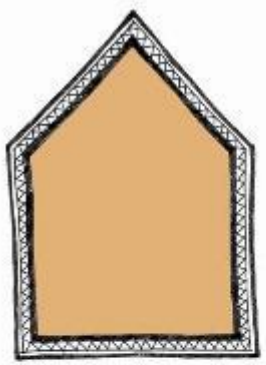
Initial experiences with the condominium fee model as applied in Assen

Speakers: Carl-peter Goossen

WNR
WoonlastenNeutraal Renoveren

bouwnext

Thermal comfortable

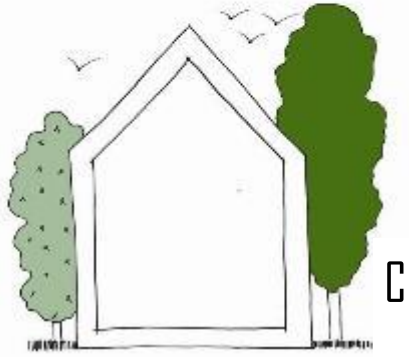


Extremely low energy consumption

Passive House Certifier

AZIMUT BOUWBUREAU.NL

Excellent air quality



Climate protection

DNA De nieuwe aanpak

Holistic integral approach

Presikhaaf Arnhem (NL) Public housing project

Holistic integral approach

Complete Passive House retrofit:

- PH-windows & ventilation with HR
- Thermal insulation basement, roof and external wall's
- Airtight
- New heating system
- New balcony's … etc.

And

- Scrum teams of SME's
- Providing performance guarantee

And

- Governmental Warrantee fund

Enabling financing

- Long term loan 30 years with very low interest

Holistic integral approach

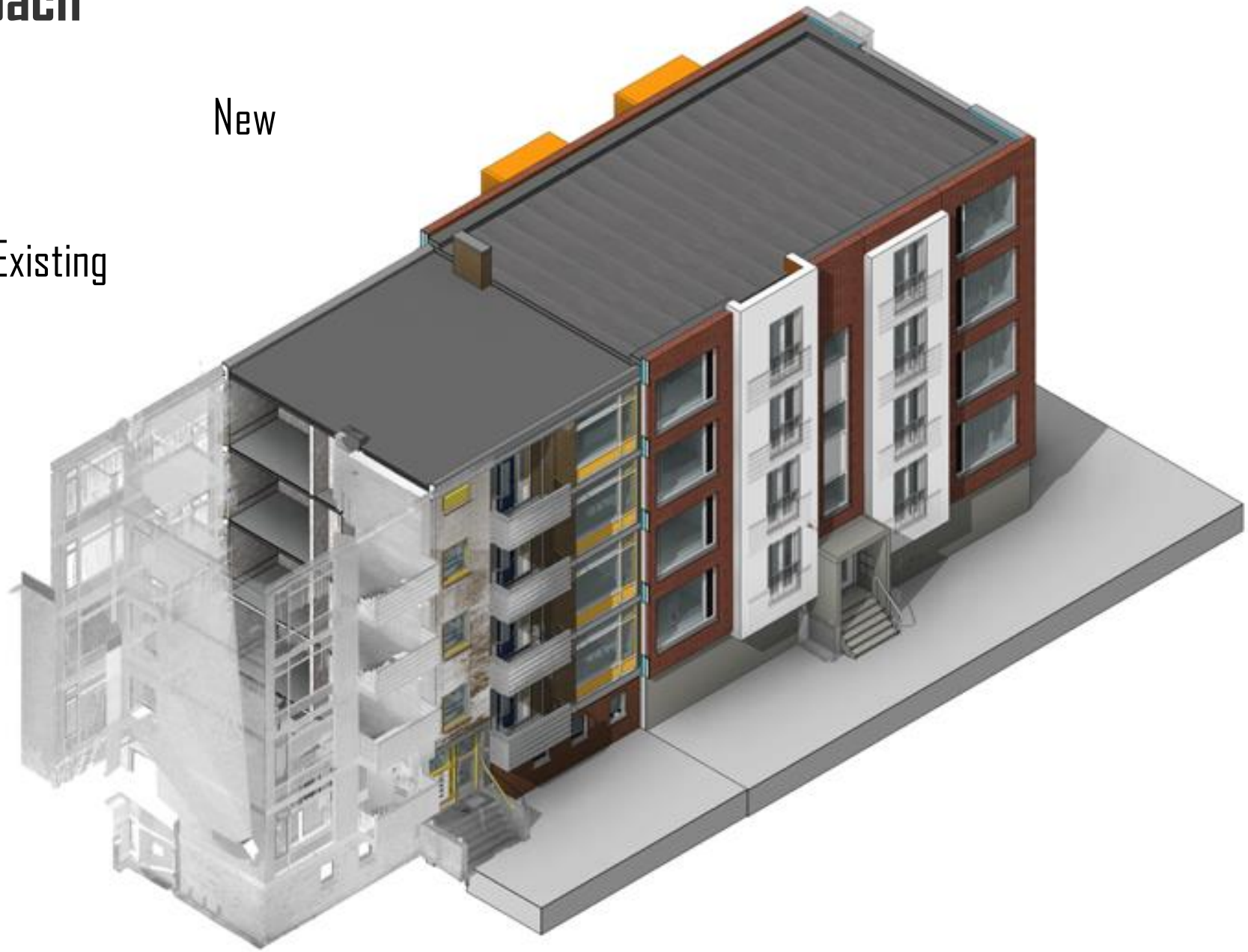
New

Existing

Pointcloud

Presikhaaf Arnhem

Volkshuisvesting



Industrialization

Presikhaaf Arnhem (NL)

Public housing project

WNR approach: retrofit for equal livingcosts before and after

Organisation

Servicebureau WNR
Retrofit teams WNR

Proven renovation concepts

Financing

Long-term financing

Settlement in condo fees

Proces WNR

Process

Feasibility study

Design

Engineering

Realisation

Maintenance

Monitoring

Replacement

Warranties
(Governmental funds)

