



Energy transition
starts at home!

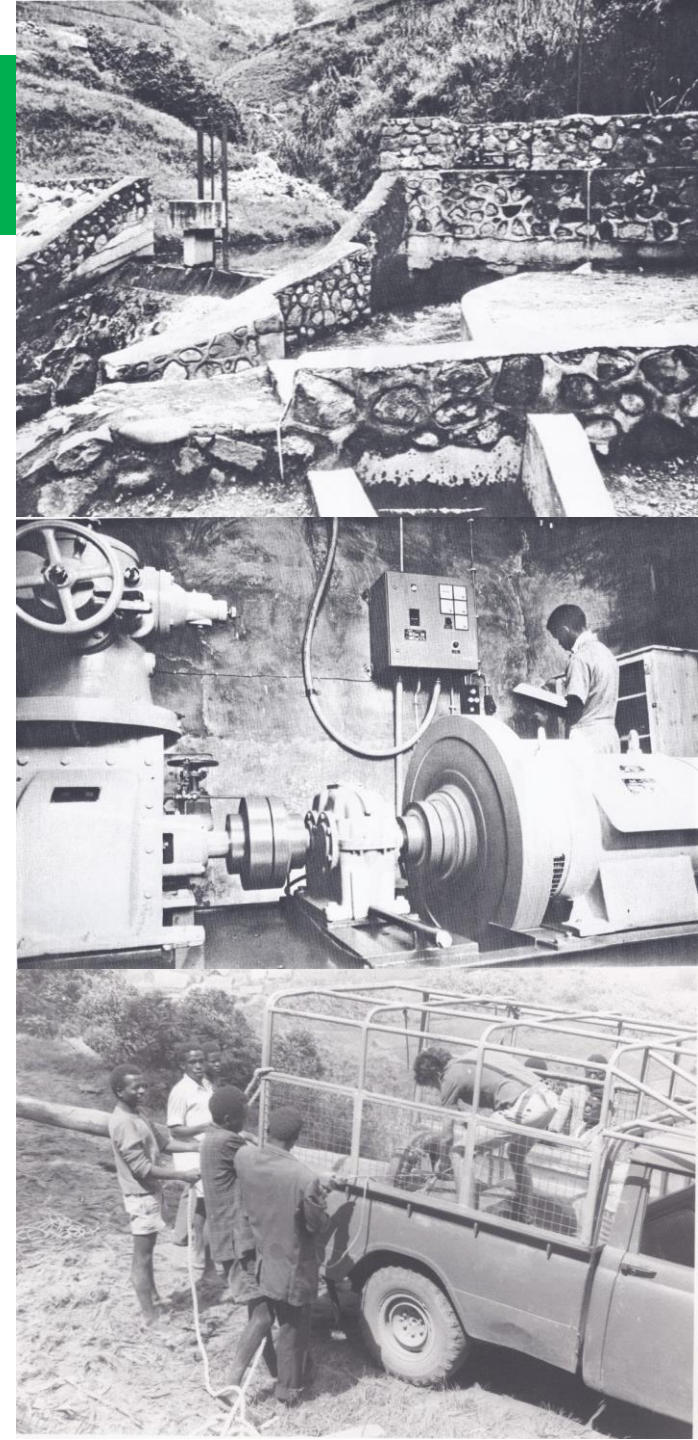
Sustainability:
Core value of our
Christian society?

Outline

- Introduction
- Personal conviction
- Climate problem
- Paris Agreement
- European Green Deal
- Local communities
- Energy transition in my/our home
- Summary and questions for Andante

Jan Peters

- Farmer's son, married, 3 children, 7 grandchildren
- Education: University of Eindhoven, Engineer in Physics
- 8 Years Rwanda, Africa (volunteer, professor, pioneer)
- 37 Years Energy Career NL (production, distribution grids, innovation, green energy, electric cars, management)
- From the 7th of September 2018 retired (pension age)
- Chairman of local energy cooperation
- And vice-chairman of catholic parish community
- Still consulting and volunteering in energy transition



Personal conviction: Stop short term financial profit

Sustainability is The New Normal

- Climate change is not simple, a *Society Change is necessary*
- CO2-reduction in 2050 needs a consistent long term goal: no change every 4 years
- A business case approach is not a good guidance for a society change
- Sustainable investment has to become *The New Normal*
- Sustainable development delivers a lot of advantages:
 - a higher employment,
 - a higher prosperity,
 - a healthy earth,
 - a life purpose,
 - less naturel disasters,
 - less billions of Euro's for sea and river protection etc.



