



# Project Confidence

## Advancing Dutch District Heating with Danish Inspiration



## Your moderator for today

Morten Duedahl



Business Development  
Manager at DBDH  
(Danish Board of  
District Heating)

Michiel de Wit



Process Manager  
district heating at the  
Municipality Súdwest-  
Fryslân





# Opening and welcome

Program for today

Welcome and introduction to CONFIDENCE

- Deep Dive II – Outcomes and Insights

Topic #1 – [Establishing a Municipal Energy Company.](#)

- Discussion and time for questions

Topic #2 – [Developing the Masterplan: From Pilots to a Phased Approach?](#)

- Discussion and time for questions

Topic #3 – [Developing the Financial Model?](#)

- Discussion and time for questions

Next steps...



# Project Confidence

## From idea to project

### Our motto

We don't sell energy  
We sell sustainability,  
comfort and lifequality

- Project is aimed at translating Danish knowledge in the heat transition to Dutch issues on:
  - Organization
  - Financing
  - Confidence

#### First Deep dive session

- Our first Deep dive on 13, 14 and 15 June was a great success with important lessons we turned into a new way of development.
  - Masterplan approach
  - Key assumptions optimisation business case
  - Creating more confidence

#### Second Deep dive session

- The second Deep dive 4, 5 and 6 November largely returned to confidence as a theme.
  - Assessment of our steps taken, are we doing the right thing?
  - Establishing a district heating company, how do we increase trust among local politicians, stakeholder and our residents
  - But also how do we build on the experience we gain together





# Project Confidence

## From idea to project

- Project partners
  - Working together in this project with.:
    - Danish Board of District Heating
    - Gemeente Súdwest-Fryslân
    - Enber B.V.
    - Province of Fryslân
    - BNG Bank Nederlandse Gemeenten
    - VNG Vereniging Nederlandse Gemeenten
    - Danish Embassy in the Netherlands
    - Naestved Fjernvarme, Egedal Fjernvarme, municipality Høje-Taarstrup



Cilou Bertin, VNG



Caspar Boendermaker,  
BNG



Susana Paardekooper,  
DEA



Andries Metz,  
Province



Mikkel Vibæk  
Jensen, DK  
Embassy



Joke Yedema,  
Municipality SWF



## Danish Experts

Jens Andersen



Director  
Næstved  
Fjernvarme



Marie-Louise Lemgart



Chief energy and  
climate advisor at  
Høje-Taastrup  
Municipality



Johan Sølvhøj



Director  
Egedal  
Fjernvarme



Hanne Kortegaard  
Støchkel



Project  
Development  
Manager at  
DBDH



Morten Duedahl



Business  
Development  
Manager at  
DBDH



## Speakers

Michiel de Wit



Process Manager  
district heating at the  
Municipality Súdwest-  
Fryslân

Bernard Stornebrink



Senior Energy Finance  
Specialist at Enber

Sacha de Haan

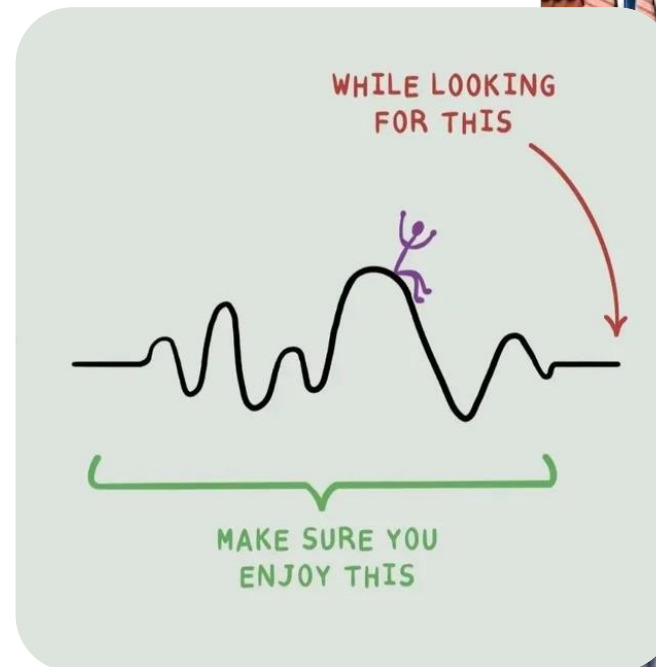


Process Leader heat  
transition at the  
Municipality Súdwest-  
Fryslân



# Development of a municipal energy company


- Process of creating an energy company
  - Recent developments
  - From concept to municipal decision.
  - Lessons and company





# Recent developments

**NOS** Nieuws Sport Live Programma's



Dit is een nieuwsbericht van Omrop Fryslân

Donderdag 5 december, 07:20

## Wordt Súdwest-Fryslân de eerste Friese gemeente met een eigen energiebedrijf?

Súdwest-Fryslân wordt mogelijk de eerste gemeente in onze provincie met een eigen energiebedrijf. De gemeenteraad besluit binnenkort of Súdwest de touwtjes zelf in handen neemt.

Na een lange discussie werd he

**Omrop Fryslân**

Thuis Nieuws Sport Cultuur TV Radio Podcasts Dossiers

► Luisteren

## Gemeenteraad schoorvoetend akkoord met eigen energiebedrijf in Súdwest-Fryslân

20 december 2024, 07:57 • 2 minuten leestijd



Radiator  
© Shutterstock.com

Het is een sprong in het diepe voor de gemeente Súdwest-Fryslân: de oprichting van een eigen energiebedrijf. Want daar zijn nog maar een handjevol van in Nederland en in Friesland zelfs niet één.



# Climate Agreements



Maximum 2°C temperature increase (Paris agreement)



55% CO<sub>2</sub>-emissions in 2030 compared to 1990 (Climatelaw)  
Maximum support for transition Climate Neutral Society (Climate Plan, 2019)  
51% public control in new district heating company's (Concept WCW, 2023)



50% CO<sub>2</sub>- emissions in Súdwest-Fryslân in 2030 compared to 1990 (Climate agenda)  
Making 8,000 homes natural gas-free by 2030  
Súdwest-Fryslân Energy-neutral 2050





## Challenges

- Complex policy area
- New way of thinking, considering the neo-liberal tradition
- Can we still go back? Lock-in fears
- How do we maintain control



# Confidence

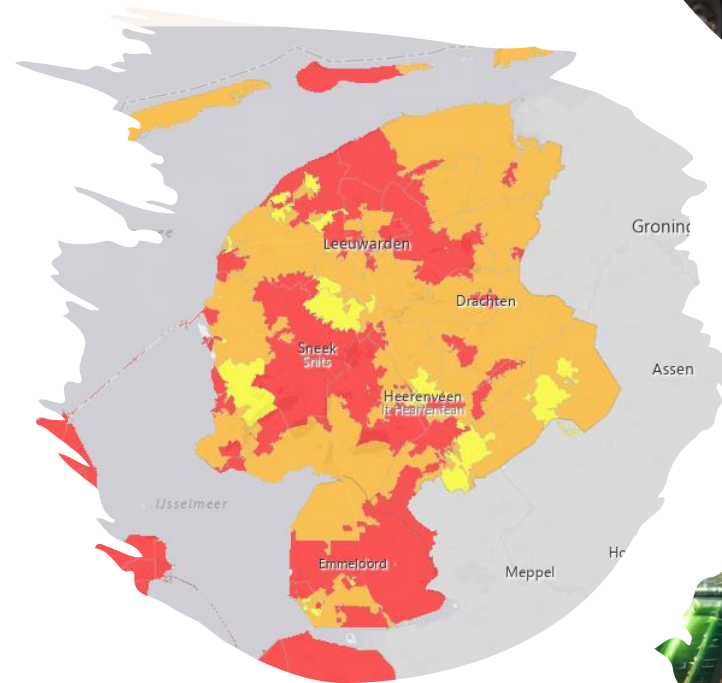
- Take the time to get councillors on board
  - Information-sessions
- Discover their concerns, worries, objections
  - Face-to-face meetings
- Give councillors the opportunity to meet the team, a face to a name.
- Ensure that the plan is well structured, with several decision moments for both the council and the coalition
  - Step 1: municipal energy company
  - Step 2: Which city first
  - Step 3: Project proposal for the whole city, and first phases





