementation period.

**ELENA programme team:** ELENA core team + project leaders:

Tasks: monitors the programme's progress and adjusts where required.

**Individual project organisations:** municipal organisations remain responsible for realising their project and for implementing the PDS activities regarding their projects.

Tasks: responsible for realising a timely investment decision and for the timely execution of the required work.

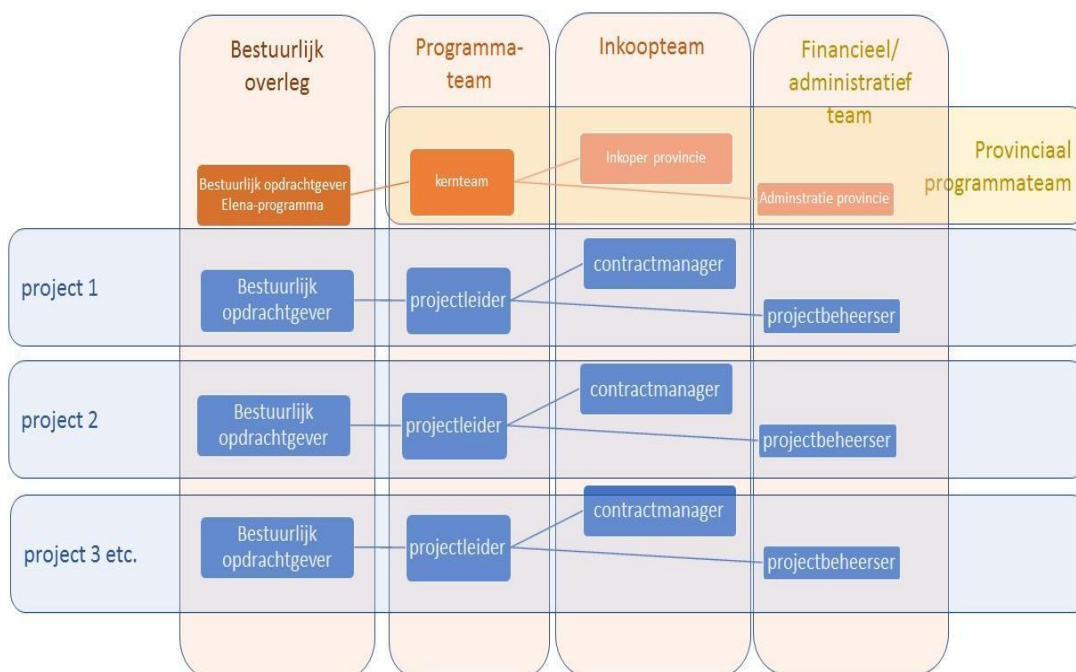
Ensure the correct accounting of the used PDS and the documentation of the investment decision.

**Procurement team:** provincial procurement team + contract managers projects:

Tasks: coordinating the external procurement of PDS to be developed (tenders), organising any internal procurement operations, monitoring commitment (in quality and in quantity) of the procured services.

**Financial/Administration:** regular contacts between the Programme administration and the project administration about the administrative procedures, accountability, reporting and monitoring.

**Programme management:** executed by the Internal Project Organisation Desk. Regular meetings with project managers of the various projects.



#### 4.4 Planned procurement plan for staff and services to be financed with ELENA funding

##### Procurement procedures relevant for the country of application

All national and European guidelines for public procurement of goods and services will be respected.

##### Planned procurement plan for ELENA funded staff and services, if relevant

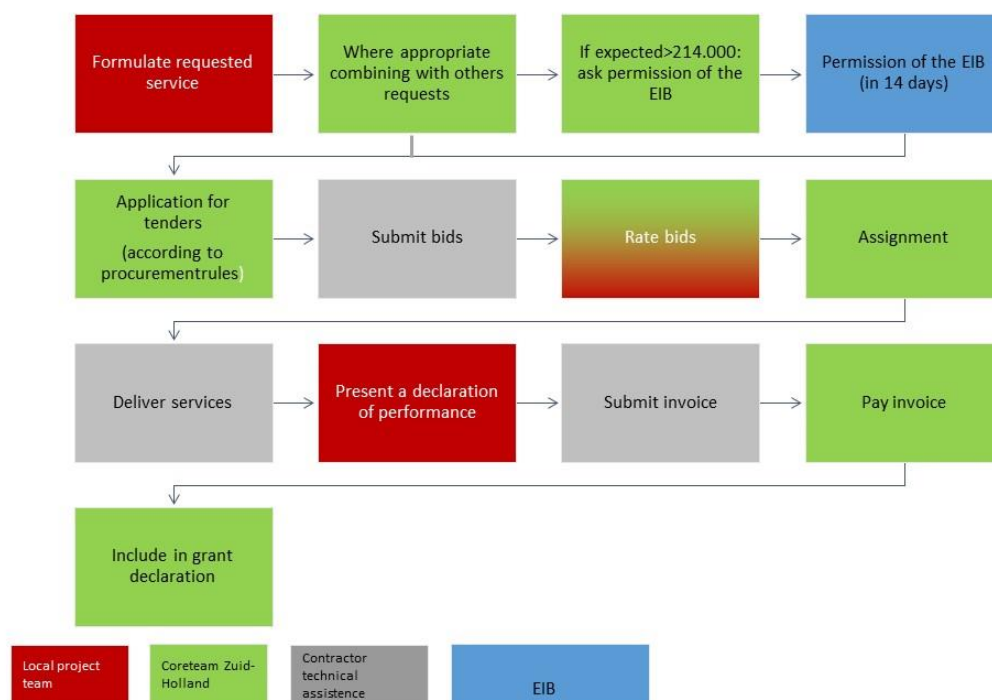
Staff and services for the procurement team and programme management, will be funded with existing funds of the applicant, and will not be part of the requested ELENA assistance.

All the technical assistance will be procured as services. We expect that part of the services are project specific. They will not exceed the limits for European tendering. They will be procured conform the internal rules of the province. Where the services are more general and not project specific and the cumulated costs of the demanded services are expected to exceed the European limits, an EU-tender will be organised. Tendering a

framework contract with several organisations can give the individual projects the opportunity to select the best equipped party for their specific situation.