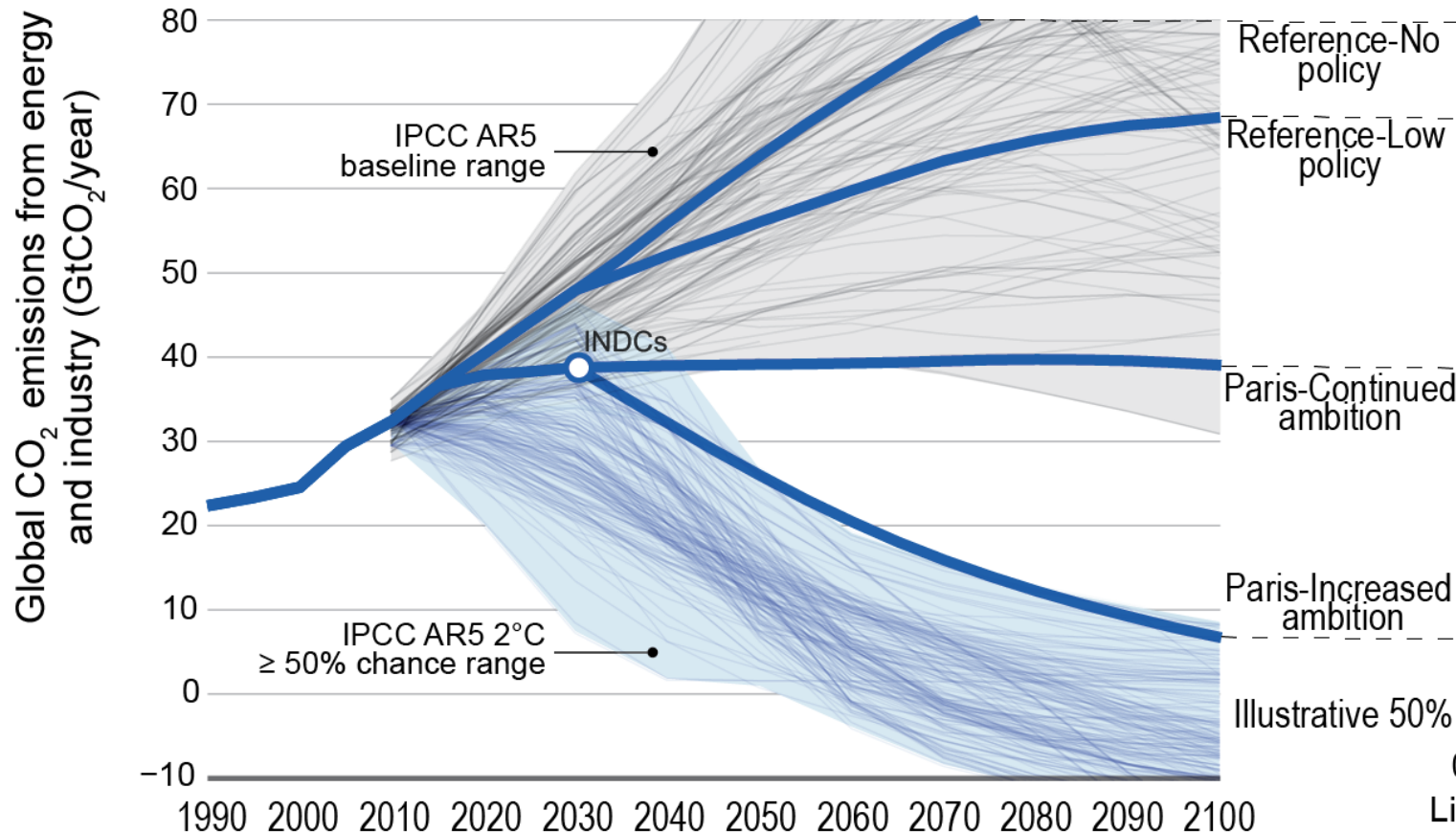
The Climate Problem is already visible!