Engineering costs

Long-term loan owners association

Guarantee

WNR-licence
Building performance guarantee

Quality assurance

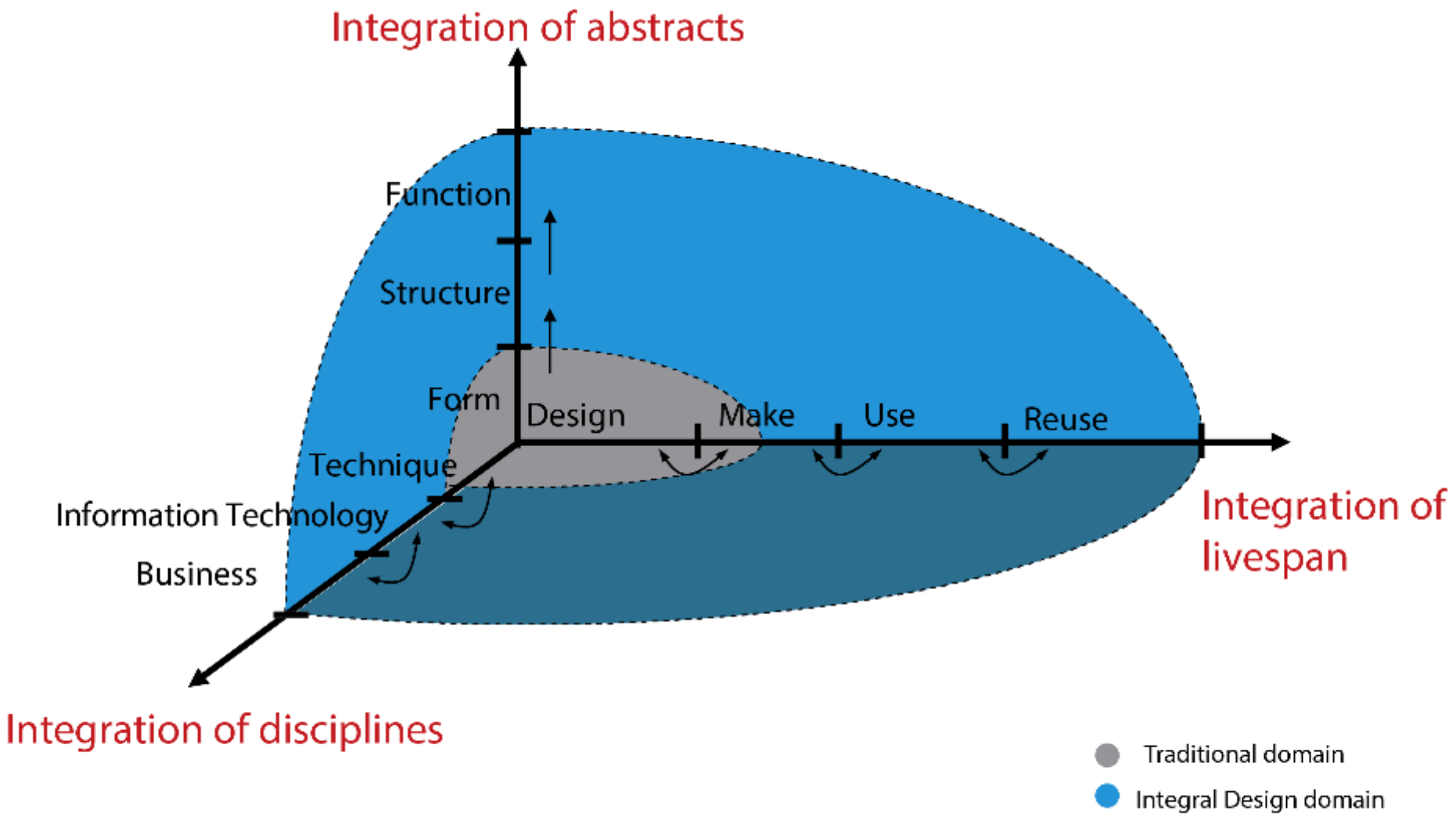
WNR
WoonlastenNeutraal Renoveren

WNR approach: retrofit for equal livingcosts before and after

Supports small businesses to make the big scale energy transition

DNA De nieuwe aanpak

Holistic integral approach



Renovation VvE Meerpaal

Groningen

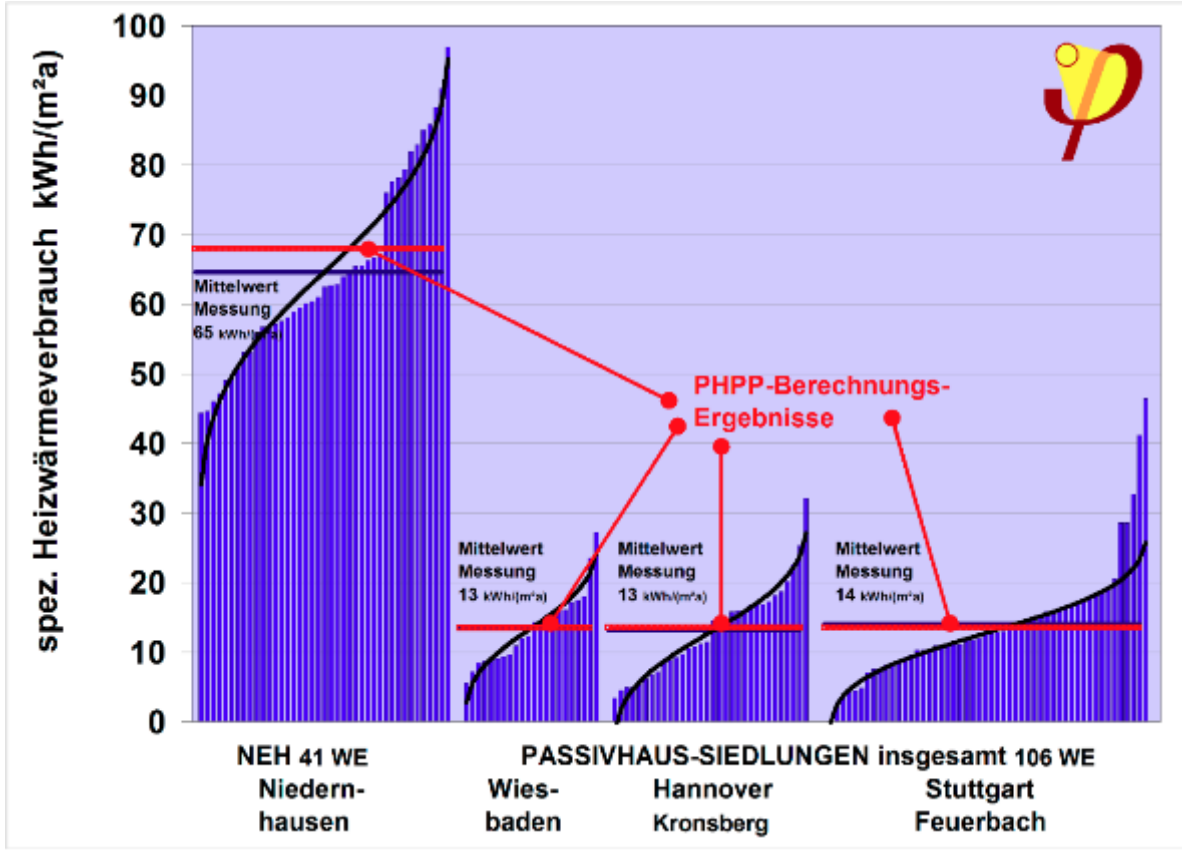
Omschrijving:	Bestaand beleid MJOP 30 jrs	maandelijks gemiddeld per HH	Bestaand beleid Gecorrigeerd	maandelijks gemiddeld per HH	Integrale aanpak	maandelijks gemiddeld per HH
Opbrensten servicekosten	€ 7.708.201	€ 180	€ 7.708.201	€ 180	€ 7.708.201	€ 180
Vereiste verhoging servicekosten		€ -	€ 3.091.500	€ 72	€ 5.355.000	€ 125
Servicekosten VvE	**€ 7.708.201**	**€ 180**	**€ 10.799.701**	**€ 252**	**€ 13.798.501**	**€ 305**
				€ -		
Energie uitgaven prive	**€ 5.910.000**	**€ 138**	**€ 5.910.000**	**€ 138**	**€ 1.956.000**	**€ 46**
Aftrek inkomstenbelasting	€ -	€ -		€ -	€ -778.839	€ -30
				€ -		
Gem. TCO	**€ 13.618.201**	**€ 318**	**€ 16.709.701**	**€ 390**	**€ 14.975.662**	**€ 321**

Renovation VvE Meerpaal

Groningen

Performance monitoring

Examples from elsewhere:



Existing apartmentbuilding “Ellen” Assen

Per apartment on average:

Energy consumption:

- 1100 m³ gas for heating per year
- 2200 kWh electricity per year

Major maintenance ahead

Monthly energy costs and service costs approximately
€ 290 per month

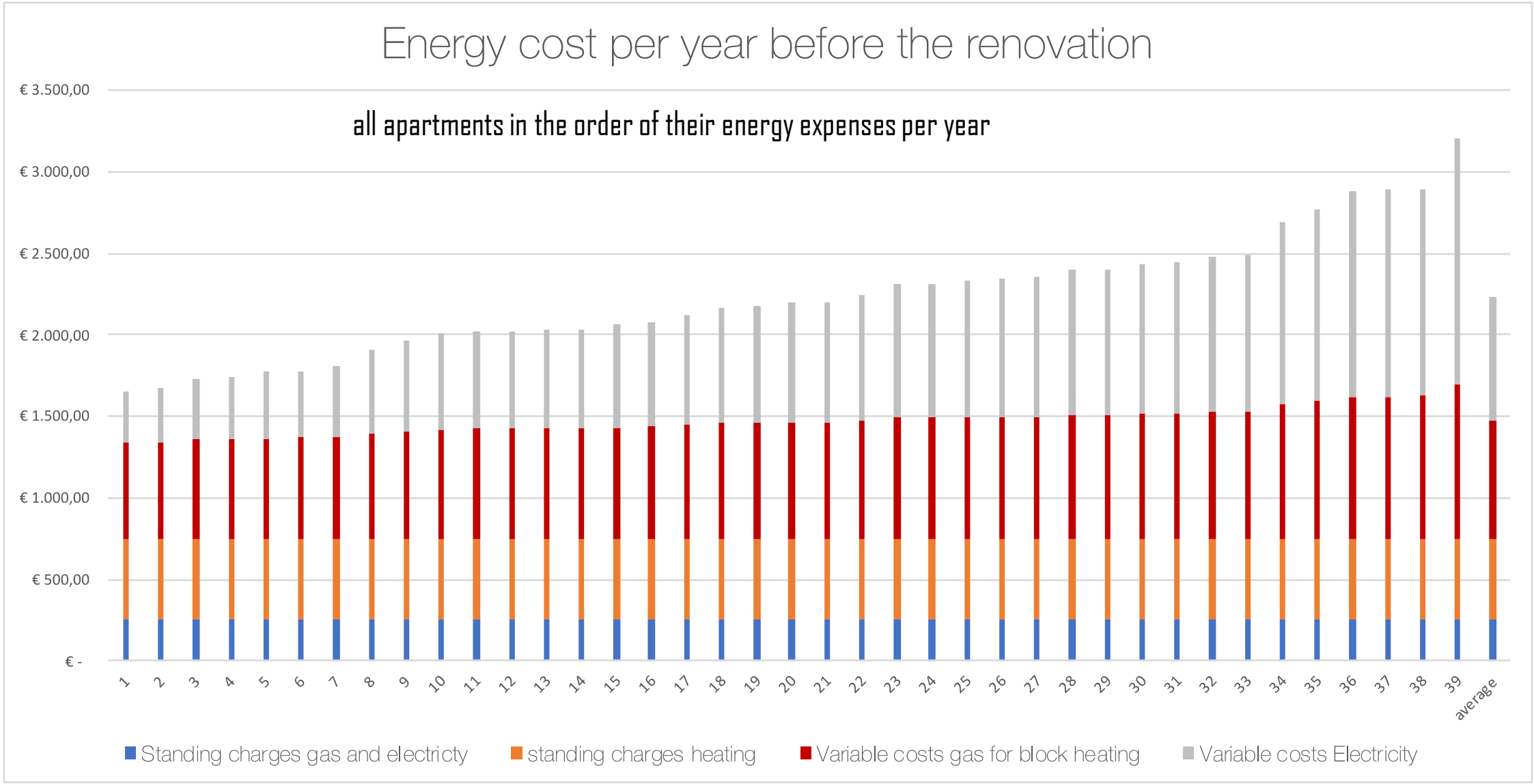
Performance Guarantee

After renovation
"Ellen" Assen

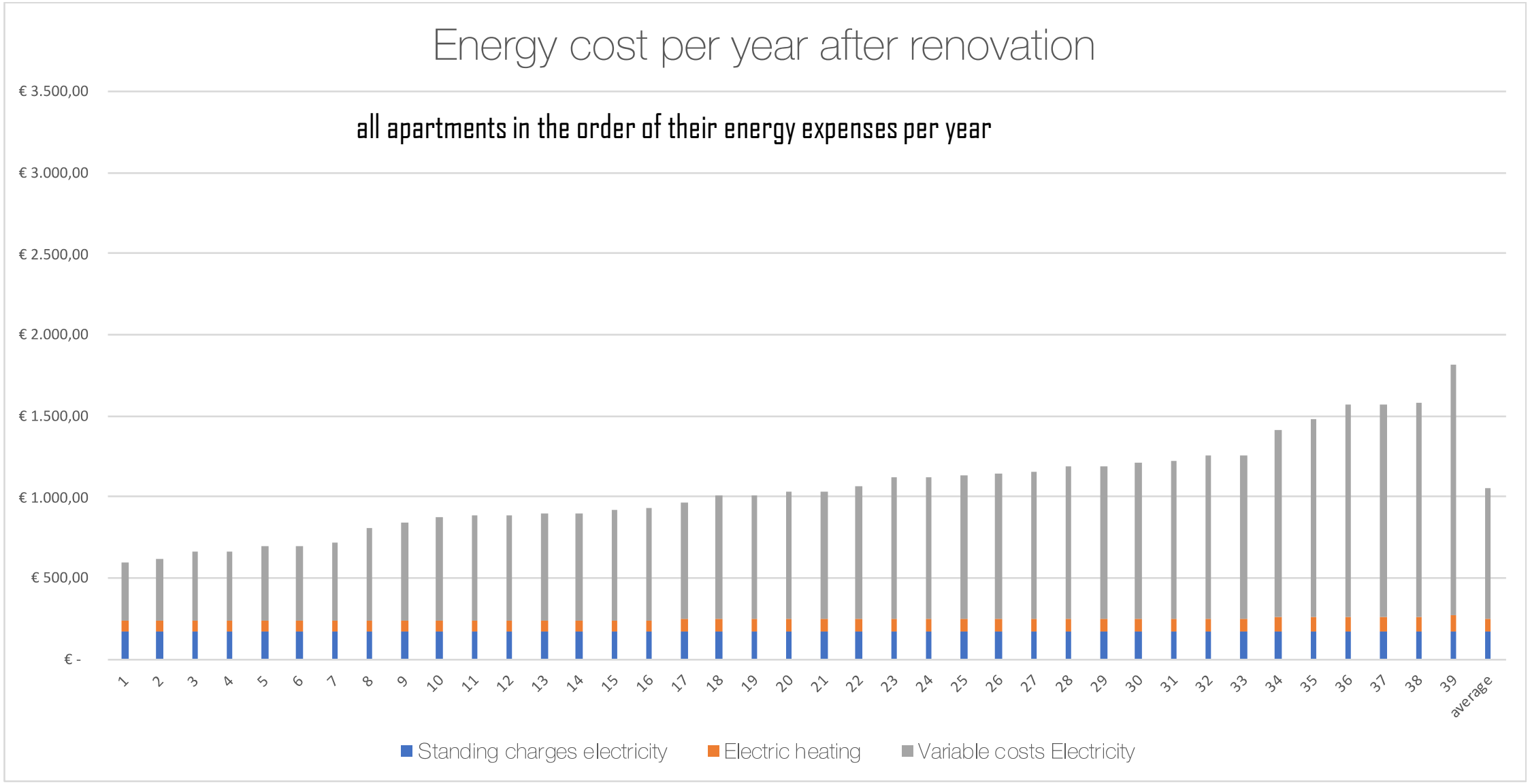
- 90% reduction of energy need for heating
- 70% production of electricity
- No major maintenance for about 30 years