# Storytelling

- How does it relate to other municipal ambitions? Put yourself in the shoes of the Executive Board and the Council.
- Local heat sources over foreign gas
- Residual heat from Frisian companies
- Grid congestion



# From concept to decision

## Collective Heat Supply Act

Letter 21 October 2022

Minister Jetten:

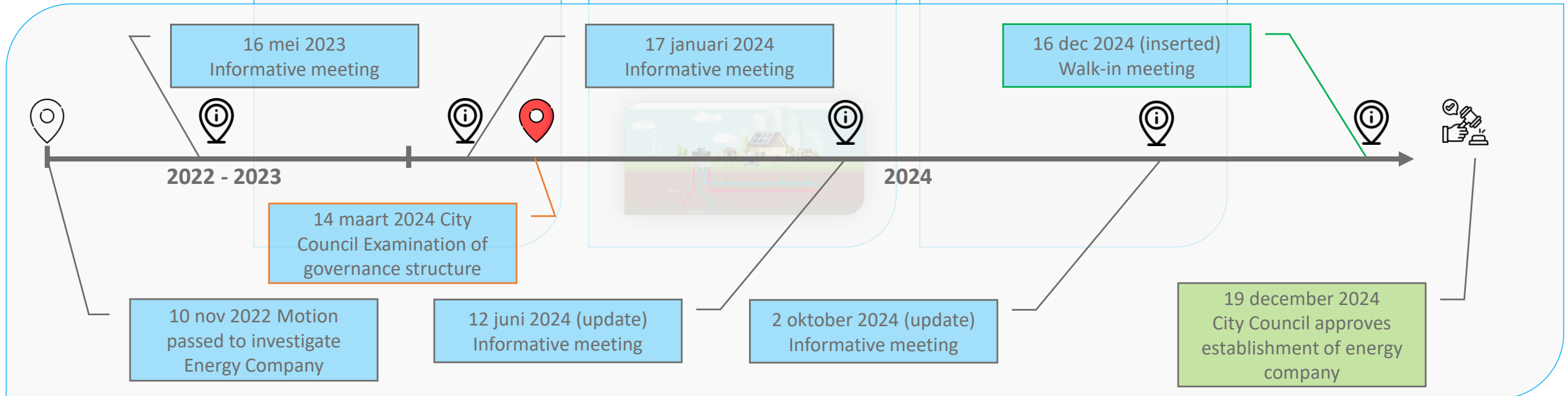
- More authority for local initiatives.
- At least 51% public ownership.
- Public responsibility entire heat chain.

## Initiatives and projects SWF

Important principles from our initiators, pilot projects, local stakeholders and the SWF municipality include **affordability, reliability**.

## Guiding principles from the Citizen's Forum

**Fair** distribution of burdens, benefits and participation. Cooperation/self-determination







# Why take control?

## **Pilots**

- Seizing random opportunities
- Challenging business cases

## **To approach**

- Starting based on critical success factors
- Coordination at the municipal level needed

## **Beste option**

- Goals
- Lessons
- Complexity





## Why now?

- Responsibility towards the community in achieving climate goals
  - 8000 houses before 2030
- New laws
  - Wgiw & Wcw
- Grid congestion and municipal ambitions
- Feasible and affordable





## Frisian community: "Mienskip"

- Local heat sources instead of foreign gas
- Local ownership based on our own principles
- Employment and stimulation of the local economy, with opportunities for technicians, construction companies, and installers
- Affordable and accessible heat while achieving climate goals

# Grid congestion and municipal ambition

In 2024 1500 companies on the waiting list for a power connection in Fryslân

Municipal ambitions:

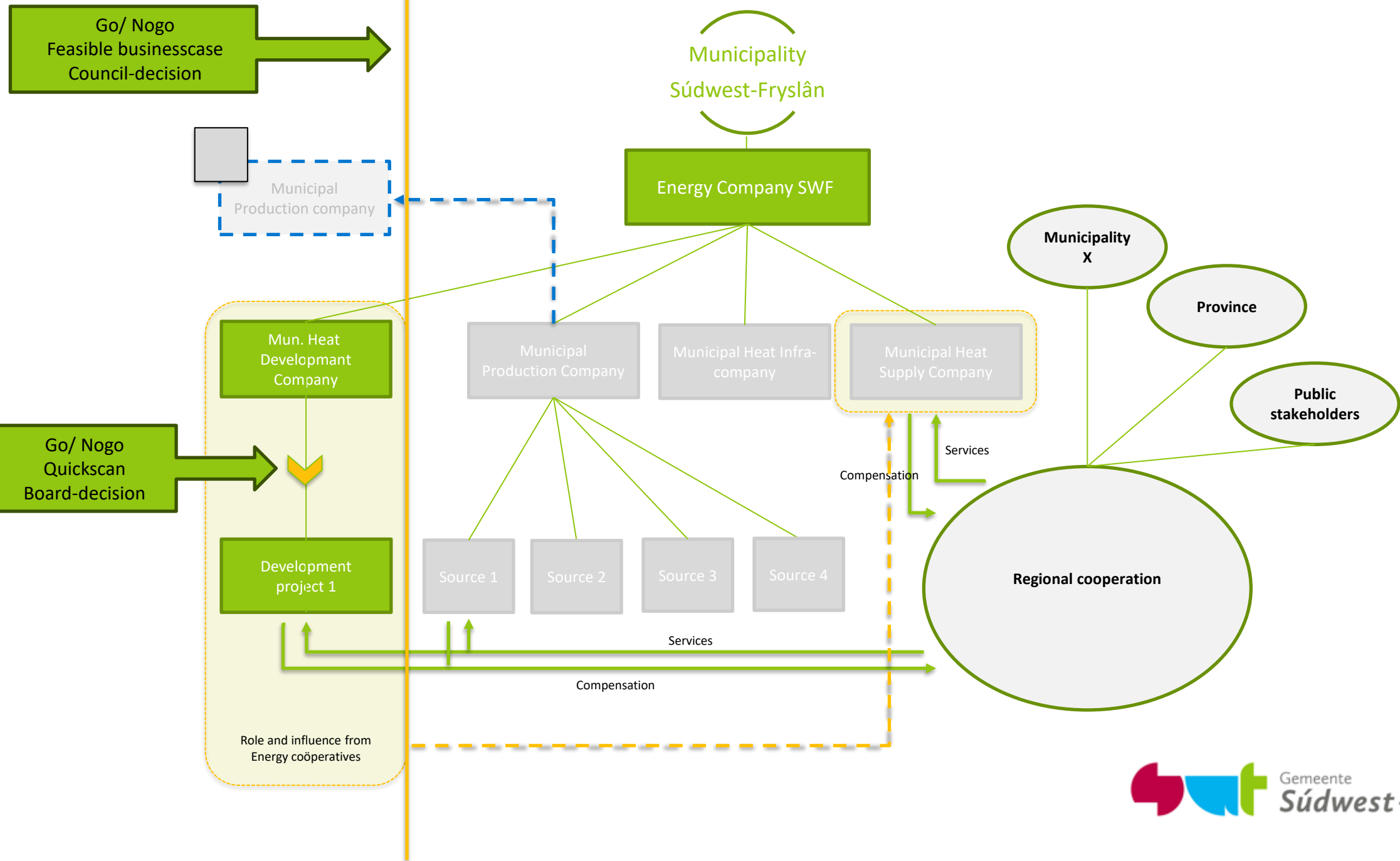
- New houses
- Expansion of companies (Hochwald, Bolsward)
- New companies (Hemmen III)
- Social facilities