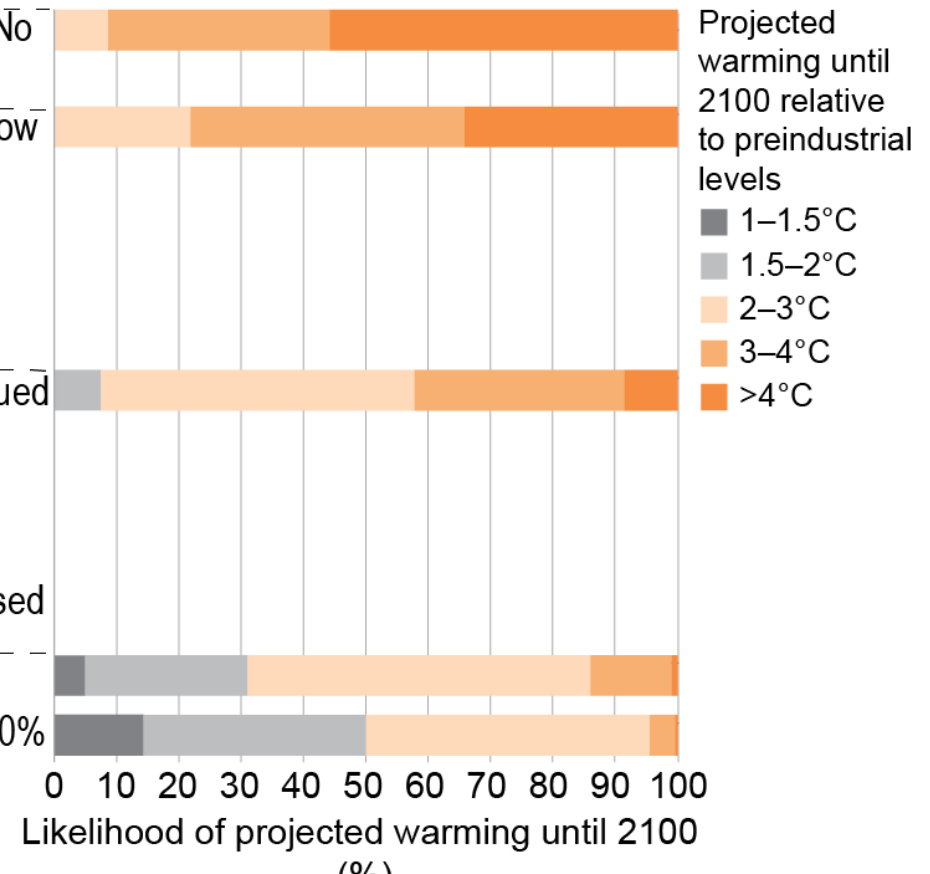
The Paris Agreement deals with greenhouse-gas-emission reduction, signed by 195 states in 2016. The 2050 goal is to keep the global average temperature rise below 2 °C (since 1990).



(a) Emissions pathways



(b) Temperature probabilities



The European Green Deal

Zero emissions of greenhouse gases by 2050

- having a climate and environmental emergency
- developing a roadmap making EU sustainable
- by turning climate challenges into opportunities
- by making the transition just and inclusive for all
- for a growth that gives back more than it takes away
- by transforming our ways of living, working, producing and consuming
- it is an opportunity to improve the health and well-being of our people
- it is about restoring the health of our natural environment

[A European Green Deal | European Commission \(europa.eu\)](https://european-council.europa.eu/media/1234567890/attachment/data/1234567890/1/1234567890.pdf)



The European Green Deal

1. Reducing greenhouse gas emissions by at least 55% in 2030
2. Ending EU's dependence on Russian gas: Common gas purchases and storage obligations
3. [REPowerEU Plan](#) : in 2030 13% of energy savings; 45% of renewables; PV on all new houses; hydrogen, biogas and heat pump targets; a 300 billion € plan



Fresh air
Clean
Water
Healthy soil
Biodiversity



Renovated
Energy
Efficient
Buildings



Healthy
Affordable
Food



More
Public
Transport



Cleaner Energy
Cutting-edge
Technological
Innovation



Longer
Lasting
Products
Repaired
Recycled
Re-used



Future-
Proof Jobs
and Skills
Training
For the
Transition



Globally
Competitiv
e and
Resilient
Industry



From EU goals to local activities:
In the Netherlands municipalities
and local communities are in the
lead for regional energy strategies