Technical assistance activity	Type of procurement to be used
Energy audits	Direct agreement
Feasibility studies	Direct agreement
Financial engineering	EU-tender
Marketing	Direct agreement
Project management	EU-tender
Community engagement	EU-tender
Technical studies	EU-tender
Tender proces	Direct agreement

Procurement process for the different services:



#### 4.5 Indicative start date of the ELENA assistance and implementation timetable for the Project Development Services

The Elena assistance can be called upon when the ELENA subsidy is granted and the contract with the EIB is signed. As each project has its own planning, the different kinds of assistance will be contracted depending on the development of the projects.

A first procurement of services will start at the beginning of the programme. It will include the services that will be tendered on a European level and the specific services that are needed at the start of the programme, as the energy audits and part of the feasibility studies. They will follow the planning in the table below:

		Start	Finish
	Elena application		31-1-2020
Step 1	formulate requested services (first portion)	31-1-2020	29-2-2020
Step 2	Combining requests for European tendering	29-2-2020	31-3-2020
	Elena subsidy granted		31-3-2020
Step 2	Preparation application for (european) tenders	31-3-2020	30-4-2020
	Signing EIB-contract		30-4-2020
Step 3	Tender procedures	30-4-2020	30-6-2020
Step 4	Assignments		30-6-2020
Step 5	Delivery services	30-6-2020	30-4-2023
	EIB half year reports		
Step 6	controlling and paying services	31-7-2020	30-4-2023
	EIB final report		30-9-2023

Some services (e.g. marketing or tendering processes) will follow from earlier steps and can only be formulated later on in the development of the project. So a part of the services will be procured and used later on in the process. We expect the following schedule for the technical assistance (step 5 and 6 in the scheme above):

Activity	Total costs (see also 4.2)	year 1 (may 2020- apr 2021)	year 2 (may 2021- apr 2022)	year 3 (may 2022- apr 2023)
Energy audits	350.000	150.000	150.000	50.000
Facility Studies	231.000	131.000	100.000	0
Financial engineering	294.000	170.000	124.000	0
Marketing	230.000	75.000	75.000	80.000
Project management	285.000	100.000	95.000	90.000
Communication/Participation	695.000	484.000	106.000	105.000
Technical studies	750.000	400.000	300.000	50.000
Tender Process	165.000	50.000	80.000	35.000
<b>Totals (see also 5.0)</b>	<b>3.000.000</b>	<b>1.560.000</b>	<b>1.030.000</b>	<b>410.000</b>

Milestones	Year 1 (June 2020-May 2021)	Year 2 (June 2021- May 2022)	Year 3 (June 2022- May 2023)
Energy audits	300	300	50
HOAs and SHCs meetings	10	10	10
Utility and supplier meetings	10	10	10
Final investment decisions – EE			
Private owners (5% of the investments)	325	200	150
House Owners associations (2%)	0	7	2
Social Housing corporationa (37%)	3	5	4

Final investment decisions – Heat source (15%)	1	3	5
Final investment decisions – DH network (40%)	1	3	5

#### 4.6 Please justify your request for assistance for ELENA

After the initial development phase, all municipalities participating in this investment programme now face the crucial step of directing their projects towards actual implementation. This step is complex as it requires mutually attuned investments in sustainable heat sources, heat grids and adjustments in the individual housing units. The organizational and financial challenges are particularly daunting: how will the entire chain be organized and financed? And how will end-users be involved and motivated to participate?

The ELENA programme will help us in tackling both of these challenges. New financing models among a plurality of stakeholders need to be envisioned and agreed upon in order to take a FID. Most notably, home-owners/end-users need to be persuaded to make the necessary in-house investments that sustainable heating solutions require. Facilitating this process requires technical assistance, which in turn requires financial resources. Municipalities often do not have the means for the necessary expertise or capacity readily available. Obtaining funding from municipal councils for each study or intervention on an ad-hoc basis is a slow and delicate process, which inevitably results in postponement of the FID.

Funding from the ELENA facility for these costs will therefore (i) accelerate the preparatory stage of the investment programme and lead to faster realization of the projects; (ii) lessen the burden of PDS cost on the already tight project budgets; and (iii) lessen the time spent on acquiring funding for PDS costs while using the capacity on project development instead.

In the province of Zuid-Holland, ELENA grants have recently been awarded for two projects. These two projects have not been implemented (within maturity). These are the following projects:

- Rotterdam Renovation Fund. The project focused specifically on energy savings in private owned apartment complexes. The decision-making on the investment by the Associations of Owners of apartment buildings proved to be a more difficult and lengthy process than expected. In our project, such associations play a limited role (6% of the total number of homes involved). The lessons we draw from the project in Rotterdam are:
  - Let the Associations of Owners (and more generally: the private owners) take advantage of the steps that housing corporations can take more easily.
  - Use sufficient capacity to guide associations to support decision-making (in addition to technology)
 Due to the limited size of the Associations in this project, the risk of this affecting the results of the project is limited. The social housing corporations play the most important role (68% of the houses) and they can make decisions much easier.
- Leiden Rotterdam Heat-network: This large transport line of 40 km goes through multiple municipalities. The investment decisions have been delayed here because the licensing procedures are not completed on time. Moreover, it proved to be a difficult process to come to a positive business case. In our programme, there are different distribution networks set up by one municipality. The various projects in our application are therefore not dependent in terms of permits and business cases of the other projects. The lessons we learned are:
  - separate the development of individual projects, so that delays for one part of the financing decisions do not affect other investment decisions.
  - In addition, the programme has room to shift the focus to other projects on the longlist, so that the goals of the programme can still be achieved even when some projects falter.

#### 4.7 Indicate the requested funding from ELENA facility and present the other funding sources

*[in EURO; maximum ELENA participation is 90%]*

Total eligible costs for project development services:	EUR 3.000.000
Requested ELENA funding:	EUR 2.700.000
Own funding (province of Zuid-Holland)	EUR 300.000
Other sources:	

The eligible costs in the most projects are only a part of the total project development costs. The other costs will be funded by the project partners and/or will be part of the project financing. The direct staff costs of the programme management will be funded by the province.