Equals saving € 140 per month
30 years long term

Performance monitoring before

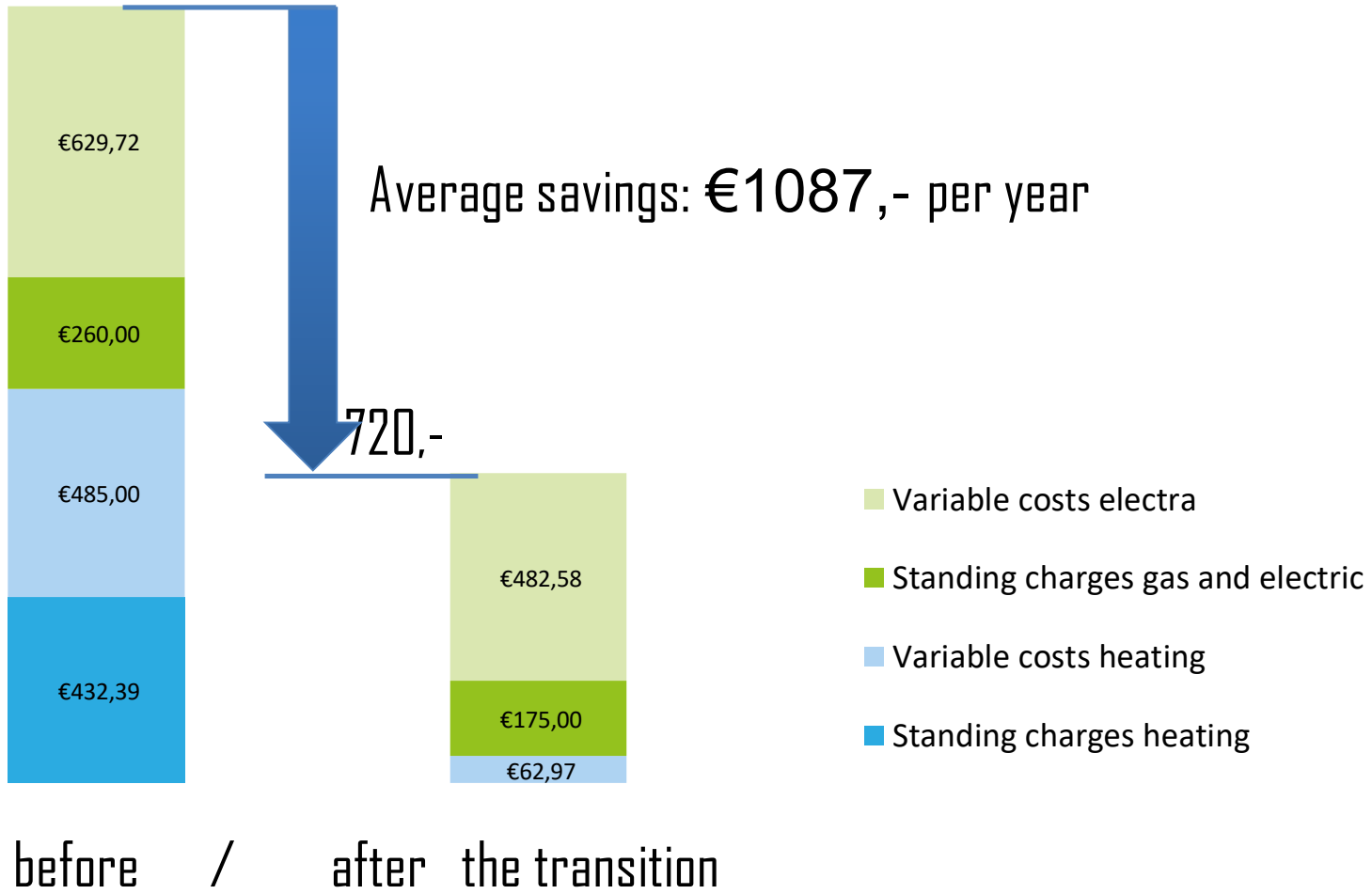


Performance monitoring after



Integral performance guarantee = key to lower costs

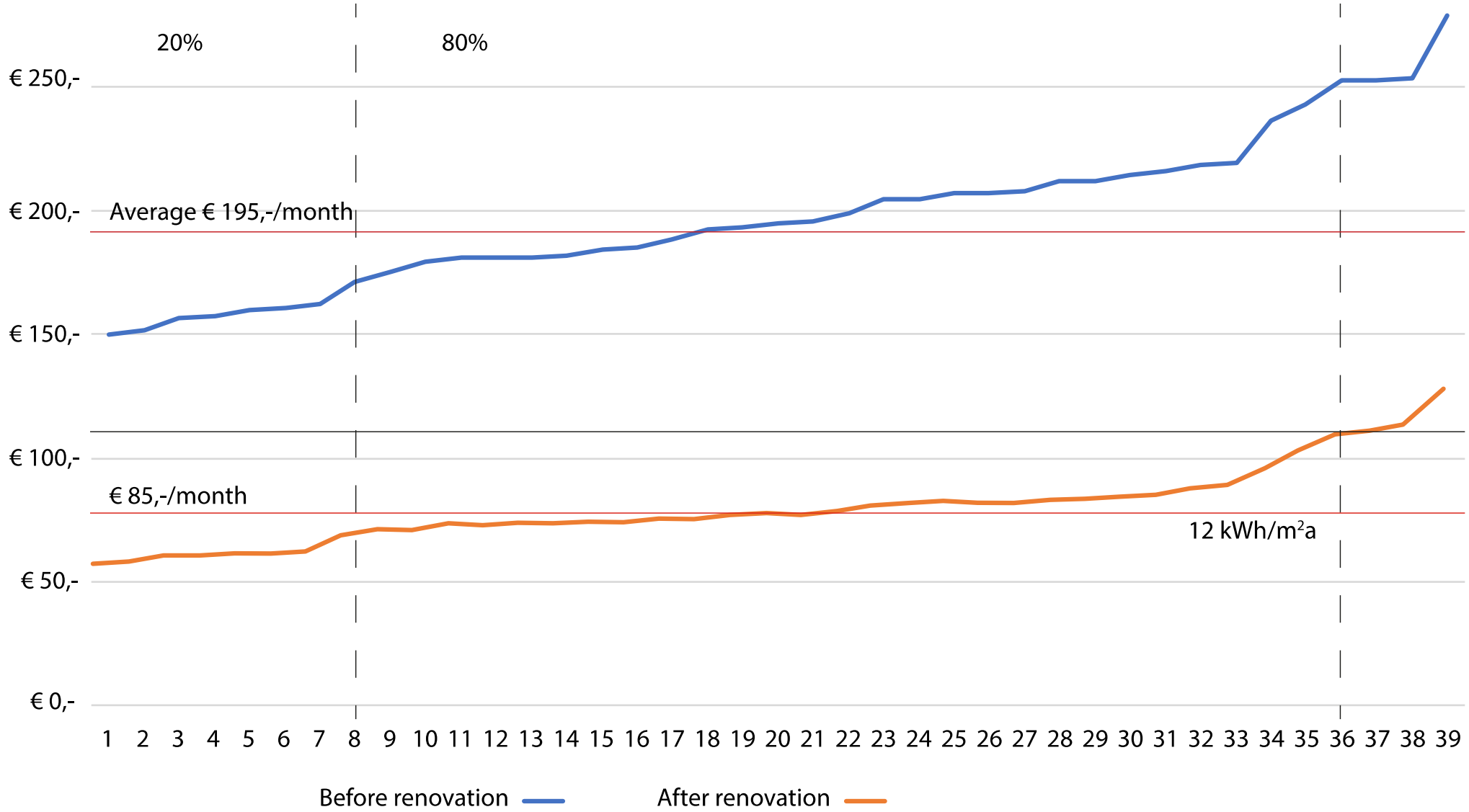
Average energy costs per year:
€ 1,807,-