- Chairman of local energy cooperation HOT
- 250 out of 2500 families are member
- Projects and activities of HOT
 - Local electricity generation by photo-voltaic panels
 - Energy saving advices for households
 - Sharing electric mobility
 - Circular economy and agriculture
- Working together with municipalities
- Always looking for local support and financial participation of local people



Even more local: Energy transition starts in every home

10 steps in 10 years

Insulation

Photo-voltaics

Underfloor heating

Heating pumps

Electric car

Automation



Step 0: Gas-fired high efficiency boiler in 2009



Reference situation:
Combi gas-fired boiler
30 kW capacity for
domestic hot water
and space heating

Step 1: Extra insulation of roofs 2015-2019

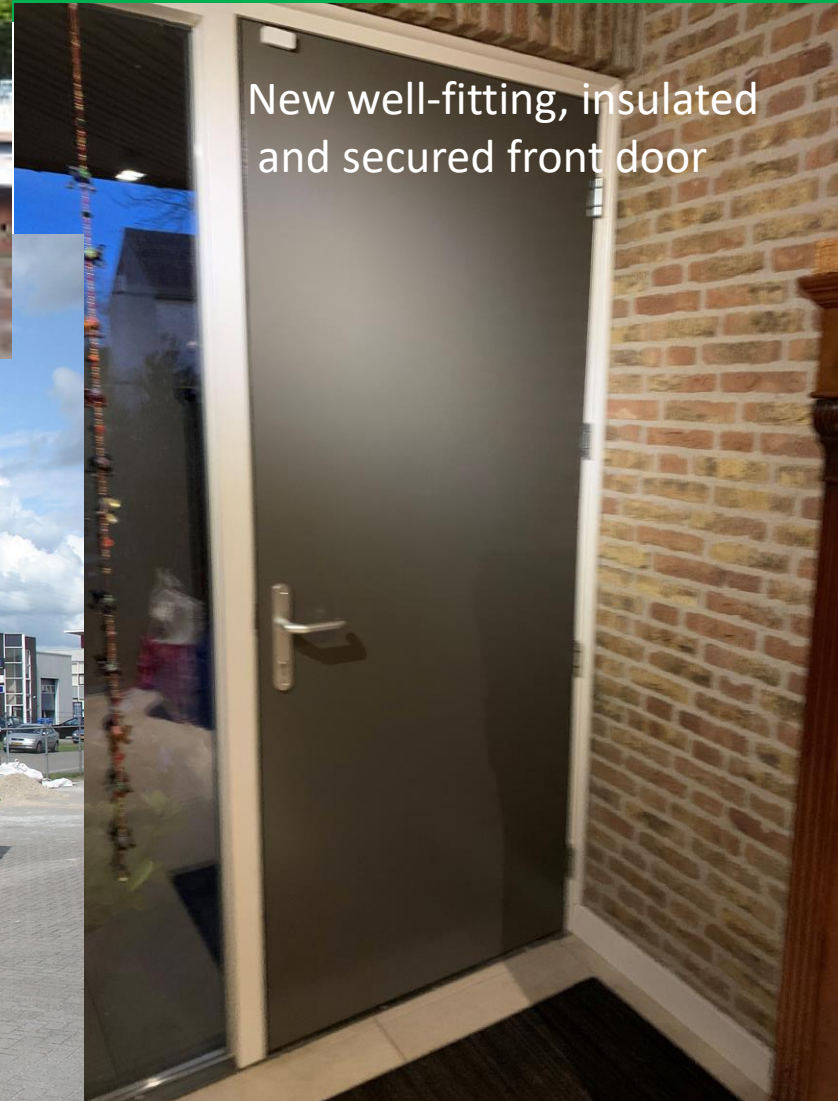


**Isobouw Slimfix
Deco RC 4,0
141mm
1200x500mm**

Step 2: Extra insulation walls, doors, windows in 2019



190 m² Comfort Foam completing the insulation of cavity wall with glass wool; cavity thickness 7 cm, Rd-value foam 2,0 m² K/W

