

# Voor de twijfelaars en klimaatsceptici.....

Het ultieme bewijs dat de aarde opwarmt....



# 1 Winning the energy transition contest

- Early 2013: Competition best energy transition plan for villages in the larger Apeldoorn Region

## Most important requirements

Enhancing awareness  
Broadly support  
Structural development  
Innovative  
Transferrable to other villages  
Inspiring  
Realistic  
Feasible before 1st of April 2015

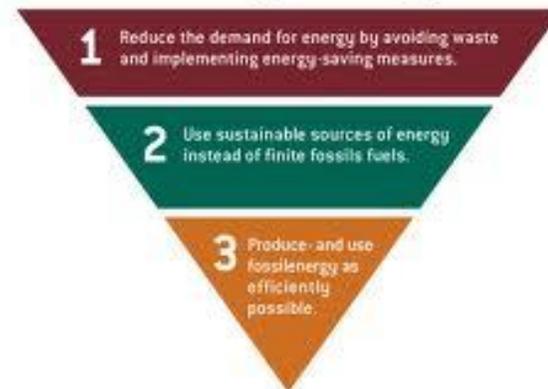


Euro 200.000  
Interreg/ACE

# A bottom-up initiative arose

- An enthusiastic team of villagers developed a plan
- A mix of civilians, SME-entrepreneurs with and without energy expertise, schoolteacher, associations members
- Leitmotiv: Trias Energetica

**The Trias Energetica concept:**  
the most sustainable energy is saved energy.



The village team



# July 2013: LEN best energy transition plan

## The winning Loenen Plan 2013-2015

### Infrastructure

- Organisation: Stichting Loenen Energie Neutraal (LEN)
- Finance: het Loenens Energie Fonds (LEF)
- Knowledge: Website and energy news
- Awareness: program for primary schools
- Energy activities: fairs, information evenings, festival, competition

### Energy projects

- 18+ insulation and other energy saving projects
- 28+ solar panel projects
- 4kW of hydropower

### Expected results

- Annual conservation of 150.000m<sup>3</sup> gas
- Installation of 160+ kWp of solar power
- > 175.000 kWh renewable energy



July 2013

# Zonnepaneelprojecten totaal per 28-11

Dalenk 7a

Item	Amount
Installation (kWp)	7,8
Yearly production (kWh)	4.000
Total production from start (kWh)	6.000
Avoided CO <sub>2</sub> Emissions (kg)	3.600
Total CO <sub>2</sub> from start (kg)	5.400
Financial savings per annum (€, Ytd)	880
Total savings from start (€, Ytd)	1.320



July, 2014

Wolff Gabiëlsweg 7

Item	Amount
Installation (kWp)	2,08
Yearly production (kWh)	4.000
Total production from start (kWh)	6.000
Avoided CO <sub>2</sub> Emissions (kg)	3.600
Total CO <sub>2</sub> from start (kg)	5.400
Financial savings per annum (€, Ytd)	880
Total savings from start (€, Ytd)	1.320



July, 2014

Reuweg 41

Item	Amount
Installation (kWp)	5,57
Yearly production (kWh)	4.000
Total production from start (kWh)	6.000
Avoided CO <sub>2</sub> Emissions (kg)	3.600
Total CO <sub>2</sub> from start (kg)	5.400
Financial savings per annum (€, Ytd)	880
Total savings from start (€, Ytd)	1.320



Sept., 2014

Imbosweg 40

Item	Amount
Installation (kWp)	7,16
Yearly production (kWh)	4.000
Total production from start (kWh)	6.000
Avoided CO <sub>2</sub> Emissions (kg)	3.600
Total CO <sub>2</sub> from start (kg)	5.400
Financial savings per annum (€, Ytd)	880
Total savings from start (€, Ytd)	1.320



Sept., 2014

Reuweg 18

Item	Amount
Installation (kWp)	25
Yearly production (kWh)	20.000
Total production from start (kWh)	5.000
Avoided CO <sub>2</sub> Emissions (kg)	18.000
Total CO <sub>2</sub> from start (kg)	4.500
Financial savings per annum (€, Ytd)	4.400
Total savings from start (€, Ytd)	1.300