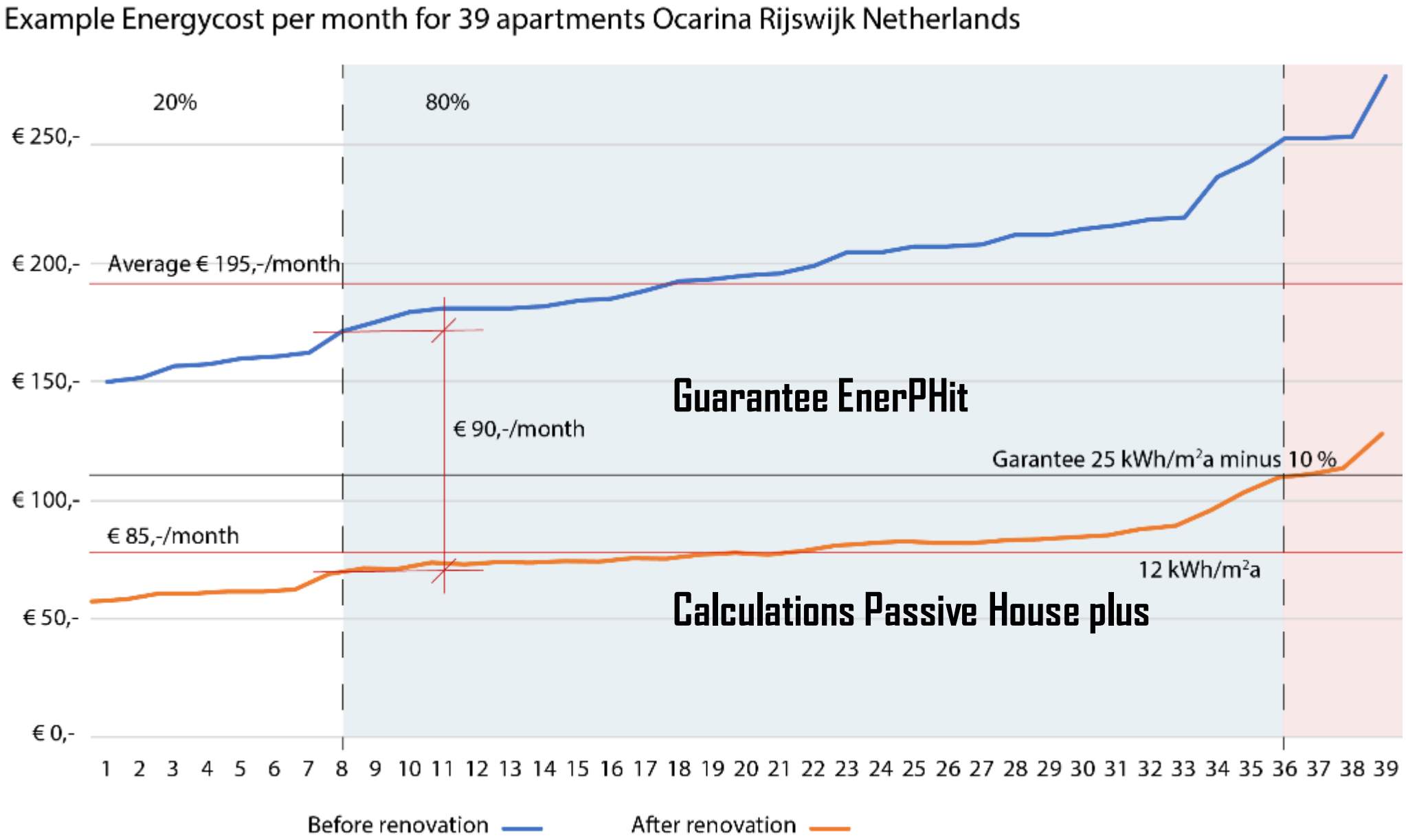
before / after the transition

Integral performance guarantee

Example Energycost per month for 39 apartments Ocarina Rijswijk Netherlands



Integral performance guarantee



Integral performance guarantee

EnerPhit: 25 kWh/m^{2}y
Except 10% (outliers due to user behaviour)

Minimal generation of renewable electricity ~ 1800 kWh per apartment

Minimal generation of renewable electricity for collective energy use

Table 1: Agreed performance levels for the deep retrofit of VVE Ellen in Assen, The Netherlands

Energy	Guaranteed level	Unit	Duration
Maximal consumption per apartment in kWh for heating. Apartments on corners and block-ends can consume 10% more than this guaranteed level.	25	kWh per year per m²	30 yr.
Minimal generation of renewable electricity for an apartment of 55 m²	1.400	kWh per year	30 yr.
Minimal generation of renewable electricity for an apartment of 80 m²	2.000	kWh per year	30 yr.
Minimal generation of renewable Electricity for use by the Association of Home Owners	100%		30 yr.
Comfort			
Minimal attainable temperature in kitchen and living room	21	°C	30 yr
Minimal attainable temperature in bedrooms	18	°C	30 yr.
Maximal number of hours per Summer that temperatures in any of the access corridors will exceed 26 °C	400	hours	30 yr.
Minimal ventilation In addition: any balanced ventilation systems with heat recovery (HRV / system D as specified in NEN 1087) will be equipped with a bypass conform ISSO 62	As prescribed in the present Dutch building regulations for new construction		30 yr.
Draught more than 0,15 m/s	If over 6 households complain about draught		
Indoor climate			
Minimal percentage of the time that the CO_2 concentration remains below 1200 PPM (to be measured with a CO_2 -meter)	95%		30 yr.
Indoor climate meets the standard	As prescribed in the Dutch guideline BRL 8010		30 yr.
Maximum level of noise through outside walls ($G_{A;K}$)	< 20	dB	30 yr.
Maximum level of noise in living area from building services of the apartment, stand alone	< 30	dB	30 yr.

Long term financing is crucial

to unlock the enormous potential of energy efficiency worldwide:

The contractor gives a 30 years warranty:
Renolution BV

Certificate for
Enerphit insulation components

Refurbished city homes

Initial experiences

Apartment building Ellen in Assen (Association of owners)

The whole package:

Design, finance,
set up, construction,
guarantee and
industrialisation

Initial experiences

Heating consumption compared to the neighbors

House nr.	Area	House nr.	Area	House nr.	Area	House nr.	Area	House nr.	Area	House nr.	Area	House nr.	
Heating consumption in kWh/m2y													
69	50	71	70	73	70	75	70	77	70	79	70	81	50
29,06	x			13,33		8,14		0,37		4,23		22,61	
55	50	[illegible]	70	59	70	61	70	63	70	65	70	67	50
4,69		[illegible]		11,83				21,51		14,22		48,53	
41	50	43	70	45	70	47	70	[illegible]	70	51	70	53	50
36,82		2,81		18,39		13,29		[illegible]		8,43			
27	50	29	70	31	70	33	70	35	70	37	70	39	50
2,23	x			41,03		62,63		14,21				35,99	

x = Here the electric meter has been out of order for a long time, no PV yields and very little used for heating.

Initial experiences

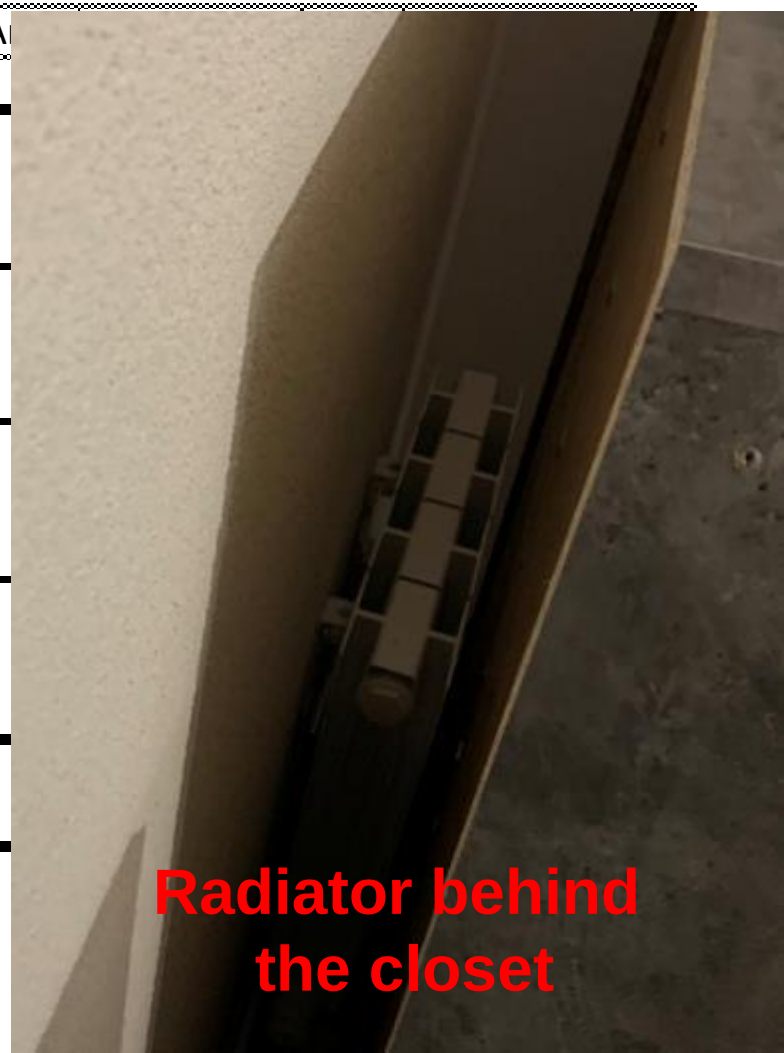
House nr.	Area	House nr.	Area	Hous
Heating consumption in kWh/m2y				
69	50	71	70	
29,06 x				
55	50	[illegible]	70	
4,69		[illegible]		
41	50	43	70	
36,82		2,81		
27	50	29	70	
2,23 x				