Collective district heating:

- Requires less electricity than individual heatpumps
- Reduces grid congestion through:
  - Converting electricity surpluses into heat
  - Easily storing heat
- Utilizing (residual) heat sources that would otherwise go unused.







Now it's **time** for...

Vragen

**Questions**

og

and

Discussies

**Discussions**

en

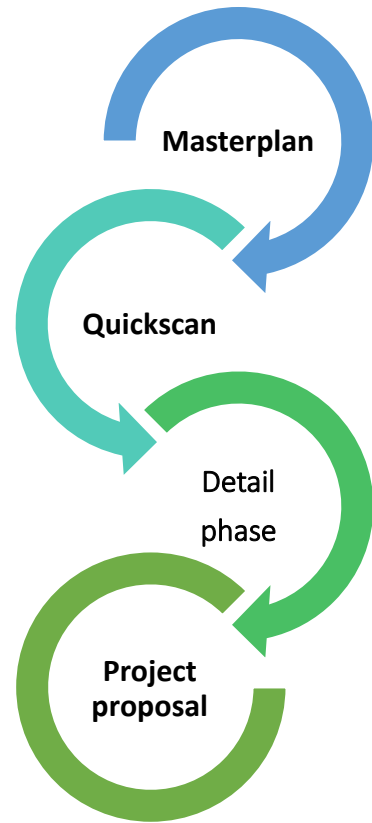
Diskussioner

Spørgsmål





# Developing the Masterplan: From Pilots to a Phased Approach







# From pilot to approach

## Masterplan:

**A municipality-wide plan with clearly delineated promising area's**

Critical succes factors for a feasible businesscase:

- High heatdemand density
- Cheap (residual) heat sources
- Large consumers
- Don't start with 100% sustainable

Useful:

- Coupling opportunities
- Bottom-up initiatives



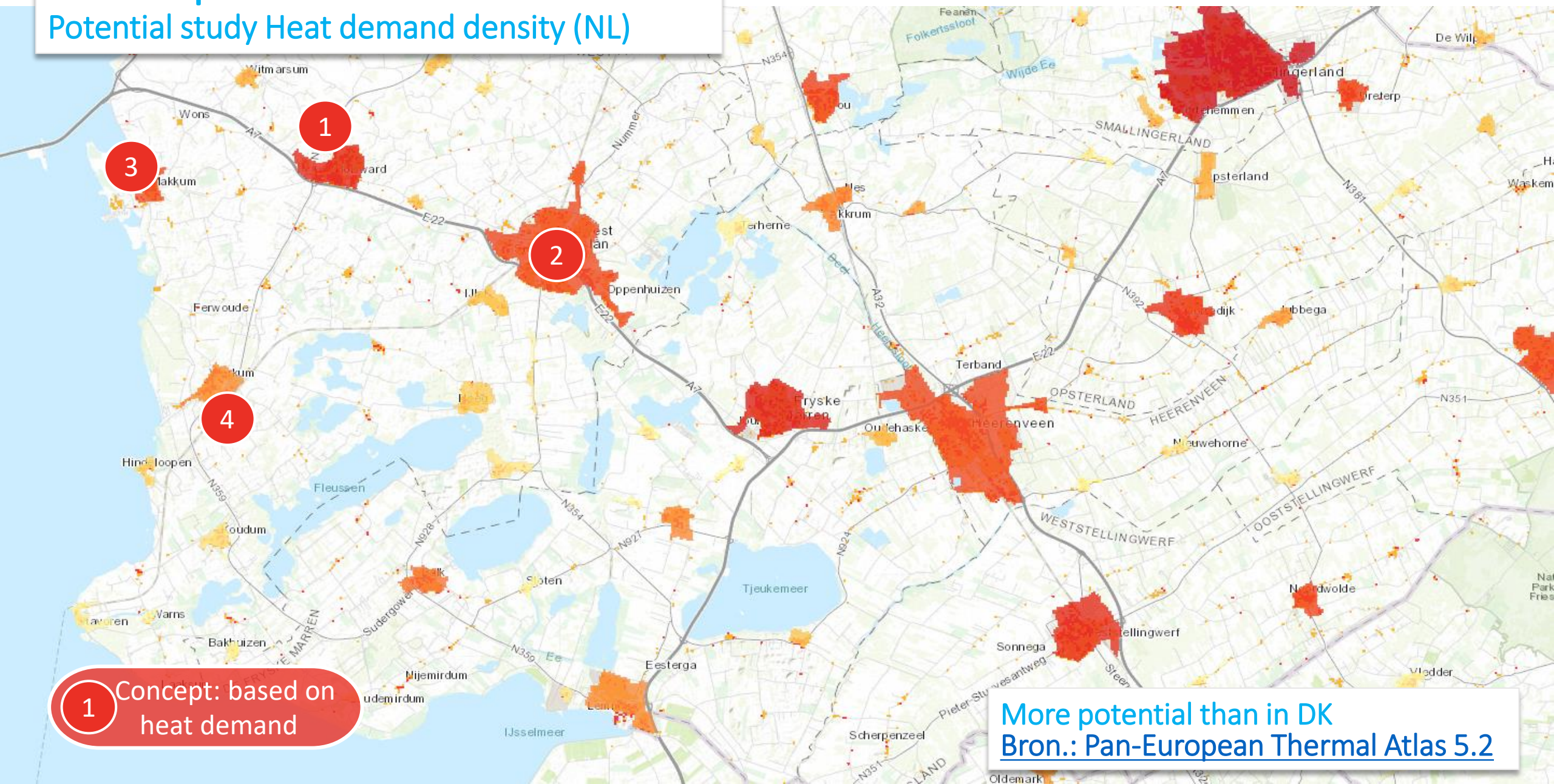
## Potential study Heatdemand density (DK)