#### 4.8 Applicants commitment to facilitate dissemination of experiences and results

##### **Experience and results will be shared by the Elena team.**

For this investment programme, we have identified 10 projects in our region that are ready to take the first step in making the heat supply of the built environment more sustainable. For most participating municipalities, the housing units under this ELENA application concern the first residential area that will be connected to a sustainable heat supply. All of their other residential areas are to follow. Moreover, while these projects are considered frontrunners, our province comprises 42 more municipalities that will have to undergo a similar transition.

We believe that by collaborating in a programme, the various projects may utilise each other's experiences and knowledge in order to address the challenges they are facing. We sense an incredible need among municipalities to exchange experiences and information. During the application process, we have organised meetings with all participating municipalities and we plan to continue these meetings on a regular basis when the implementation phase starts. Furthermore, we have established an online platform so municipalities can easily share information, studies/reports etc.

As other municipalities progress with their own projects, we will invite them to join ELENA meetings, as well as provide them with access to the online information portal. In this way, we will make sure that all the valuable lessons learnt by implementing this investment programme will be to the benefit of the entire region, and perhaps beyond.

The province, most of the municipalities and some of the other organisations are participating in the Programma Aardgasvrije Wijken (Network around Natural Gas free Neighbourhoods), which has a knowledge and learning branch, and the [National Aquathermal Network](#). These are suitable platforms to disseminate the experiences and result of the ELENA Investment Programme. Stakeholders such as the housing associations and heat network operators have their own platforms, which also will be used to inform other organisations about the results. There are currently no specific European networks focusing on aquathermal energy in which the province participates, but we keep a close eye on interesting European initiatives we could join.

#### 4.9 Are you planning or have you already requested financial support for the preparation phase of your Investment Programme from one of the following EU programmes?

- |   |    |
|---|----|
| • ERDF / Cohesion funds                       | No |
| • JASPERS                                     | No |
| • IPA Instrument for Pre-Accession Assistance | No |
| • Other EU financed programmes                | No |

If other, please give the name  
N/A

**5. Overview table: Milestones presentation for measuring leverage factor (cumulative values)**

Reporting time (end of year)	Estimated budget Project Development Services			Milestones for Investment Programme implementation (indicate here the part of the total Investment Programme which is planned to be launched at the indicated reporting time)						Cumulative Leverage factor
	Staff costs .	External experts / subcontracts  [in EUR]	Annual Sub-total  [in EUR]	Short description of area, technologies concerned <sup>4</sup>	Identification of investor <sup>5</sup>	Estimated total costs (of energy saving and other investment measures)  [in EUR]	Estimated annual final energy saved for EE projects <sup>6</sup> thermal  [in GWh]	Estimated annual final energy production by RES <sup>6</sup>  [in GWh]	Estimated annual reduction of CO <sub>2</sub> eq  [in t]	(Estimated total costs) / (0.9 x Annual Sub-total)
Year 1	N.A	1.560.000	1.560.000	EE in buildings	SHC / HOA	1,000,000	1	0.5	100	
				DH networks	DH operator	0				
				Total year		1,000,000				N/A
Year 2	N.A	1.030.000	1,030,000	EE in buildings	SHC / HOA	7,000,000	2.8	1.5	700	
				DH networks	DH operator	4,600,00				
				Total year		11,600,000				5.4
Year 3	N.A	410.000	410,000	EE in buildings	SHC / HOA	34,000,000	30	30	9,500	
				DH networks	DH operator	47,000,000				
				Total year		81,000,000				35
TOTALS <sup>7</sup>	N.A	3.000.000	3.000.000			93,600,000	33.8	32	10,500	35
Interim report (month 18)	N.A	2,000,000	2,000,000			6,800,000	1	2.3	520	4

<sup>4</sup> Specifying which main area concerned (i.e. EE, RES, transport or urban infrastructure) and which technology(ies)/measure(s) implemented

<sup>5</sup> Indicate the final investor, the one who will order the work to be carried out

<sup>6</sup> Indicate the main type of energy saved or produced (thermal or electrical)

<sup>7</sup> Total of estimated budget should be the same as in budget table or in Investment Programme presentation

## 6. Estimated costs and funding of project development services

<b>Direct staff costs</b> of the programme (Core team, tendering and administration) are no part of the eligible costs, but provided by the province <b>Direct staff costs</b> made in the project are also no part of the eligible costs, but provided by the project partners.			
<b>External experts / subcontracts</b>			
Type of activities / support	Expected Man-days (days)	Expected daily rates (EUR)	Total (EUR)
	(A)	(B)	(A x B)
Energy audits	373	520	350.000
Feasibility studies	304	760	231.000
Financial engineering	320	920	294.000
Marketing	359	640	230.000
Project management	356	800	285.000
Community engagement	1.158	600	695.000
Technical studies	1.103	680	750.000
Tender process	229	720	165.000
<b>Subtotal external experts / subcontracts</b>			<b>3.000.000</b>
<b>ESTIMATED TOTAL ELIGIBLE COST</b>			
<b>Direct staff costs</b>			0
<b>External experts / subcontracts</b>			3.000.000
<b>TOTAL eligible costs [in EUR]</b>			
<b>FUNDING</b>			
<b>Requested funding from ELENA facility [in EUR]; maximum 90%</b>		<b>in% 90</b>	2 700 000
<b>Own funding [in EUR] (Zuid-Holland)</b>		<b>in% 10</b>	300 000
<b>Other sources [EUR]</b>		<b>in% N/A</b>	N.A.
<b>TOTAL funding [in EUR]</b>			<b>3 000 000</b>
<b>Within the ELENA facility eligible costs are defined as follows:</b>			
<ul style="list-style-type: none"> <li>costs of external experts contracted by the EIB or the Beneficiary according to the national procurement rules</li> <li>additional staff hired by the Beneficiary (e.g. to set up project implementation units) to manage and provide Project Development Services. The cost of additional staff assigned to the action should comprise actual salaries plus social security charges and other statutory costs included in the remuneration, provided that this does not exceed the average rates corresponding to the beneficiary's usual policy on remuneration.</li> </ul> <p>No other costs are eligible.</p>			
<b>Changes between cost categories:</b>			
<p>The total budget initially accepted at the start of the project cannot be increased. Overspending must be taken over by the beneficiary. Changes within each cost category or in relation to the different subcontracting services are possible without any approval. Changes affecting the budget which entail transfer of cost from one category (direct staff costs or external experts / sub-contracts) to another, and which do not exceed 10% of the total budget may be unilaterally decided by the Final Beneficiary, only once over the contract duration and as long as they are immediately notified to the Bank.</p>			