Initial experiences

User behaviour: Heating energy 10 times higher

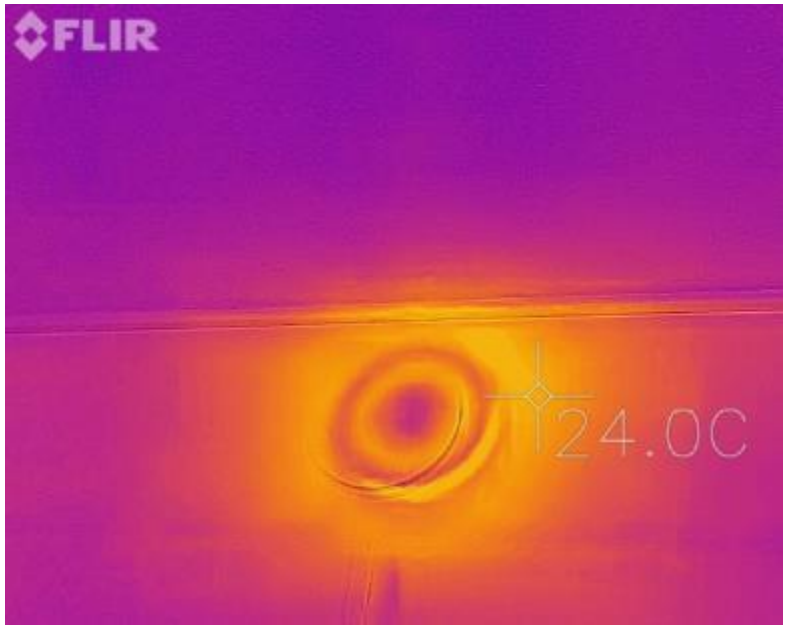
House nr.	Area	House nr.	Area	House nr.	Area	House nr.	Area	House nr.	A
Heating consumption in kWh/m2y									
	71	70		73	70	75	70	77	
				13,33		8,14		0,37	
	57	70		59	70	61	70	63	
	59			11,83				21,51	
	43	70		45	70	47	70	49	
	81			18,39		13,29		54	
	29	70		31	70	33	70	35	
				41,03		62,63		14,21	

Wrong use of thermostat causes heating consumption even in hot summer



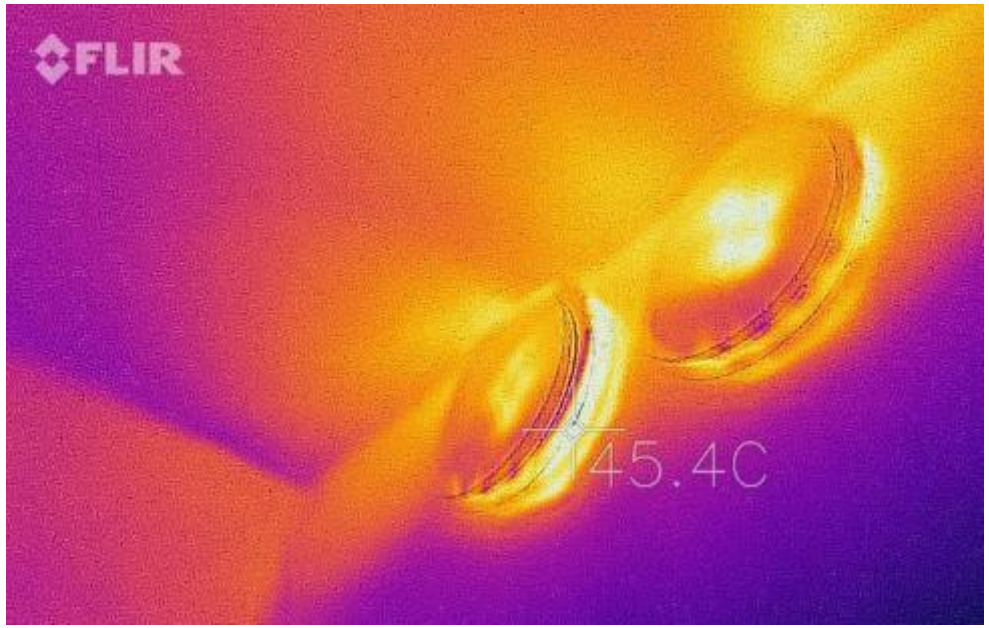
Radiator behind the closet

Adjustment after retrofit: Post heater



Inefficient model central positioned far from living room

→ Too little heat distributed to the living room, so the thermostat kept the heating system running