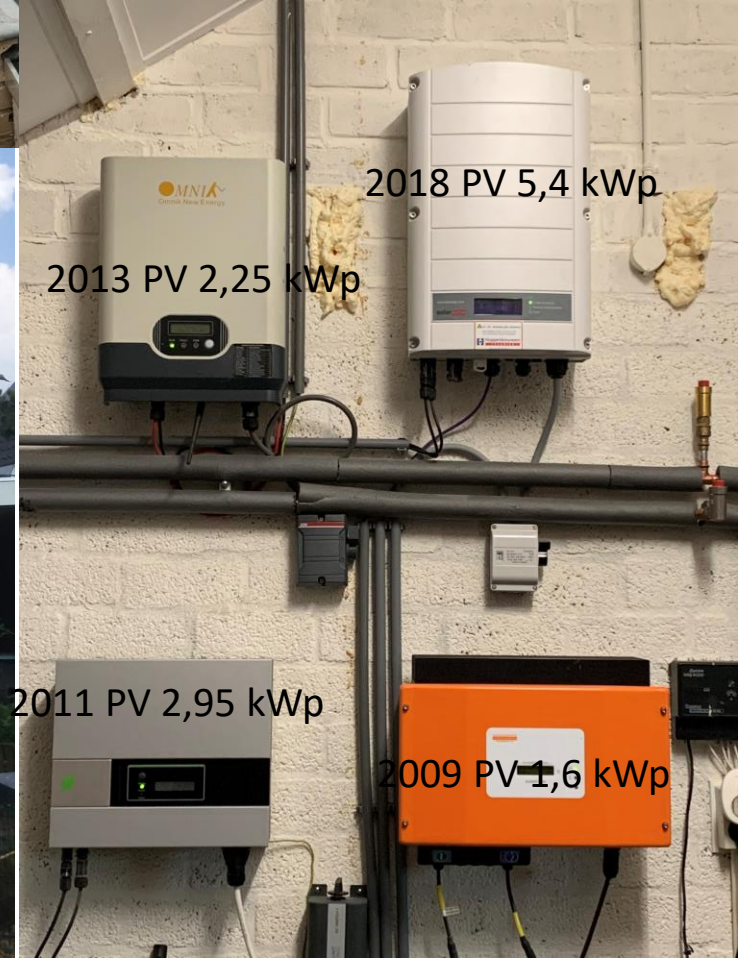


Step 3: New insulated floor with heating system in 2017

Low temperature floor heating system



Step 4: Sustainable production by photo-voltaic panels in 4 successive phases 2009-2019