# Masterplan

## Potential study Heat demand density (NL)



1

Concept: based on  
heat demand

More potential than in DK  
Bron.: Pan-European Thermal Atlas 5.2

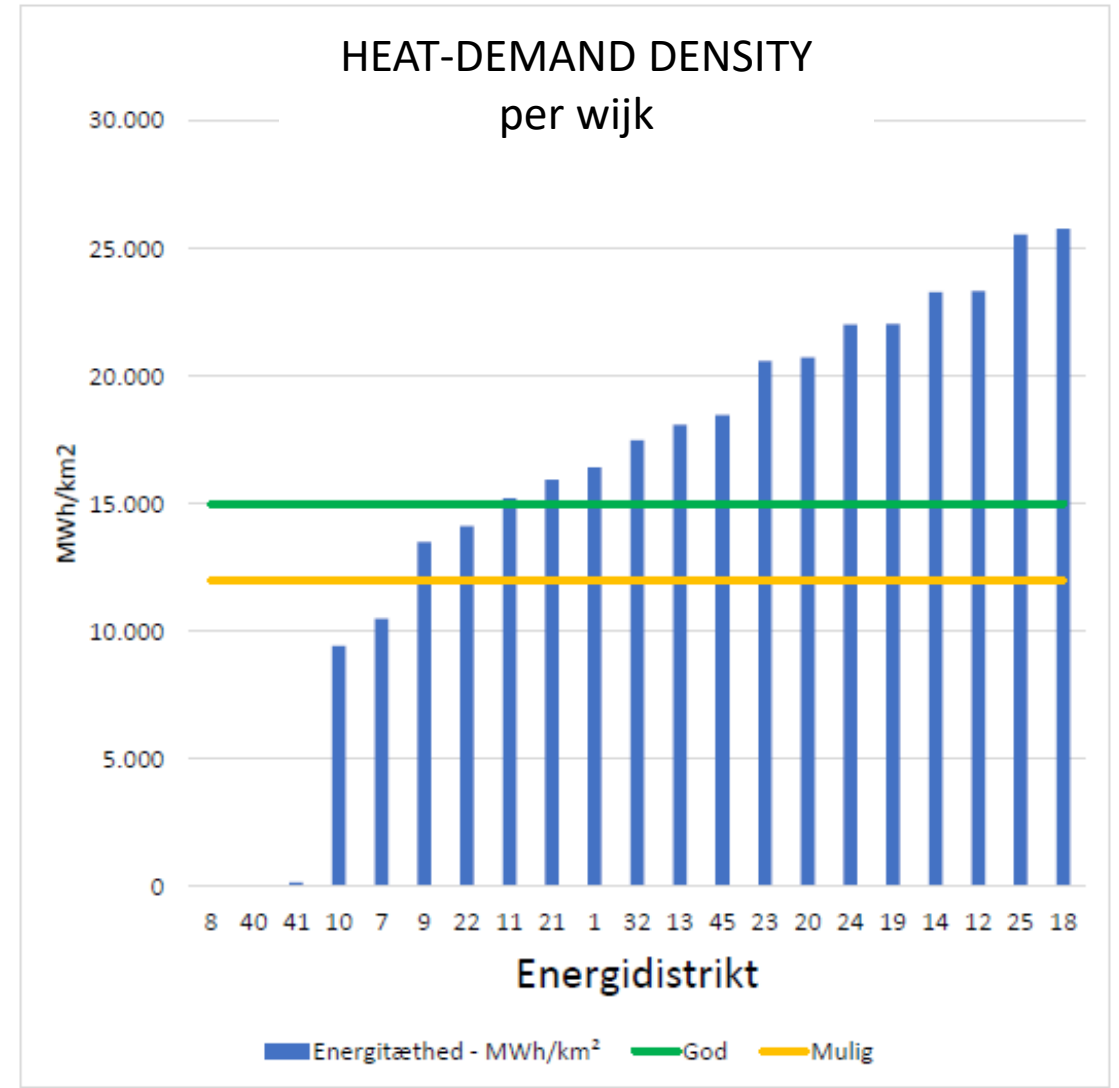
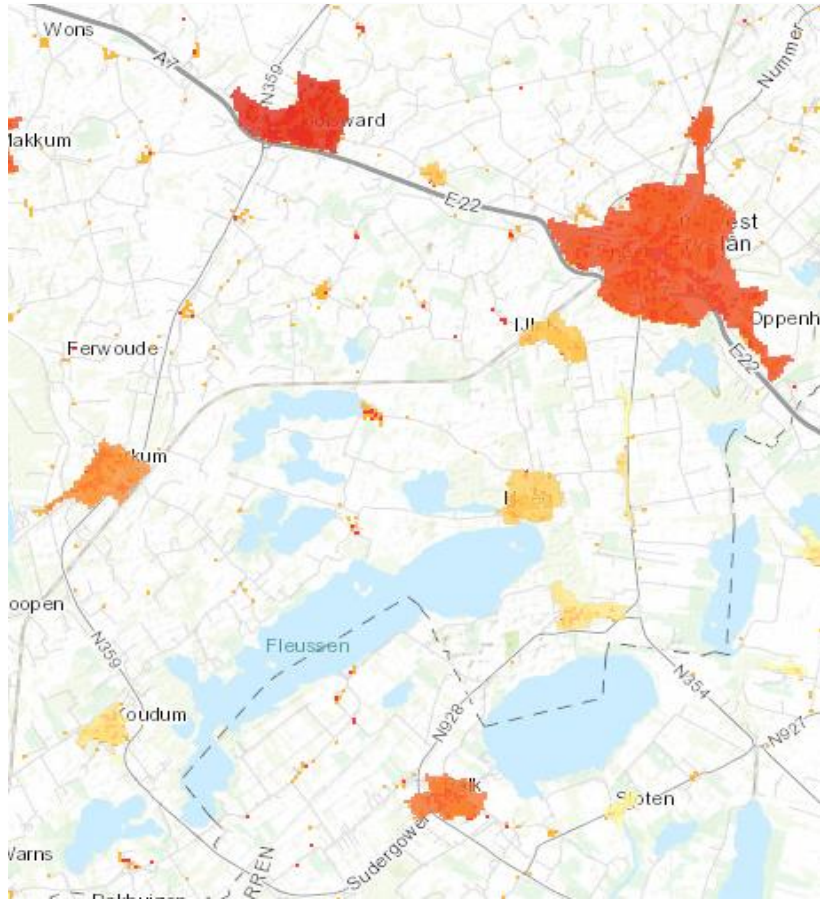