## 7. Declaration by the applicant

Please use the standard "Declaration by the Applicant" that can be downloaded at:  
[www.eib.org/elena](http://www.eib.org/elena)

## APPENDIX I Overview Projects

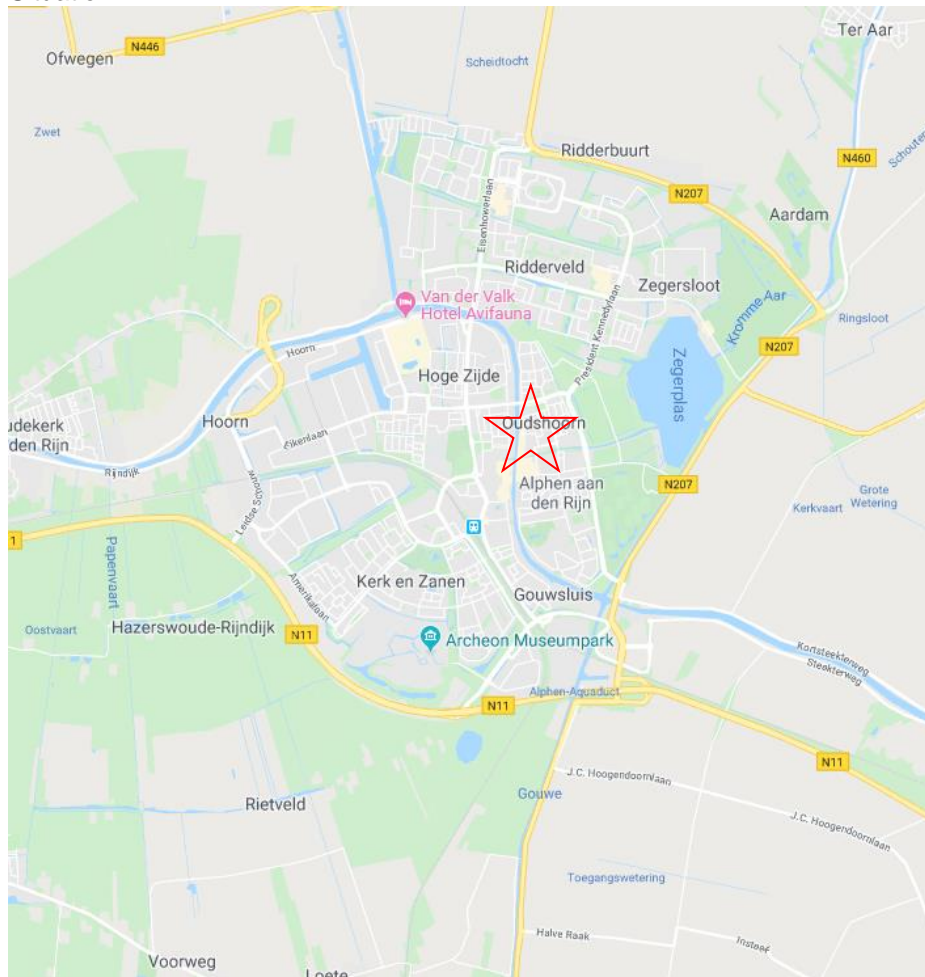
Separate excel sheet

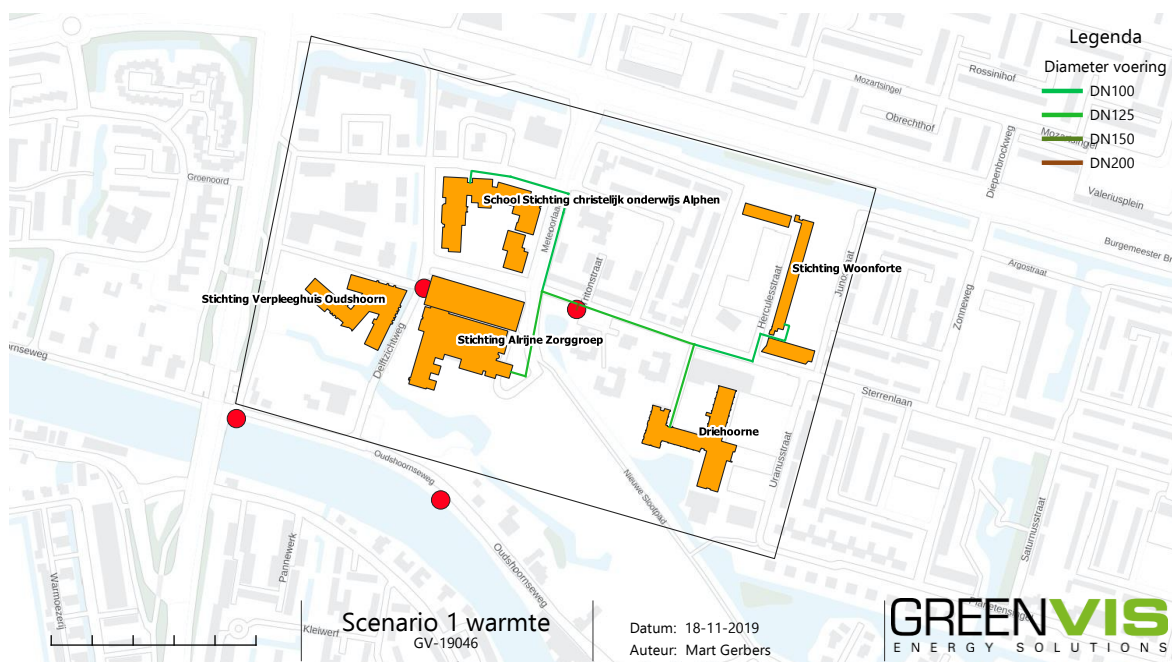
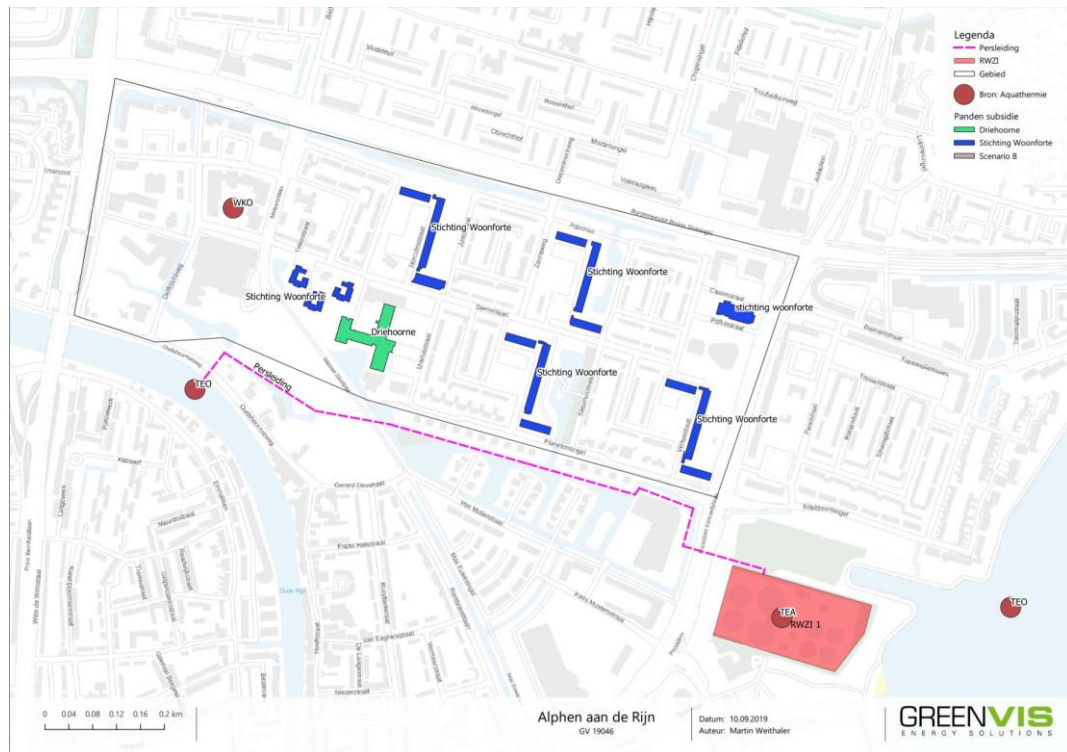


## APPENDIX I I: Location and short description 10 Shortlist Projects

### Alphen aan den Rijn, Planetenbuurt:

Situation:





### Description

The eligible components are:

- The necessary measures in the buildings to prepare the houses for connection to the network (replacing of the existing gas-based heating systems by a heat delivery set, fitting the electric installation for electric cooking)