More efficient model directly positioned behind the living room valves

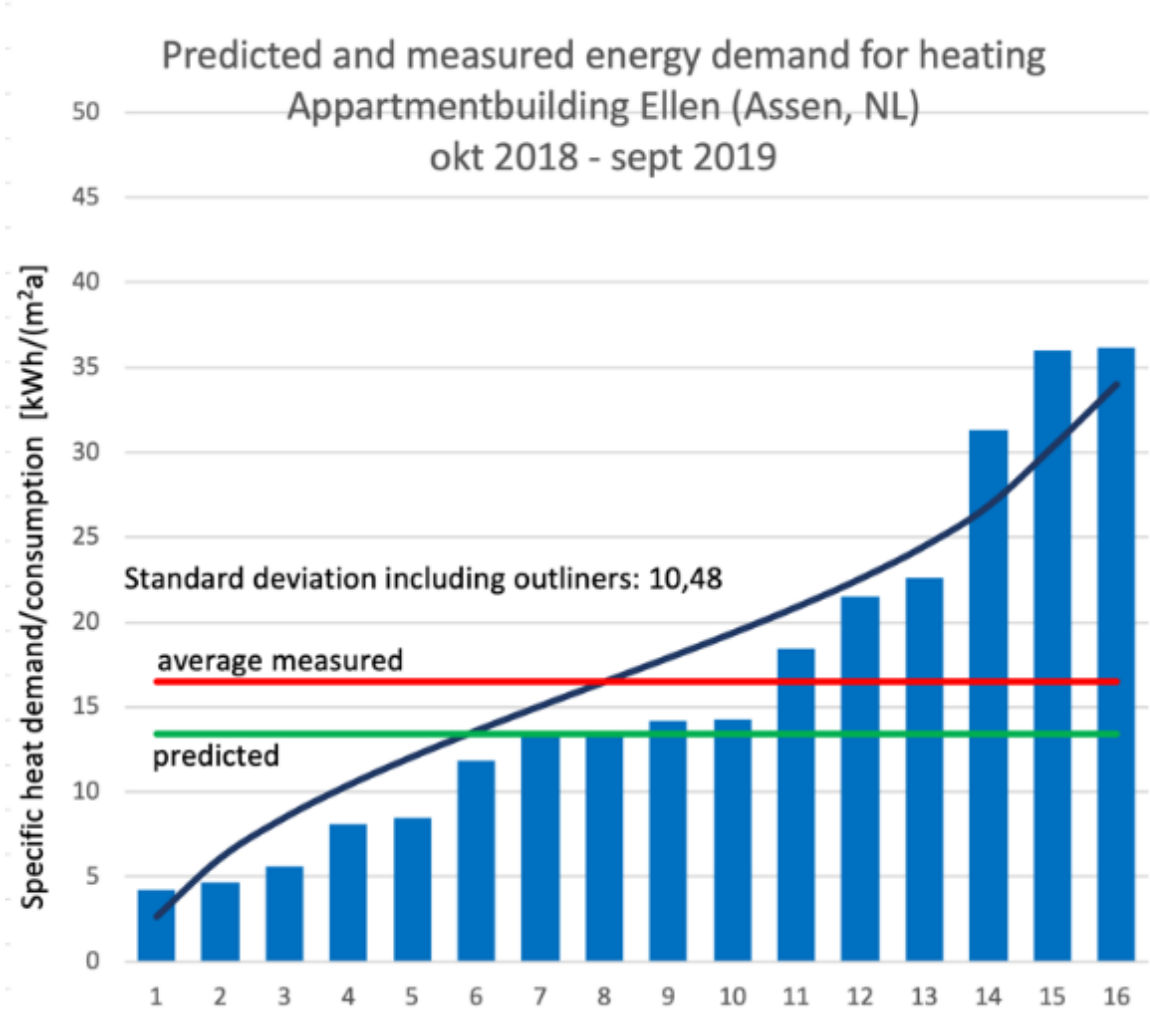
→ More comfort
→ Less energy use

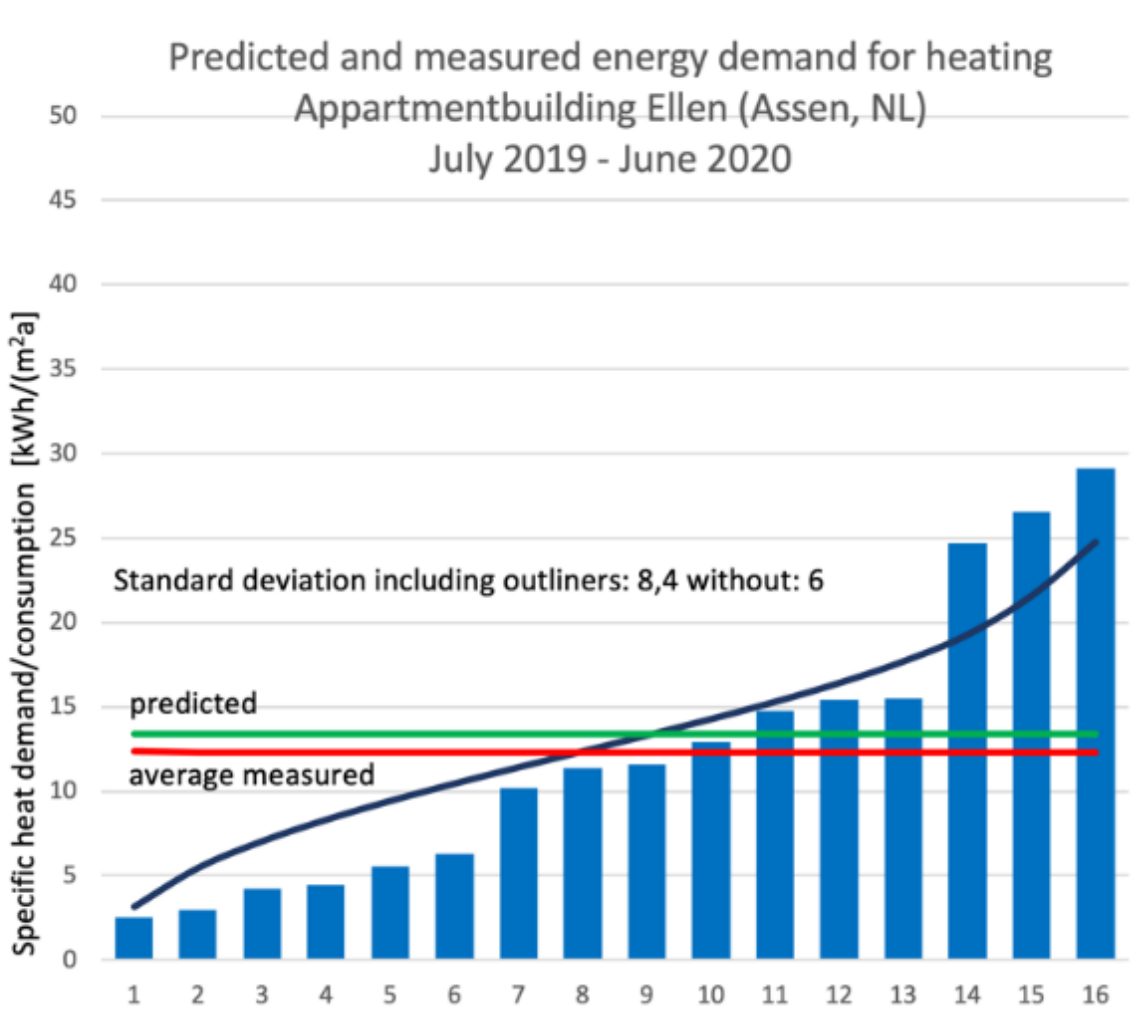
Adjustment after retrofit: Insulation of basement ceiling