Nov., 2014

## Totals for Loenen as per 28-11-2014

Item	Amount
Installation (kWp)	200
Yearly production (kWh)	160.000
Total production from start (kWh)	80.000
Avoided CO <sub>2</sub> Emissions (kg)	72.000
Total CO <sub>2</sub> from start (kg)	36.000
Financial savings per annum (€, Ytd)	35.000
Total savings from start (€, Ytd)	17.500



## Finalised isolation projects





## Finalised isolation projects





## Results Isolation projects per 28th of November

Item	Amount
Number of insulation projects	
• Finalised per 28/11	20
• Planned	10
Total isolated area of finalised projects (m <sup>2</sup> )	
• Floor	285
• Cavity wall	1589
Estimated annual amount of gas savings (m <sup>3</sup> )	18.889
Estimated financial savings per annum (€, Ytd)	12.278

# LEN is ahead of the original scheme

## Infrastructure

- Organisation: Stichting Loenen Energie Neutraal (LEN) ✓
- Finance: het Loenens Energie Fonds (LEF) ✓
- Knowledge: Website and energy news ✓
- Awareness: program for primary schools ✓
- Energy activities: fairs, information evenings, festival, competition ✓

## Energy projects

- 18+ insulation and other energy saving projects ✓
- 28+ solar panel projects ✓
- 4kW of hydropower
- 20(+5) ✓
- 35 (+10) ✓
- n/a