- The realization of a first phase of a district heating network

There are a number of care facilities and larger residential complexes in the “Planetenbuurt”. The effluent pipeline from the Alphen Noord WWTP ends in the Oude Rijn in this area. The project includes a combination of energy saving and the provision of an alternative heat source for the large-

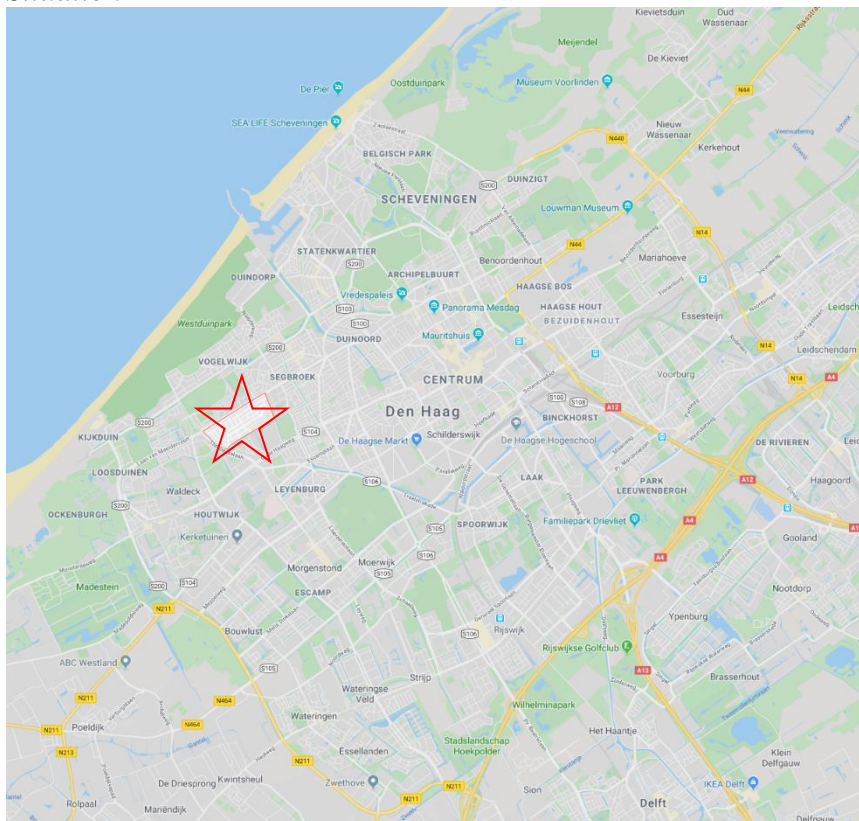
scale complexes, for example from the effluent pipeline or the Oude Rijn. The project comprises the measures from the source to the home / institution, for Elena subsidy the adjustments to the home and the associated part of the heat network are introduced as investment components.