Step 5: Hot water by solar and heat pump boiler



Step 6: Hybrid air-water heat pump in 2017



Step 7: Air-air heat pump in 2020



LG typt DC12SQ: 4kW
LG type DC09SQ 3 kW
Buiten: MU3R21



Step 8: 100% Electric car since 2009



2009 Electric VW-Golf and public charging point



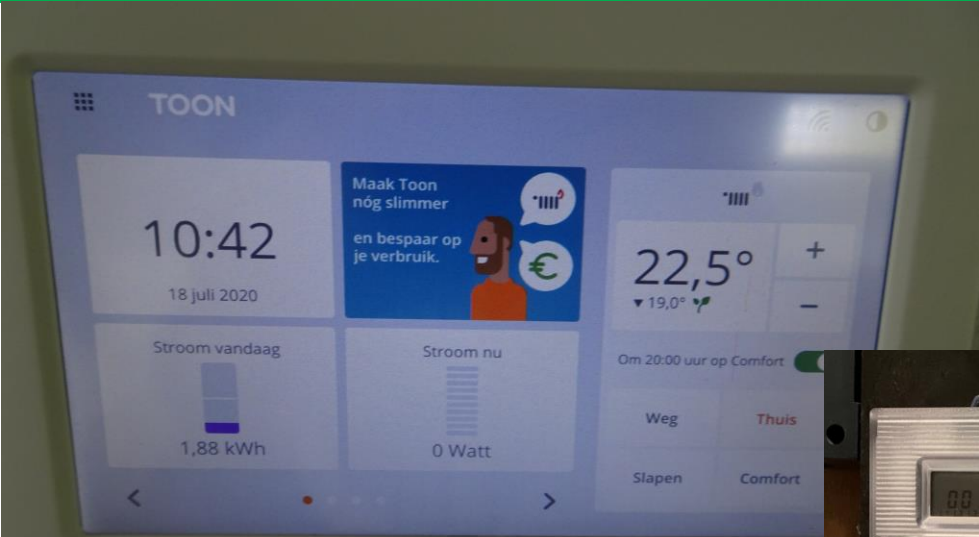
2018 House connected charging point



2018: Tesla owned by ETA2050

Step 9: Smart metering and home automation 2010-2018

Step 10: Smart behaviour, Balancing production & demand

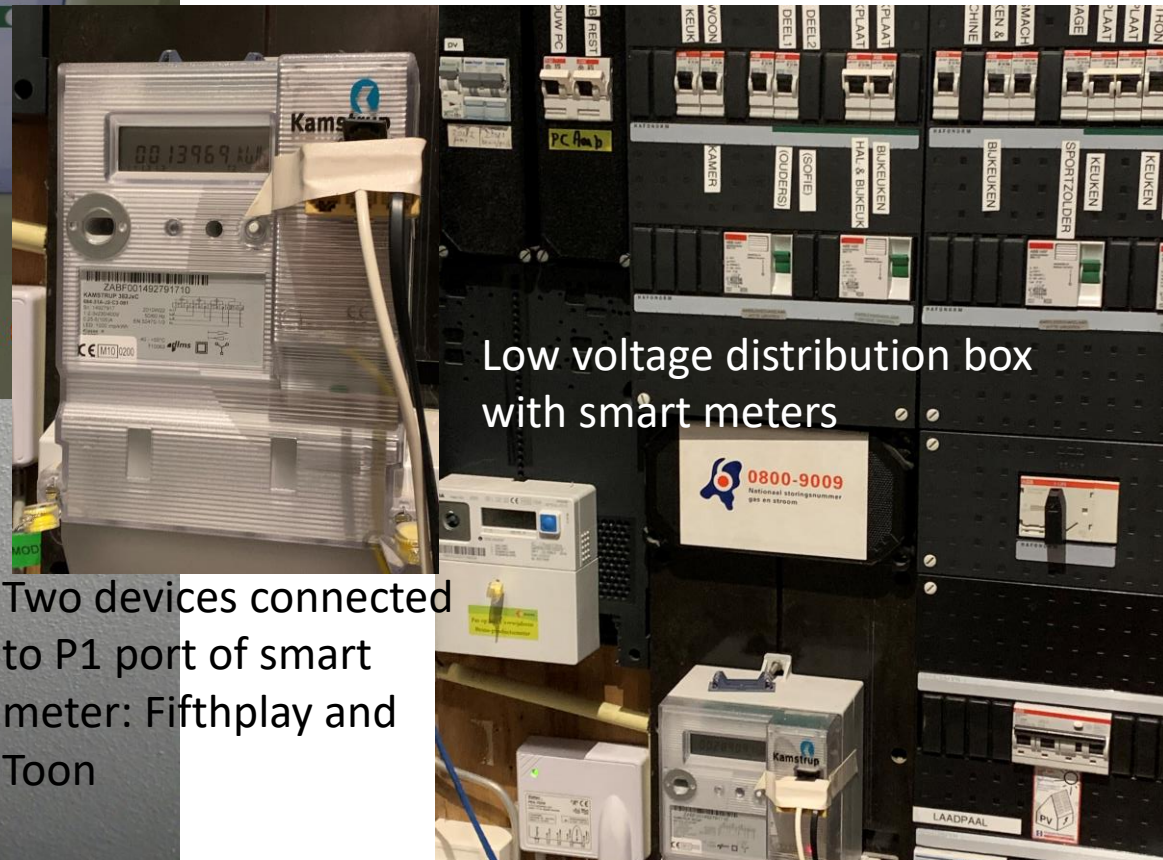


Monitoring smart meters and controlling gas fired boiler as back-up (gas consumption = zero)