# Determining the most successful area's through Quicksans





## Determining the most succesful area's through Quicksans





## Masterplan

Which area (city, town, neighborhoods) first  
Decision by **Municipal Council**

Go/ NoGo

## Quickscan

Assessment of the feasibility of the plan

Go/ NoGo

## Detail-phase

Participation of inhabitants and companies  
Developing precise figures

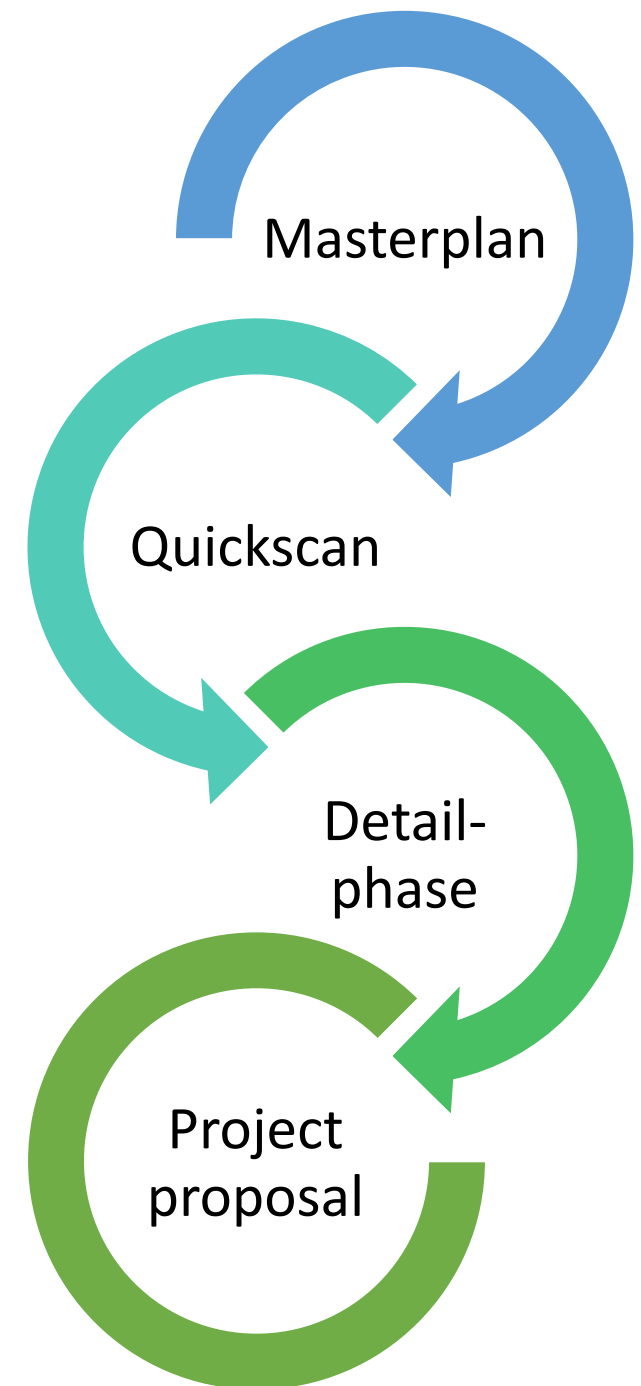
Go/ NoGo

## Project proposal

A solid business case with approval from (public) financiers  
Decision by **municipal council**

Go/ NoGo

Independent  
financial audit  
after council  
approval



# Enber – how to proceed

- How to proceed, after establishing a municipal energy company
- 6 (main) steps to “start digging”
- Source strategy
- Financial model





# HOW TO START?

## IN 6 STEPS TO BUILDING



### STEP 1: ROLE DETERMINATION

What is my role as a municipality within the heat transition?



### STEP 2: MASTERPLAN

Create a master plan at the municipal level and prioritize



### STEP 3: IMPACT

What is the financial and organizational challenge that comes with it?



### STEP 4: DECISION MAKING

Inform colleagues, the executive board, and the council, and proceed to decision-making



### STEP 5: ENGINEERING

Develop the details and engineer the first project



### STEP 6: START CONSTRUCTION

Start construction of phase 1 of the first project

# STEP 1

## ROLE DETERMINATION



### STEP 1: ROLE DETERMINATION

What is my role as a  
municipality within the  
heat transition?

- What role do you take as a municipality?
- Do you establish your **own energy company**, or do you collaborate with one or more **private companies**?
- How do you engage with **energy cooperatives**?
- How do you ensure the right level of control and **governance**



# STEP 2

## Masterplan



### STEP 2: MASTERPLAN

Create a master plan at the  
municipal level and  
prioritize

- Create a plan for the entire municipality
- Determine the most promising cities/villages and start there.

Pay attention to

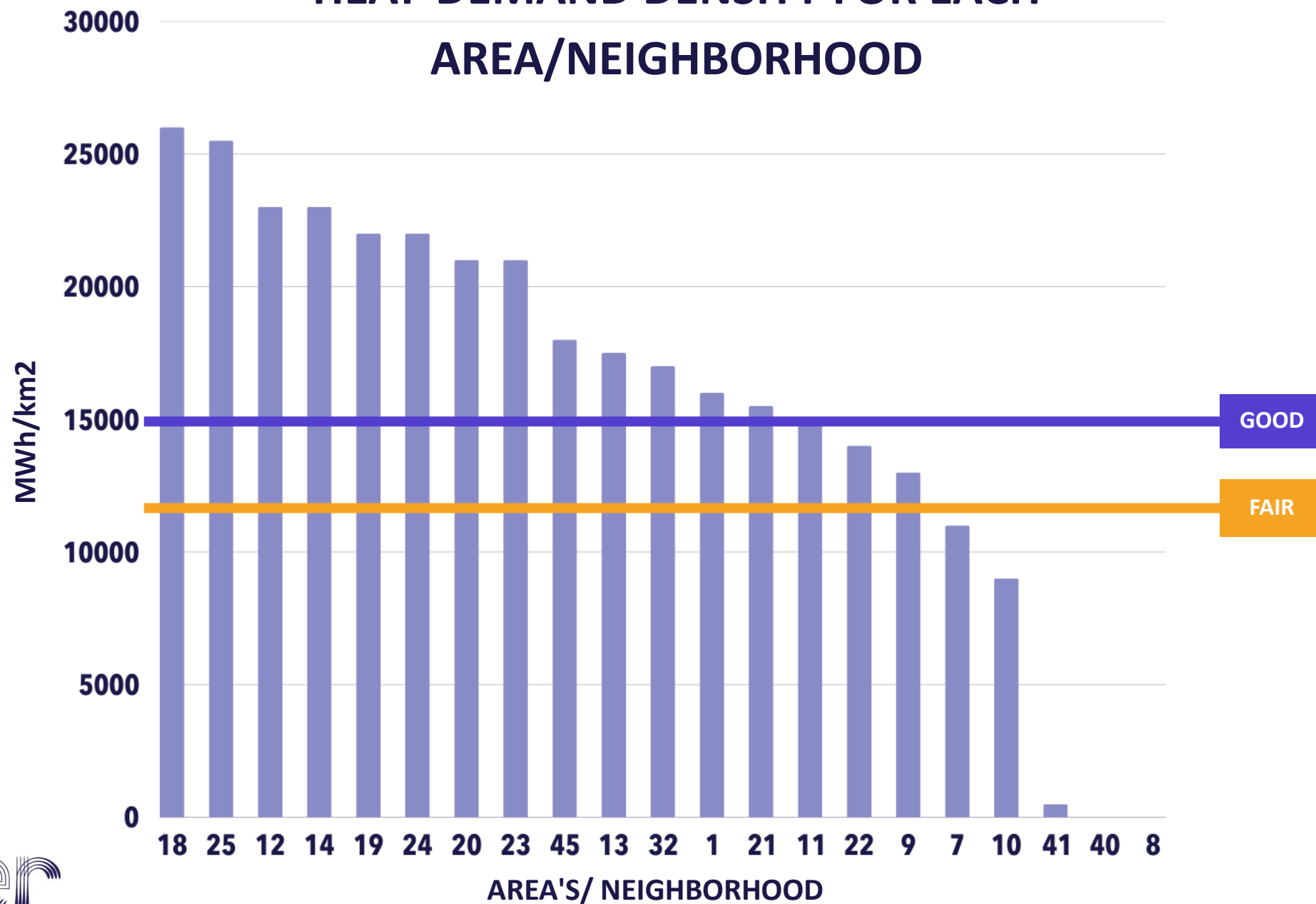
- The highest **heat demand** per square meter
- The availability and **location of heat sources**.
- The presence of **large consumers**/ housing corporations