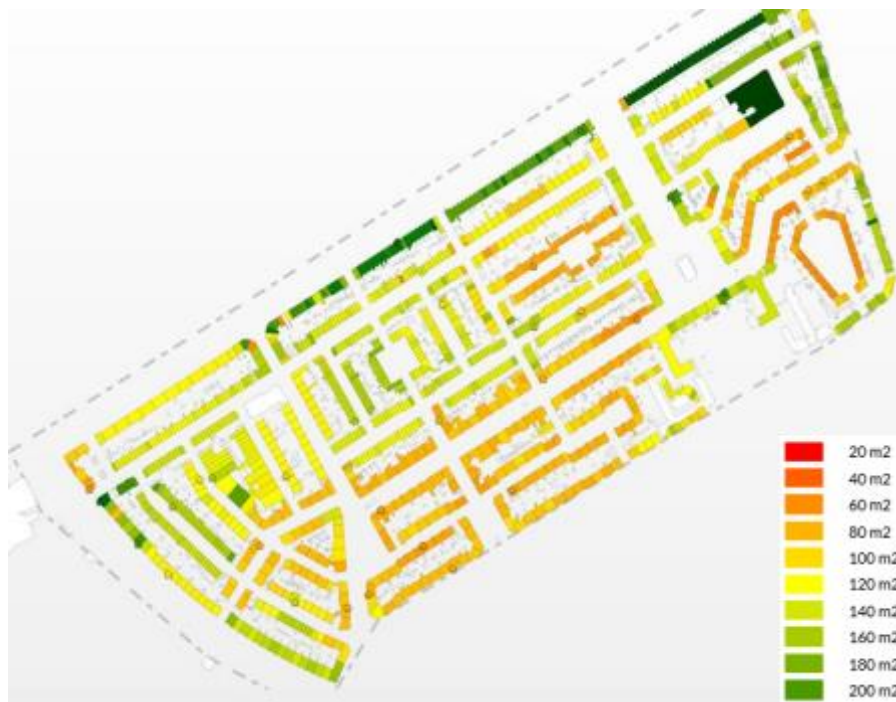
Possible sources of heat are water from the Oude Rijn (TEO) or effluent from the sewage treatment plants (TEA/RWZI), combined with a ground-coupled heat exchanger (WKO). The development of heat sources and storage facilities is not part of the application. The generated heat will be used by 1178 home-equivalents (784 homes and some public buildings)

## Den-Haag: Vrucchtenbuurt

### *Situation*







### Short description

In The-Hague residents of a local neighbourhood, de Vruchtenbuurt, have organised themselves in a collaboration and work towards a transition from a gas-based infrastructure to a sustainable district heating. The heat network to be developed will receive its heat from an existing drinking waterpipe.

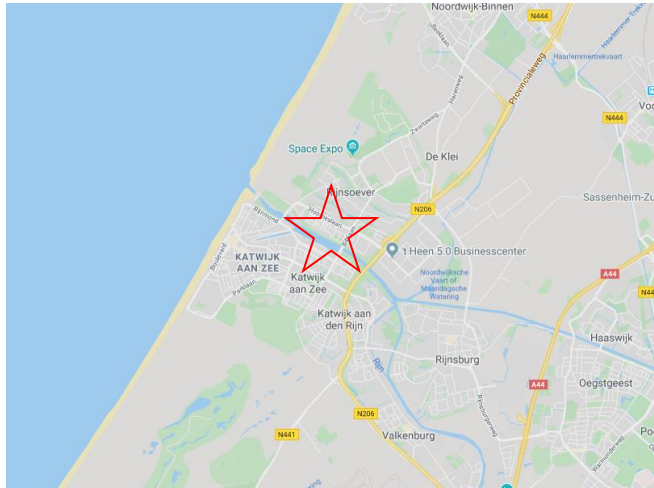
### Kaag en Braassem, diverse dorpen



Based on targets formulated in the Holland 'Rijnland Energieakkoord'<sup>8</sup>, the local authority aims for more energy efficiency (25% less energy used) and more Renewable energy (10%) in 2025. The neighbourhoods "Woubrugge", 'Rijnsaterwoude' and 'Leimuiden' are suited for district heating with aquathermal as a renewable energy source. As a first step, 643 houses will be made more energy efficient. There is a mix of housing corporation property and private owned houses.

## Katwijk, Hoornes

### Situation



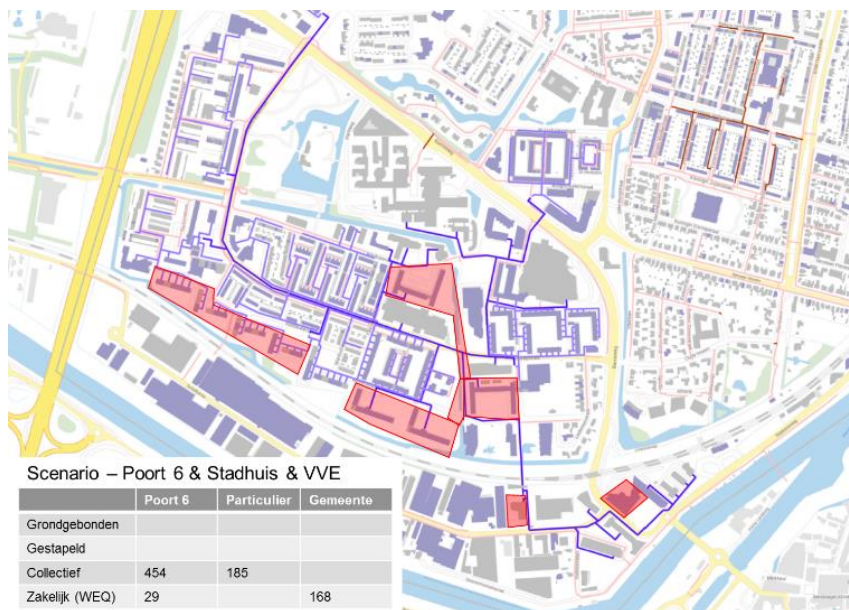
Figuur 2 GIS-visual met huidige energielabels van de gebouwen in de wijk Hoornes

The local Authority aims to be a 100% energy neutral municipality in 2050. Energy efficiency in housing and a more sustainable energy source are important components of its energy transition plan. The first step is a transition in the neighbourhood 'Hoornes' from a gas infrastructure to aquathermal. In the first phase, 630 houses will be connected to this new infrastructure. Planned completion for this phase is in 2023. This will then be extended for 2700 houses in 2030.