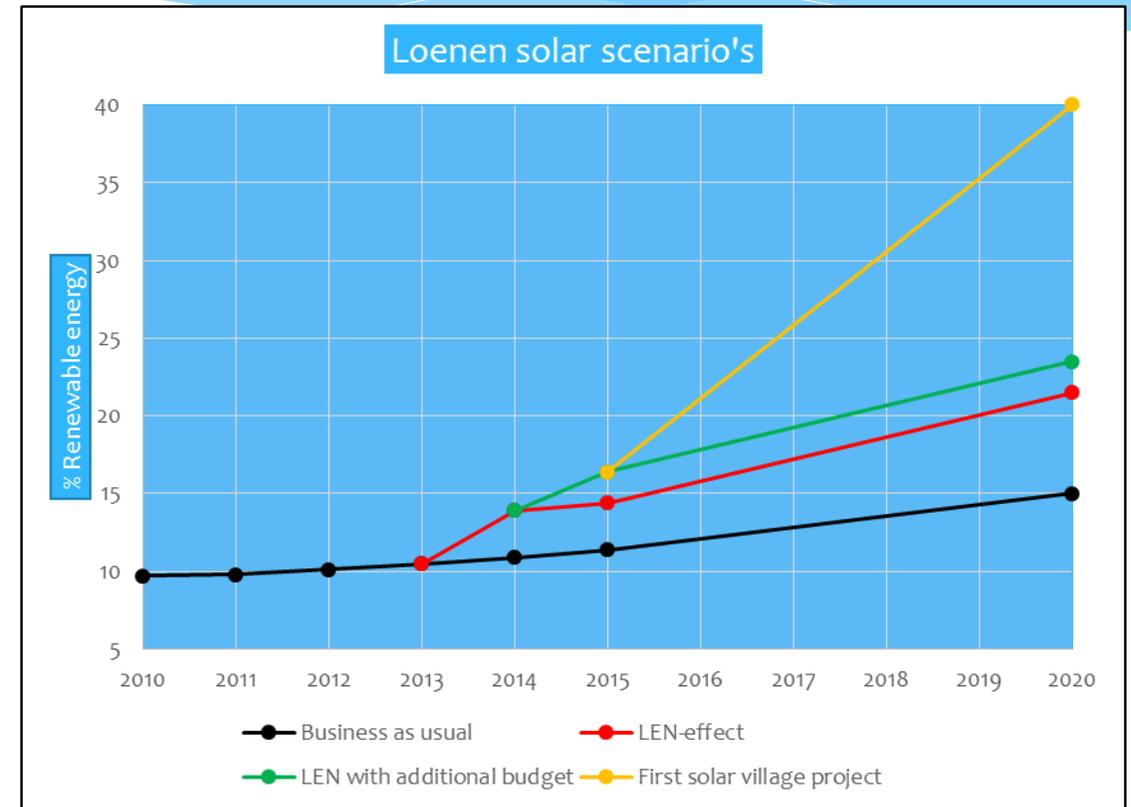
## Expected results

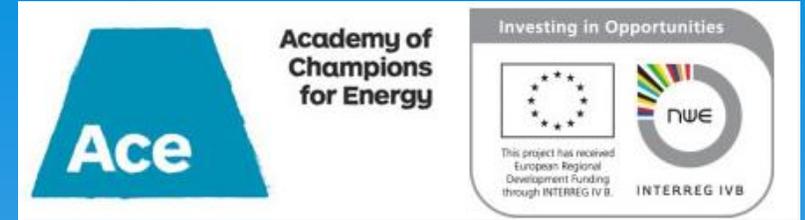
- Annual conservation of 150.000m<sup>3</sup> gas ✓
- Installation of 160+ kWp of solar power ✓
- > 175.000 kWh renewable energy annually ✓
- 120/140.000 ✓
- 200/245 kWp ✓
- 200.000 kWh ✓

As per 28 nov 2014

# 4 Future plans

- Energy festival for children and parents (this afternoon)
- H2 2014-Q1 2015 finalisation remaining projects that fit within the financial budget
- Wrap up with a project report & blueprint: “How to initiate a bottom-up energy transition proces; the Loenen experience”
- Upscaling energy transition in Loenen to the next stage “Loenen, first solar village of the Netherlands”





# Primary school “de Tweede Stee”

Presentation for the assembly meeting of ACE

Davis Ribbers

Pupil from group 8

Loenen, the Netherlands  
November 28, 2014



# Energy at our school

- \* Solar panels on the roof (25 kWp)
- \* Energy lessons
- \* Crafting with energy: demonstration in the central hall
- \* The energy contest
  
- \* And: making Loenen more sustainable!
  - \* inventory of all available roofs in based on [www.zonatlas.nl](http://www.zonatlas.nl)
  - \* Many hands make easy work...