“PLAN BIG, START SMALL”

Jens Andersen

Director of Næstved

# HEAT-DEMAND DENSITY FOR EACH AREA/NEIGHBORHOOD





# ADVANTAGES

## OF A MASTERPLAN

- Creates **clarity** where collective heating is feasible.
- Phased development makes it **manageable** (financially and organizationally).
- Starting with the most promising real estate in the most promising neighborhood leads to **faster return on investment**. Early success leads to:
  - Higher chance of positive decision-making on further expansion of heating network.
  - Public trust and thus reduces possible resistance to collective heating in subsequent phases.
- Even less 'profitable' real estate/neighbourhoods that do not independently qualify for collective heating may be feasible as part of a larger municipal heating network, as long as this does not materially affect the affordability of the whole.
- Informed choice of investments in **oversizing of infrastructure** for scalability possible. Aims to realize efficient growth of heating network.

### WATCH OUT!

Any surplus yield from the most promising neighborhood/property will not be used directly for price reduction but as a source of financing for the development of the subsequent phases.

Now it's **time** for...

Vragen

**Questions**

og

and

Discussies

**Discussions**

en

Diskussioner

Spørgsmål





# Developing the Financial Model



# HOW TO START/CONTINUE?

## IN 6 STEPS TO BUILDING



### STEP 1: ROLE DETERMINATION

What is my role as a municipality within the heat transition?



### STEP 2: MASTERPLAN

Create a master plan at the municipal level and prioritize



### STEP 3: IMPACT

What is the financial and organizational challenge that comes with it?



### STEP 4: DECISION MAKING

Inform colleagues, the executive board, and the council, and proceed to decision-making



### STEP 5: ELABORATION

Develop the details and engineer the first project



### STEP 6: START CONSTRUCTION

Start construction of phase 1 of the first project



# STEP 3

## FINANCIAL AND ORGANIZATIONAL IMPACT



### STEP 3: IMPACT

**What is the financial and organizational challenge that comes with it?**

- Mapping all projects to determine the financial impact on the municipality
- Including a general timeline for execution
- Tracking progress towards objectives
- Providing insight into the financial impact
- Sequentiality in finances/resources.
- Based on these follow through a decision-making process

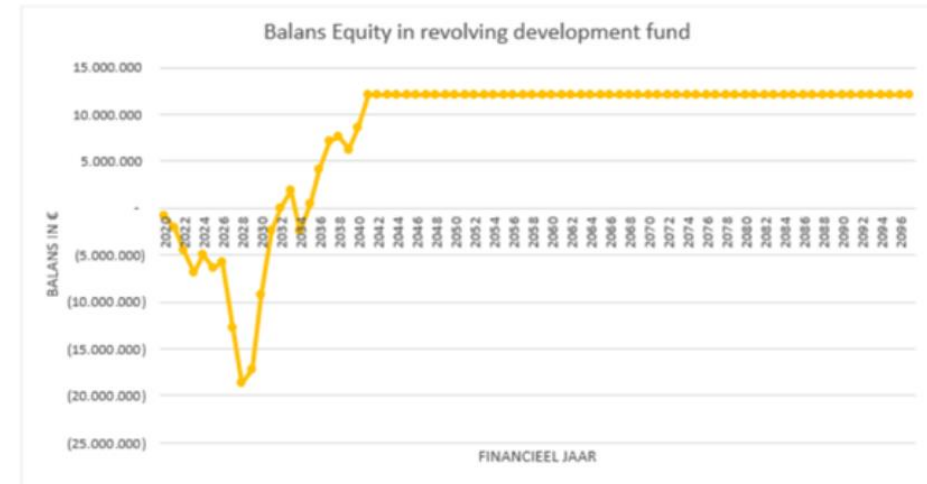
# STEP 3

## IMPACT

### Balans Equity in revolving development fund

Laagste waarde	Alle projecten	€	(18.650.961)
Jaar van Laagste waarde	Alle projecten		2028
Hoogste waarde	Alle projecten	€	12.035.864
Jaar van Hoogste waarde	Alle projecten		2041

enber IMPACTMODEL



Financial year	Totaal storting	Totaal retour	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Boeking - Equity in Project 1 Development	€ (941.310)	€ 1.129.572	-235.328	-235.328	-235.328	-235.328	1.129.572	-	-	-	-	-	-	-
Boeking - Equity in Project 2 Development	€ (2.295.052)	€ 2.754.062	-573.763	-573.763	-573.763	-573.763	2.754.062	-	-	-	-	-	-	-
Boeking - Equity in Project 3 Development	€ (1.723.611)	€ 2.068.333	-	-430.903	-430.903	-430.903	-430.903	2.068.333	-	-	-	-	-	-
Boeking - Equity in Project 4 Development	€ (4.630.055)	€ 5.556.066	-	-	-1.157.514	-1.157.514	-1.157.514	-1.157.514	5.556.066	-	-	-	-	-
Boeking - Equity in Project 5 Development	€ (1.771.544)	€ 2.125.853	-	-	-	-	-442.886	-442.886	-442.886	-442.886	2.125.853	-	-	-
Boeking - Equity in Project 6 Development	€ (3.825.044)	€ 4.590.053	-	-	-	-	-	-956.261	-956.261	-956.261	-956.261	4.590.053	-	-
Boeking - Equity in Project 7 Development	€ (3.473.879)	€ 4.168.655	-	-	-	-	-	-868.470	-868.470	-868.470	-868.470	4.168.655	-	-
Boeking - Equity in Project 8 Development	€ (3.154.312)	€ 3.785.175	-	-	-	-	-	-	-788.578	-788.578	-788.578	-788.578	3.785.175	-



# STEP 4

## DECISION MAKING



### STEP 4: DECISION MAKING

**Inform colleagues, the executive board, and the council, and proceed to decision-making**

On the basis of:

- Role (Step 1)
- Masterplan (Step 2)
- Impact (Step 3)
- Rationale
- Confidence

# STEP 5

## ENGINEERING



### STEP 5: ENGINEERING

**Develop the details and  
engineer the first project**

- Danish approach vs Dutch approach
- Differences in source strategy
- Standardized prices/approach