Controlling air-water heatpump



10 Fifthplay Smart Programmable Plugs



Low voltage distribution box with smart meters

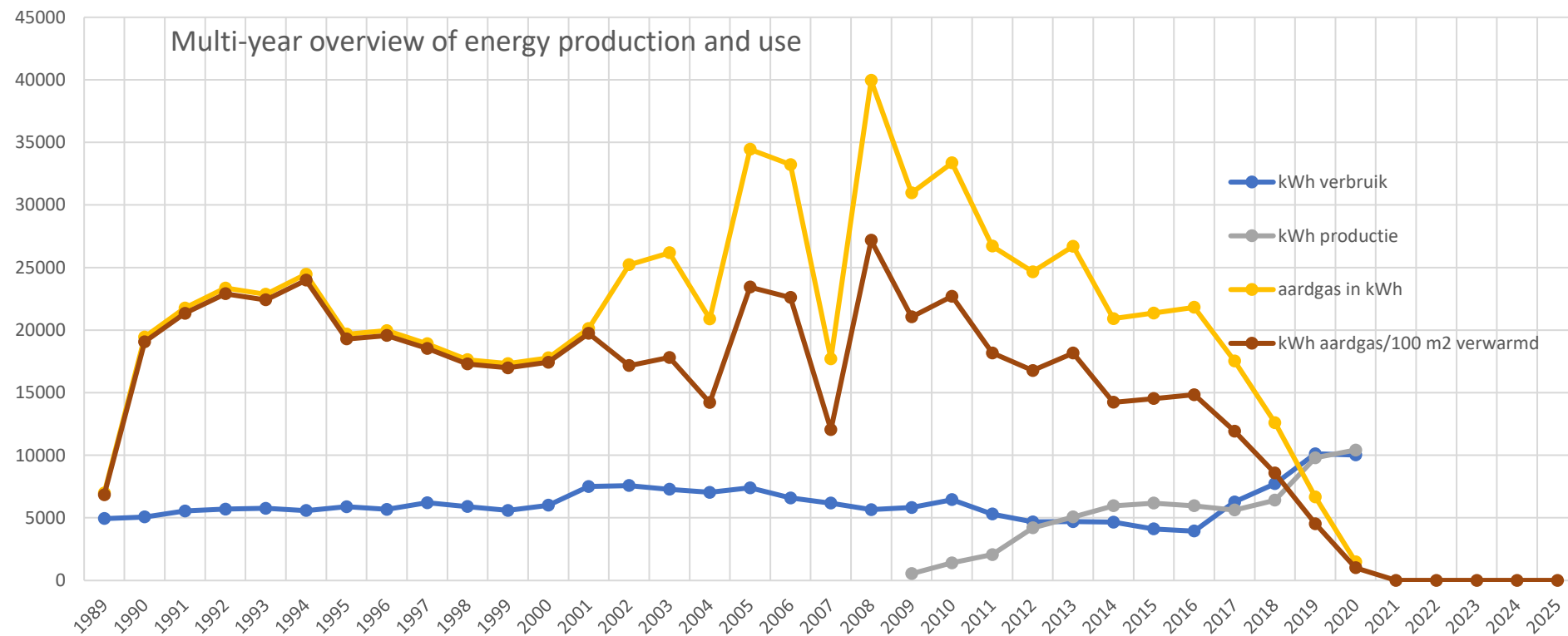
Two devices connected to P1 port of smart meter: Fifthplay and Toon

Energy transition of our 1977 house

9 Hectares of Wood

6 Hectares of Wood

0,5 Hectares of Wood



Total (netto) transition costs of our house

Step 0:	Installation of high efficiency central heating boiler	=	Reference point
Step 1:	Extra insulation of roof (100 m ²)	€	5.000
Step 2:	Extra insulation of walls, doors and windows (190 m ²)	€	5.000
Step 3:	New extra insulated floor with heating system (exclusive floor)	€	6.000
Step 4:	Sustainable production by photo-voltaic panels (12,5 kWp)	€	17.000
Step 5:	Production of hot water by solar and heat pump boiler	€	3.800
Step 6:	Hybrid air- water heat pump	€	2.200
Step 7:	Air-air heat pump	€	4.200
Step 8:	100% Electric car		PM
Step 9:	Smart metering and home automation	€	500
Step 10:	Smart behaviour, Balancing production and demand		PM
Total transition costs			€ 43.700

Summary

An aerial photograph of a rural landscape at sunset. The sky is filled with large, dramatic clouds, with the sun low on the horizon to the right, casting a warm, golden glow. Below the horizon, a lush green landscape with rolling hills, fields, and clusters of trees is visible. In the lower right foreground, there are several large, blue, dome-shaped structures, possibly greenhouses or modern farm buildings. Overlaid on the image are five horizontal green bars with white text.

Environment and society are changing

Sustainability becomes THE NEW NORMAL

Energy transition starts at home

Social participation and collaborations of families needed



Questions ?

How important is sustainability for our earth?

Sustainability and Christianity, does it match?

What can I do in my home, in my family?

What can be the specific roles of women?

What is the challenge for Andante?