<sup>8</sup> <https://hollandrijnland.nl/wp-content/uploads/2016/06/20170927-Energieakkoord-Holland-Rijnland-2017-2025-definitief.pdf>

## Gorinchem, Gildewijk

### Situation



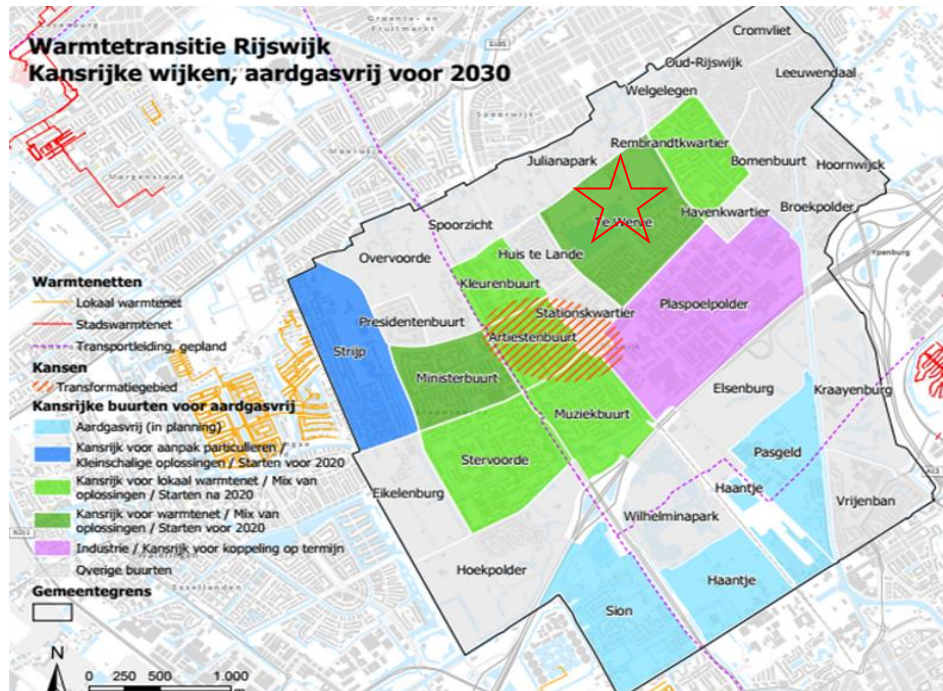
The local authority formulated their plans on sustainability in: 'Duurzaam Gorinchem'<sup>9</sup>. The authority aims at a CO<sub>2</sub> reduction of 49% in the year 2030. Energy efficiency in buildings and sustainable energy sources are important components to reach this goal. In the neighbourhood 'Gildewijk' preparations are made for a transition from gas infrastructure to sustainable heat. Energy sources are Thermal Energy, Aquathermy and in the future Geothermy. The first phase consists of 639 houses.

<sup>9</sup> <https://www.gorinchem.nl/over-gorinchem/plannen-en-projecten/duurzaam-gorinchem/duurzaam-gemeente-gorinchem>



## Rijswijk, hoogbouw wijken:

### Situation

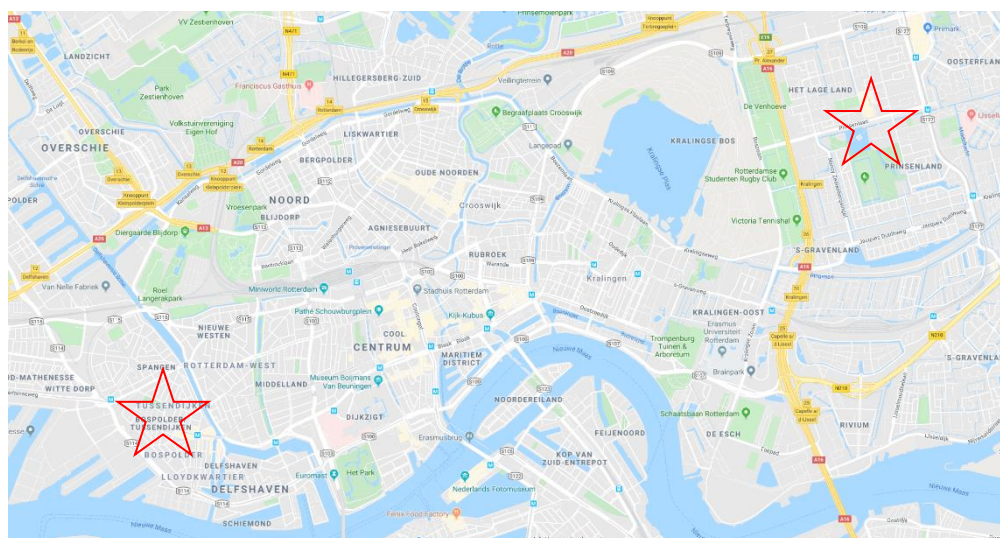


### Description

The local authority has formulated their strategy for a sustainable energy supply in: 'Energievisie Rijswijk'<sup>10</sup>. Because of its high density of houses, the neighbourhood 'Te Werve' is the first neighbourhood to make a transition from gas infrastructure towards sustainable heat. The current goal is to make a first step with 500 houses which should be completed in April 2023. 400 houses are owned by a housing corporation. 100 Houses are privately owned. The two energy sources under investigation are aquathermal and residual heat.