# STEP 5

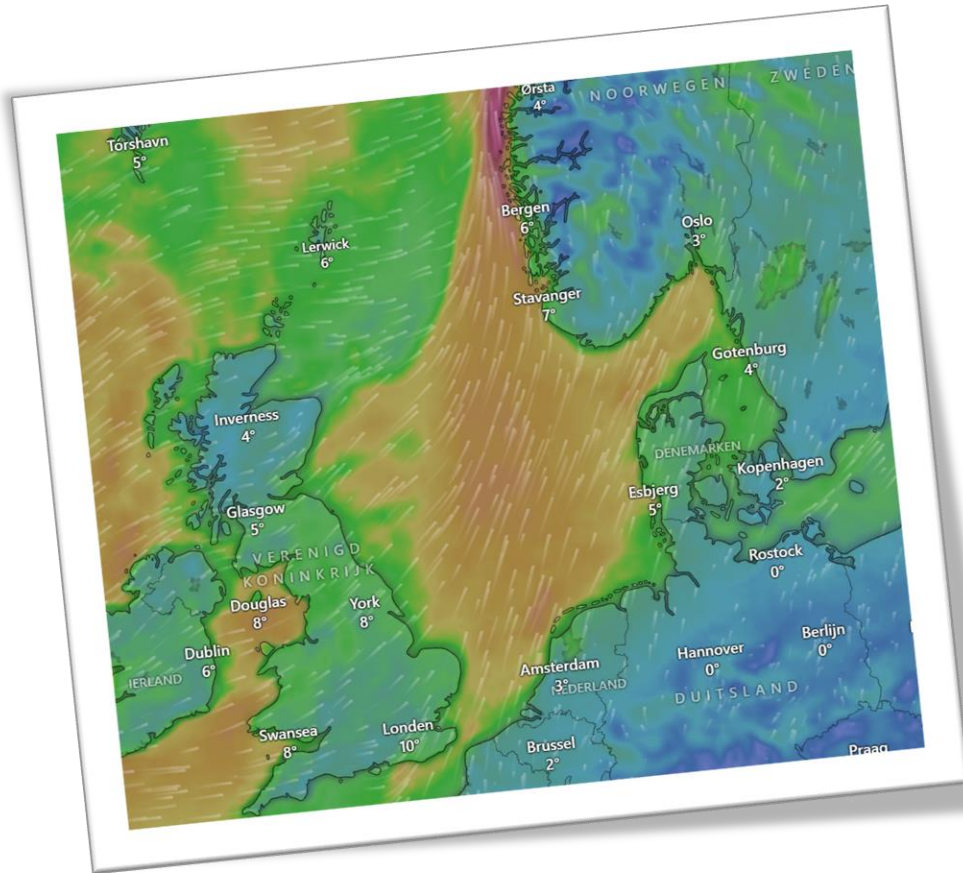
## ENGINEERING

- **Example:** Sønder Felding (Denmark),
- Approximately 700 connections,
- Public district heating network
- Oil-fired boiler system, alongside a biomass boiler (wood chips from the surrounding area).
- Air-water heat pump + electric boiler + accumulation tank
- 3 employees



# STEP 5

## ENGINEERING



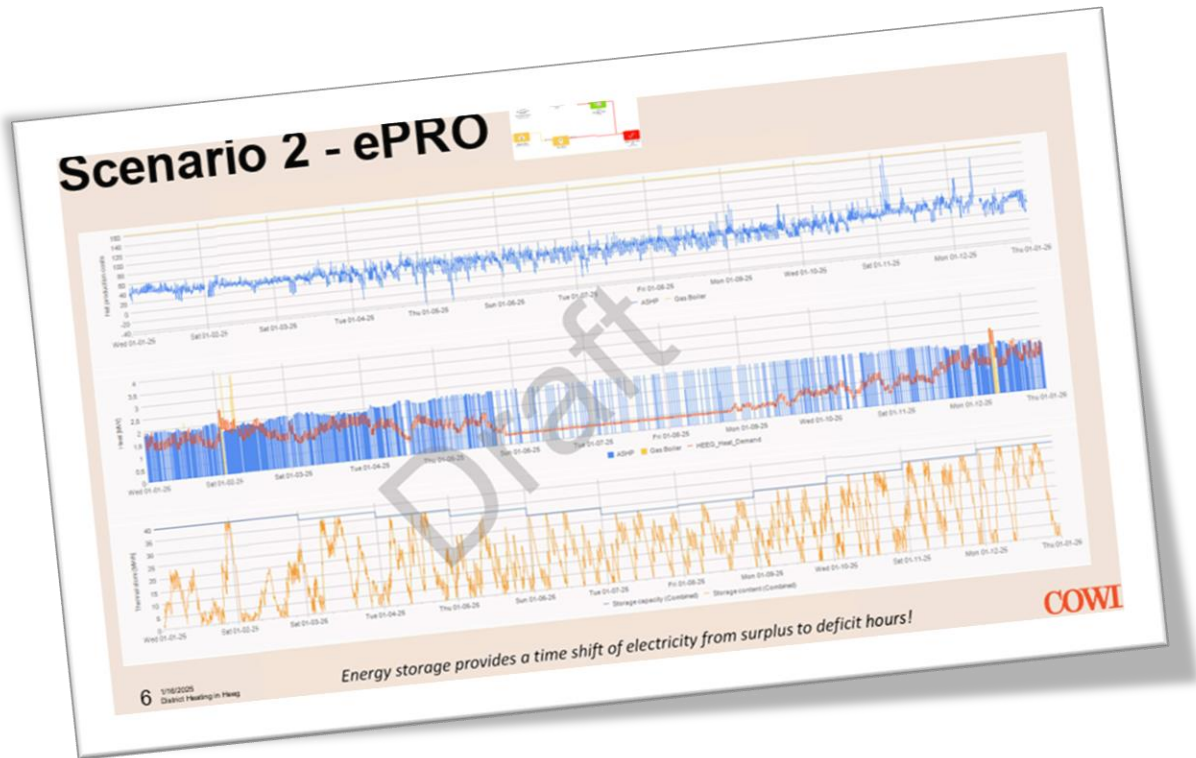
### Scenario:

- In 3 days, it will be windy, which will result in a high supply of wind energy and cause prices to drop, or even lead to negative electricity prices.
- The buffer tank will be emptied of the stored heat, and the heat pump system will be activated, along with the electric boiler if necessary.
- The system runs at full capacity, storing both heat and euros.
- It also provides the necessary balancing for the local electricity grid.
- EUR 50,000 earned in one week



# STEP 5

## ENGINEERING



- Energy storage provides a time shift of electricity from surplus to deficit hours
- Lower power price curves
- Simulate this in your financial model
- Add to financial models
- More feasible businesscases

# FINANCIAL MODEL

Ensure an appropriate financing structure, in which:

- At the moment, mostly 100% debt financing with government guarantees
- Too much interest and repayment pressures
- Lack of cashflow
- Alternative structuring (loans/equity)
- Equity has an IRR/ return instead of interest

Focus on cash flows, as with all sustainable energy projects (Project Finance)