Left out insulation
has been still applied after
one year

Initial experiences

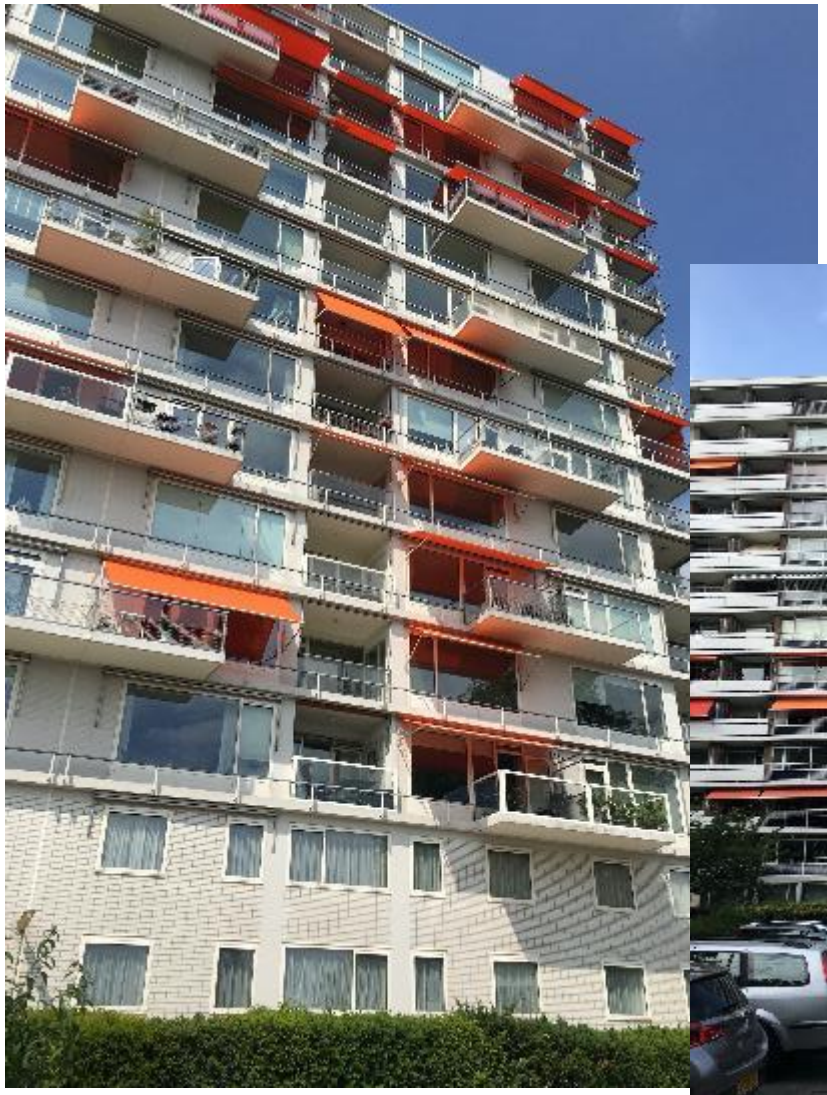
Monitoring Assen: 1st year 2nd year





Nolensstraat Wageningen

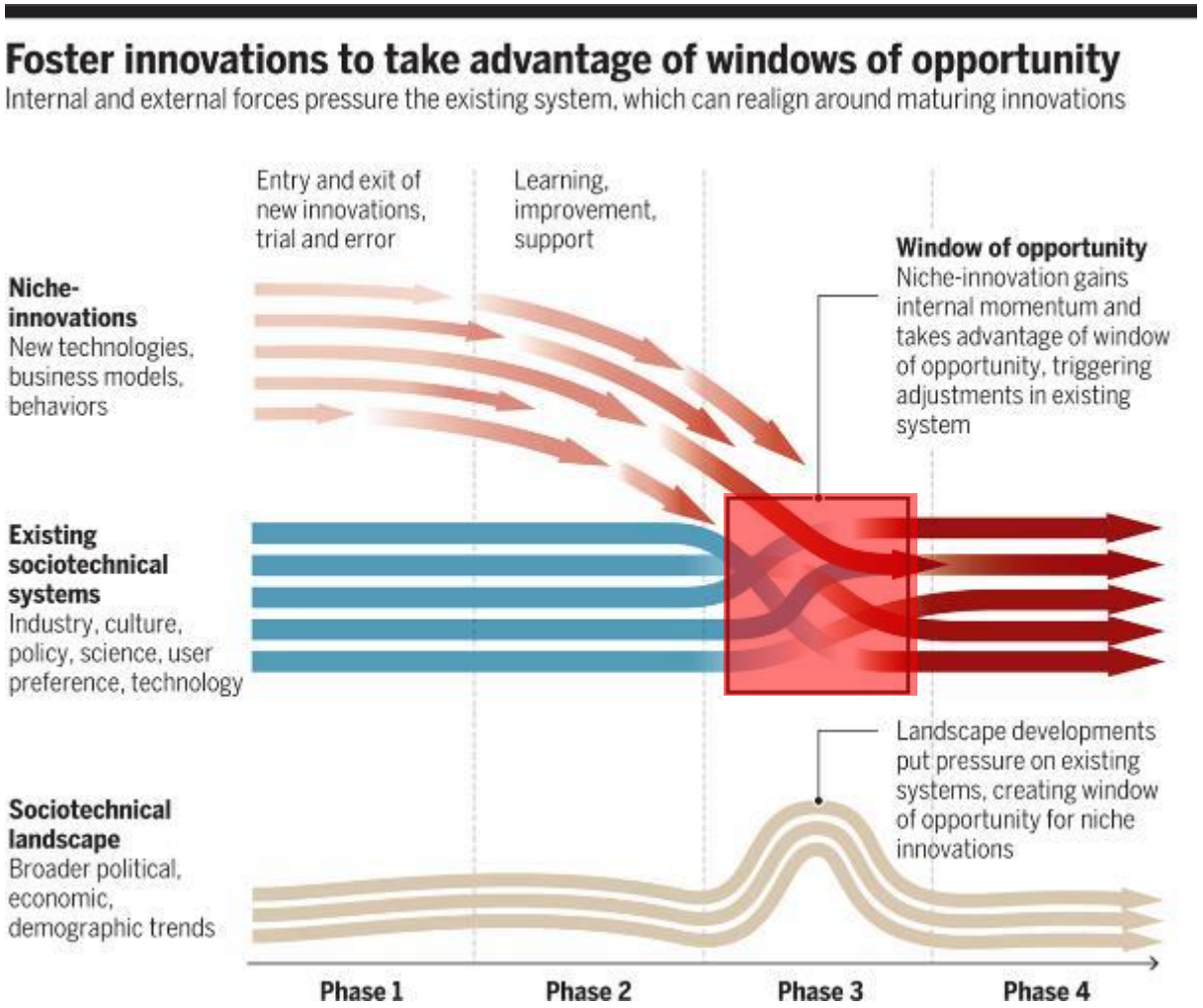
Follow up projects: Arnhem, Rijswijk, ‘s Hertogenbosch ect.



Energy transition

If we do not review the responsibility in construction,

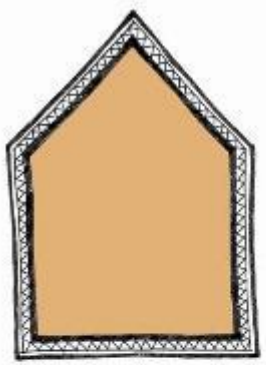
then we can't finance the energy transition.



With passivhouse we are now in phase 3

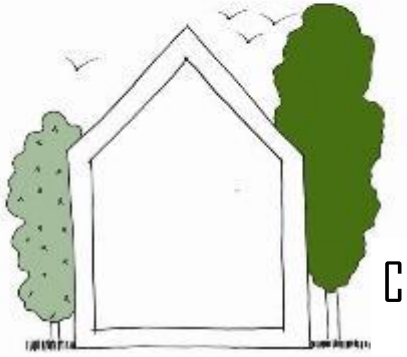
Passive House with WNR is the key to the energy transition

Thermal comfortable



Extremely low energy consumption

Excellent air quality



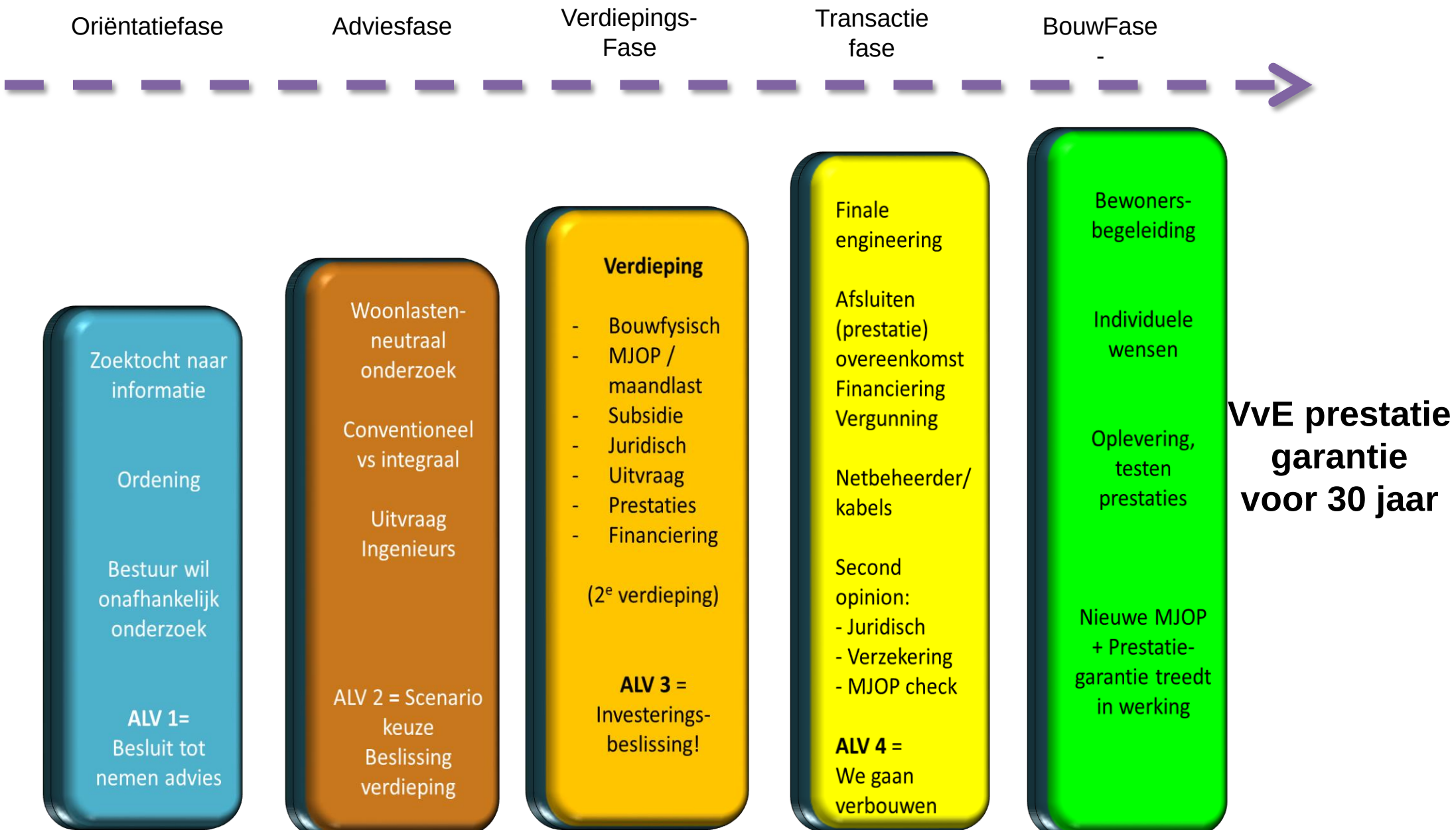
Climate protection

thank you for listening

bouwnext

DNA De nieuwe aanpak

VvE-stappenplan



TRADITIONELE AANBESTEDING

VO | DO | TO | UAV-contract | voorbereiding | uitvoering

aanbesteding op prijs

her-engineering vanwege inkoop

meerwerk

INTEGRALE AANPAK

Haalbaarheid studie | design | Intentie overeenkomst | pre | engineering | Afname overeenkomst | build | monitoring

Wel of niet doorgaan

garantie 30 jaar

Selectie bouwer ahv licentiehouders

- prestatie bekend
- richtprijs/plafondprijs
- bouwer bekend
- start inkoop

- prijsvast
- garanties
- subsidie
- MJOP
- financiering

Stap 2

Stap 3

Stap 4

Stap 5

Investering bouw

10 k pre advies

100 k advies

130 k advies en engineering opdrachtnemer

Proces

Integrale aanpak is kosten besparend

Eén contractpartij, één aanspreekpunt, één kwaliteit