## Rotterdam, Bospolder/Tussendijken and Prinsenland/Lageland

### Situation

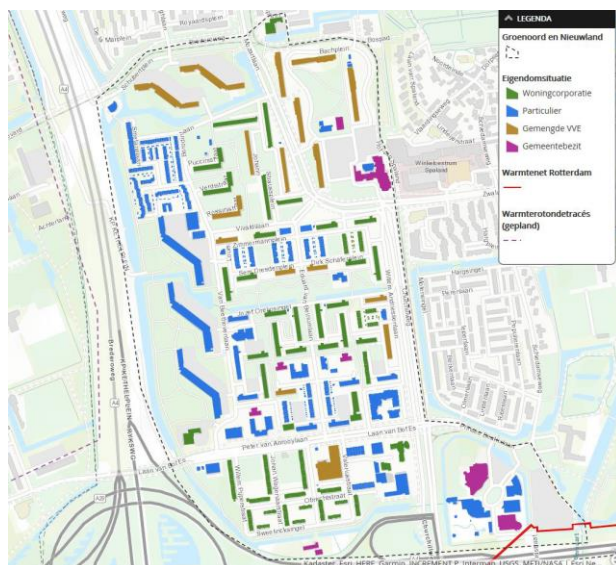
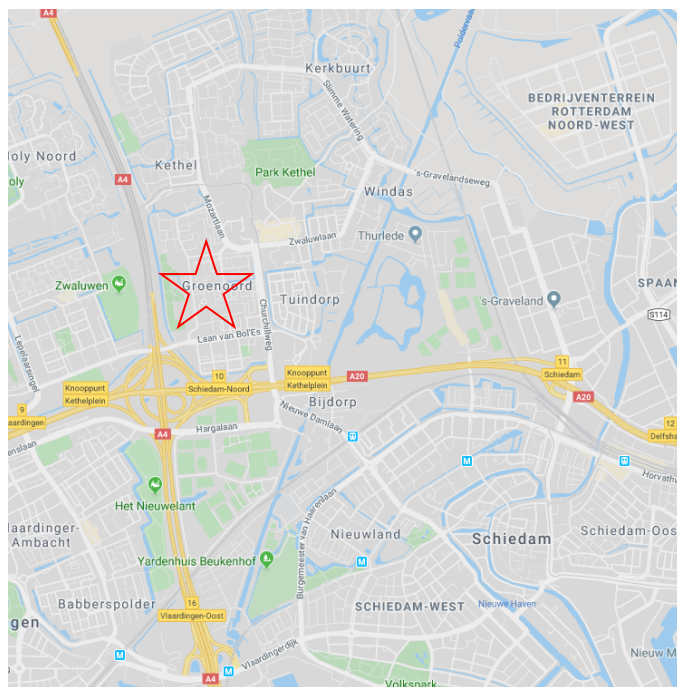


<sup>10</sup> [https://www.rijswijk.nl/sites/default/files/energievisie\\_rijswijk.pdf](https://www.rijswijk.nl/sites/default/files/energievisie_rijswijk.pdf)

In the 'Coalitieakkoord 2018-2022'<sup>11</sup> the local authority aims for a CO<sub>2</sub> reduction of 49% in 2030 as compared to 1990. As a consequence, 10.000 houses should make a transition from a gas infrastructure to sustainable heat. The WAT-Kaart gives information which solutions are suitable for specific neighbourhoods. Based on this information, Rotterdam now focuses on the neighbourhoods 'Bospolder Tussendijken' and Prinsenland/Lageland. . In 10 year, 4700 houses in both neighbourhoods should be disconnected from the current gas based infrastructure, with 963 houses in Bospolder and 500 in Prinsenland as a first step. Residual heat is the currently investigated source of energy.

## Schiedam, Groenoord

### Situation



Groenoord is a Schiedam district built in the 60-ies and 70-ies. The Rotterdam regional heat network is located at the edge of the district. An district heat network will be developed to bring the

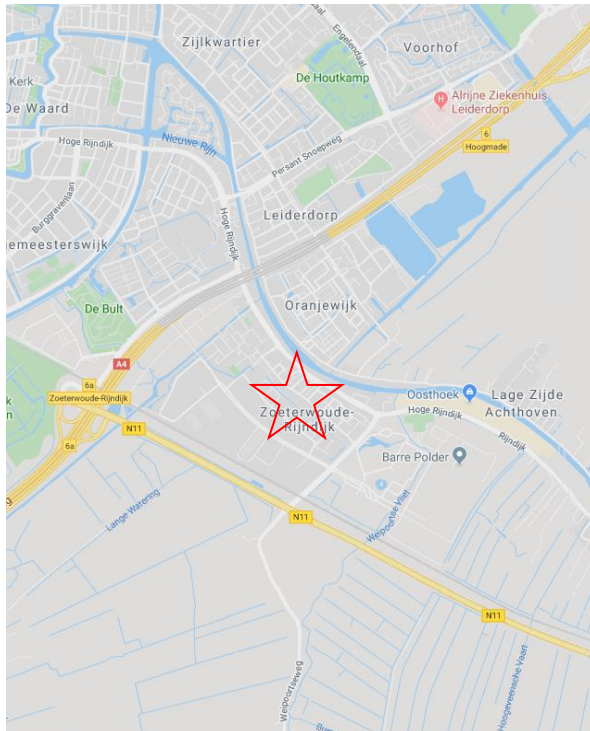
<sup>11</sup> <https://www.rotterdam.nl/nieuws/coalitieakkoord/Coalitieakkoord-2018-2022.pdf>



residual heat from Rotterdam harbor to the houses. Under the Elena programme the first phase of the network, including the adaptation of the houses for district heating, will be realized.

## Zoeterwoude, Hoge Rijndijk

### *Situation*



Information about the policy of the local authority on sustainability can be found on the website<sup>12</sup> and are based on regional goals that are formulated in the 'energieakkoord Holland-Rijnland'<sup>13</sup>. As a part of these goals, the neighbourhood 'Hoge Rijndijk' is investigated to make a transition towards district heating. Hoge Rijndijk consists of 1170 houses. 715 houses will make this transition in the first phase. These houses are part property of a housing corporation and partly private owned houses. The targeted new energy source is residual heat from a great brewery in the neighbourhood. .

<sup>12</sup> [https://www.zoeterwoude.nl/home/lokale-regels-en-beleid\\_42068/](https://www.zoeterwoude.nl/home/lokale-regels-en-beleid_42068/)

<sup>13</sup> <https://hollandrijnland.nl/wp-content/uploads/2016/06/20170927-Energieakkoord-Holland-Rijnland-2017-2025-definitief.pdf>

## Appendix III: Energy Calculation tool

See separate excel-sheet

## APPENDIX IV: Projects and stakeholders involved

In a separate PDF-file are added:

Municipalities: 9 letters of intent

Model-Uitvoeringovereenkomst: (model contract between province and each municipality)

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