Model period beginning				-	Error chks	1-oct-23	1-jan-24	1-apr-24	1-jul	
Model period ending				59	Track chgs	31-dec-23	31-mrt-24	30-jun-24	30-sep	
Period phaselabel				1	Alerts					
Period phaselabel fase 1										
Period phaselabel fase 2										
Period phaselabel fase 3										
Period phaselabel fase 4										
Financial year				Constant	Unit	Total				
Spreaded profile					%	100%	0,0%	0,0%	0,0%	8,3%
Immediate profile					%	100%	0,0%	0,0%	0,0%	100,0%
End of construction profile					%	100%	0,0%	0,0%	0,0%	0,0%
Spare 1					%	100%				
Spare 2					%	100%				
Spare 3					%	100%				
Spare 4					%	100%				
Spare 5					%	100%				
Fase 4 Investment profiles add up to 100%				-	check					
Fase 4 Investment profiles only run during construction				-	check					
Corporate Tax										
Corporate Tax tariff step-up					EUR		200.000	200.000	200.000	200.000
Corporate Tax low tariff					%		19,0%	19,0%	19,0%	19,0%
Corporate Tax high tariff					%		25,8%	25,8%	25,8%	25,8%
Earningsstripping min. % of EBIT					%		20,0%	20,0%	20,0%	20,0%
Earningsstripping min. interest amount					EUR		1.000.000	1.000.000	1.000.000	1.000.000
Time-dependent Operational costs (OPEX)										
Operational date flag				-	flag	120				
Asset management					EUR	741.105				
Directiekosten					EUR	1.801.823				
[x]					EUR	-				
Electricity and Gas price scenarios										
Power Price Curves										
High					EUR / MWh		55,00	55,00	55,00	55,00
Central					EUR / MWh		50,00	105,24	105,24	105,24
Low					EUR / MWh		40,00	40,00	40,00	40,00
Gas Price Curves										
High					EUR / m3		3,00	3,00	3,00	3,00
Central					EUR / m3		2,00	0,43	0,43	0,43
Low					EUR / m3		1,00	1,00	1,00	1,00
Margin power supplies					% of power price		10,0%	10,0%	10,0%	10,0%
Margin gas supplier					% of gas price		10,0%	10,0%	10,0%	10,0%
Indexation of network costs electricity					indexation per year		0,0%	0,0%	0,0%	0,0%
Indexation of network costs gas					indexation per year		0,0%	0,0%	0,0%	0,0%
Network electricity index					index	1	1,0000	1,0000	1,0000	1,0000
Network gas index					index	1	1,0000	1,0000	1,0000	1,0000
Indexation of energy taxes					indexation per year		0,0%	0,0%	0,0%	0,0%
Indexation of gas taxes					indexation per year		0,0%	0,0%	0,0%	0,0%
Energy taxes index					index	1	1,0000	1,0000	1,0000	1,0000
Gas taxes index					index	1	1,0000	1,0000	1,0000	1,0000
Inflation										
						Base year:				
CPI				2,0%	% per year		2.023			
None				0,0%	% per year		2.023			
O&M				1,0%	% per year		2.023			
BAK				1,5%	% per year		2.023			
Warmtetarief				2,0%	% per year		2.026			



# FINANCIAL MODEL

“Interaction between  
technology and finance  
makes projects feasible”



Model period beginning				-	Error chks	1-oct-23	1-jan-24	1-apr-24	1-jul-24	
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Period phaselabel				1	Alerts	Fin Close	Construction	Construction	Construction	
Period phaselabel fase 1						Fin Close	Construction	Construction	Construction	
Period phaselabel fase 2						Fin Close	Pre-Construction	Construction	Construction	
Period phaselabel fase 3						Fin Close	Pre-Construction	Construction	Construction	
Period phaselabel fase 4						Fin Close	Pre-Construction	Pre-Construction	Construction	
Financial year				Constant	Unit	Total	2023	2024	2024	2024
Spreaded profile					%	100%	0,0%	0,0%	0,0%	8,3%
Immediate profile					%	100%	0,0%	0,0%	0,0%	100,0%
End of construction profile					%	100%	0,0%	0,0%	0,0%	0,0%
Spare 1					%	100%				
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Earningsstripping min. interest amount					EUR		1.000.000	1.000.000	1.000.000	1.000.000
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Low					EUR / MWh		40,00	40,00	40,00	40,00
Gas Price Curves										
High					EUR / m3		3,00	3,00	3,00	3,00
Central					EUR / m3		2,00	0,43	0,43	0,43
Low					EUR / m3		1,00	1,00	1,00	1,00
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Network electricity index					index	1	1.0000	1.0000	1.0000	1.0000
Network gas index					index	1	1.0000	1.0000	1.0000	1.0000
Indexation of energy taxes					indexation per year		0,0%	0,0%	0,0%	0,0%
Indexation of gas taxes					indexation per year		0,0%	0,0%	0,0%	0,0%
Energy taxes index					index	1	1.0000	1.0000	1.0000	1.0000
Gas taxes index					index	1	1.0000	1.0000	1.0000	1.0000
Inflation										
CPI				2,0%	% per year	Base year: 2.023				
None				0,0%	% per year	2.023				
O&M				1,0%	% per year	2.023				
BAK				1,5%	% per year	2.023				
Warmtetarief				2,0%	% per year	2.026				

# STEP 6

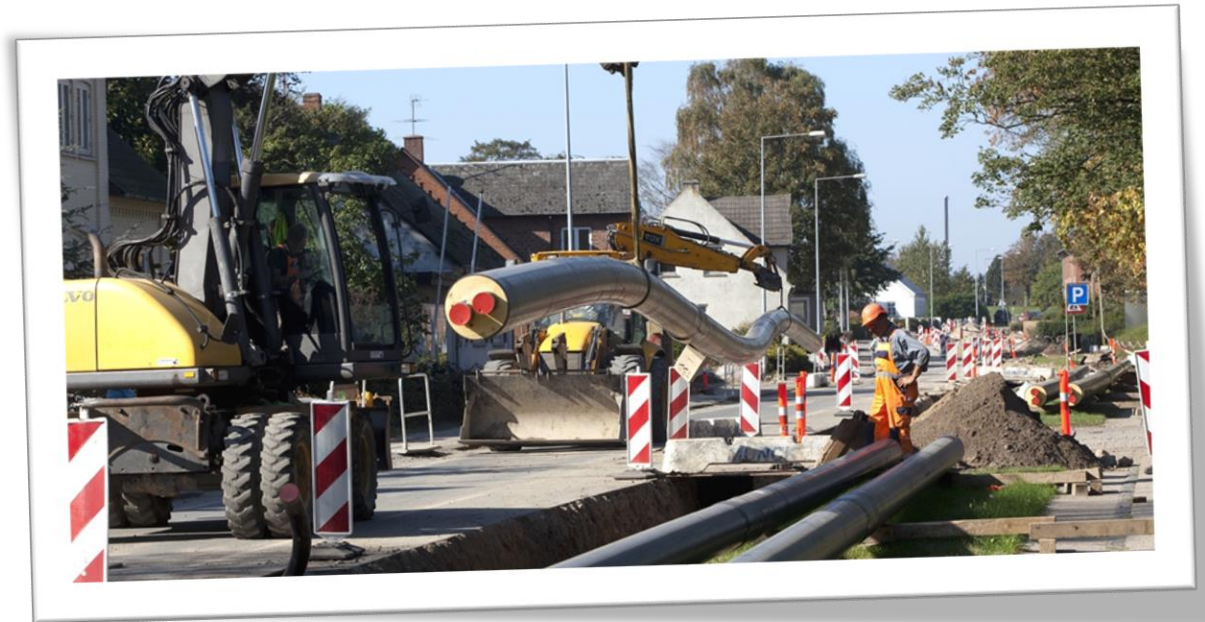
## START CONSTRUCTION



### STEP 6: START CONSTRUCTION

Start construction of phase 1  
of the first project

- Just start digging





# Announcement and [invitation](#)

We would like to [invite](#) you to participate in the Confidence conference at...

Date: [10 April 2025](#)

Location: Martinuskerk in Sneek, Netherlands

During the day, we will give several workshops and panel discussions. Meet and greet with our experts and interesting speakers

Please be welcome,

On behalf of the [Confidence](#) project team





# Dialogue

Questions:

How do you feel about this  
**development**, does it help you  
move forward?

Where is your concern  
What gives you confidence  
What follow-up steps do you see







Thank you for your attention