# Zonatlas.nl shows all Loenen rooftops...

← → ↻ www.zonatlas.nl/apeldoorn/ontdek-de-zonatlas/?addr=Hoofdweg+46

zonatlas apeldoorn

de APeldoorn VOOROP IN DUURZAAMHEID Apeldoorn

Home Ga naar de Zonatlas Over de Zonatlas Vraag en Antwoord Links

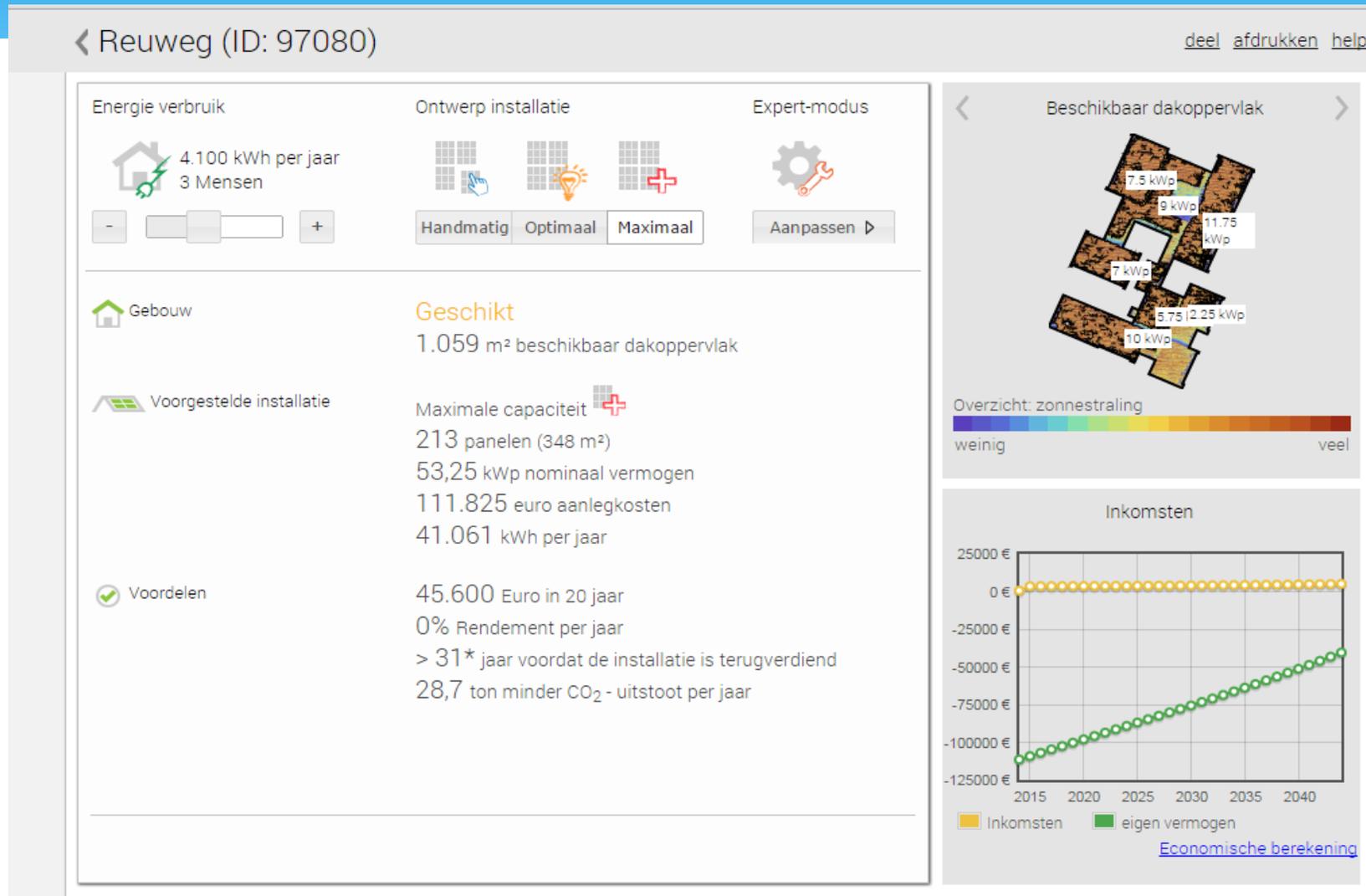
Zoek  
Hoofdweg 46  
Hoofdweg 46 Apeldoorn

Weergave  
Zonne-energie opwekking  
■ Zeer geschikt  
■ Geschikt  
■ Niet geschikt  
Instraling  
Geschikt dak oppervlak

Kaart  
open tabblad

Klik op een dak om de berekening te bekijken

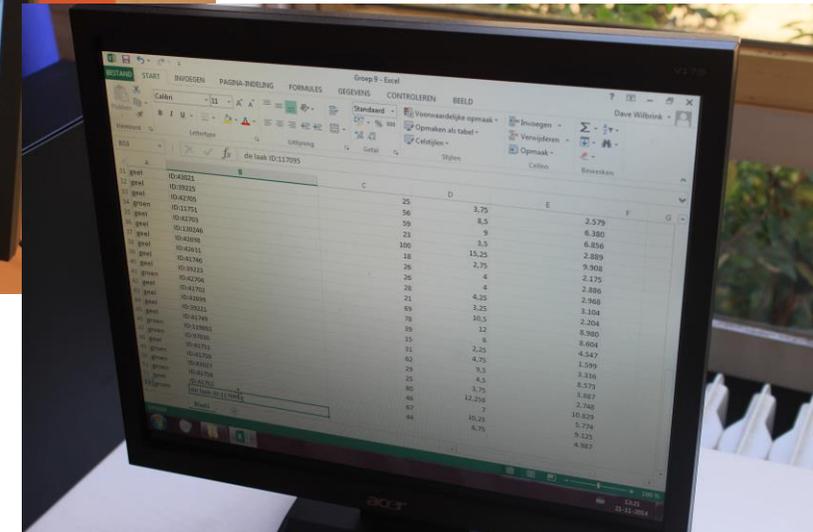
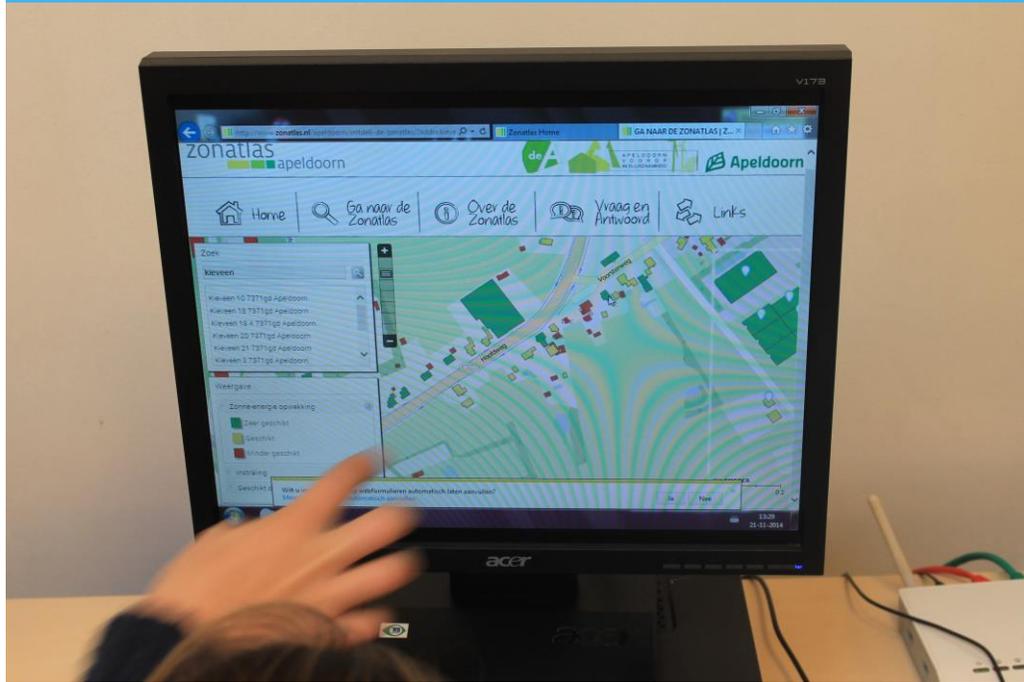
# Zonatlas supplies all necessary data



# Kids of group 8 distributed the work



# Looking at each street, each roof...



# While others worked energetic on ideas for the energy contest 😊



# Excel was used for calculating totals

- \* 9 groups of 2 kids → 9 excel files
- \* Total roof surface 56.000 m<sup>2</sup>
- \* This means 7000 kWp of solar panels can be installed
- \* These produce yearly 5.600.000 kWh (5.6 MWh)
- \* This is 125% of the total estimated electricity household demand of Loenen(4.5 Mwh)
- \* We hope this is a good start...

# Foto-impresie van de ochtend: een warm onthaal door OLTO



# Koffie met koek van DRL



# De aftrap door wethouder Olaf Prinsen



# Reinder Groenhof over Loenen, en André Zeijseink over Loenen Energie Neutraal



# Veel interesse voor de presentaties



# Bezoek aan de Tweede Stee



# Presentaties door leerkrachten én leerlingen!



# Warme interesse voor het werk van de leerlingen



# Een leuk energietafel, met uitleg door leerlingen



# Busrit door Loenen



# Discussie over vervolgstappen



# Lunch en een bedank-speech van de “EU”

