

The Quick Fit, a very "Dutch" Approach to Energy Transition

Green Gas Day 2019

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Presentation objectives

How to reduce CO₂ emissions?

At the moment there are too many choices and unknown, potential high risks.

The result is debates, discussions but no actions.

But there is a safe, low risk, alternative path to reduce CO₂ emissions tomorrow.

This presentation is about the Dutch approach:

- What is it?
- How fast can it be done?
- What is the role of GREEN GAS?
- But what about finances?

The four key components of the quick fit

The quick fit as described in this report, consists of:

1. Local participation and support
2. Insulation
3. Hybrid heat pump
4. Green Gas production



samen +
energie -
neutraal

WONINGEN IN
NEDERLAND VERSNELD
ENERGIENEUTRAAL

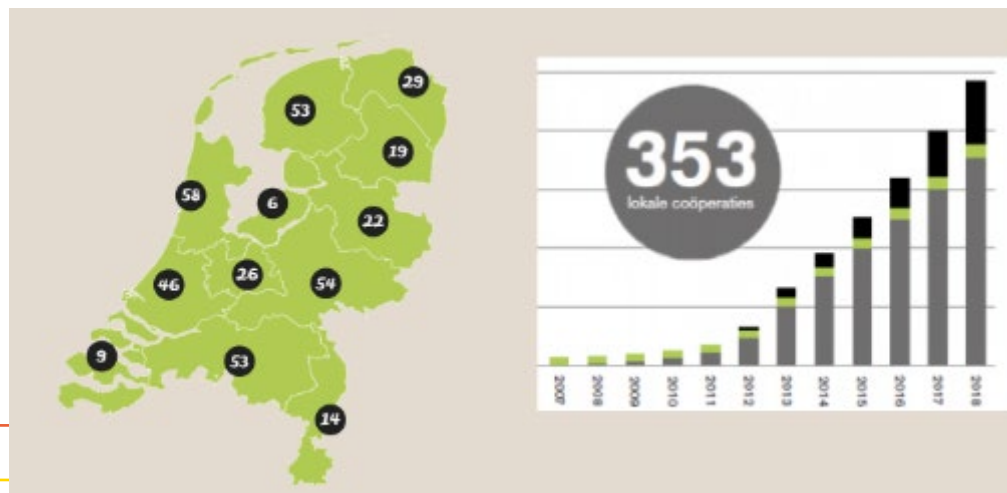
Een Quick-Fit oplossing

versie 1.3
april 2016



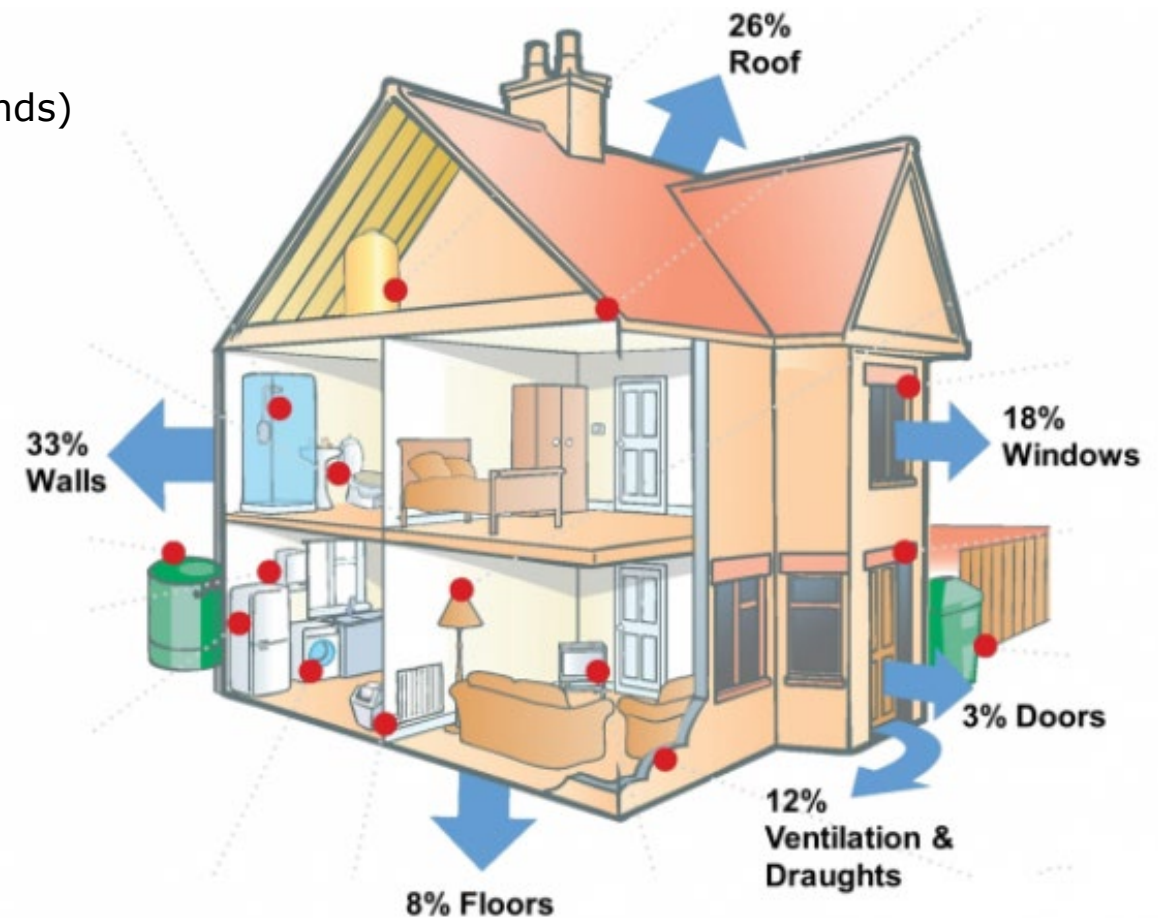
1) Why Local participation?

- Participation, Involvement and “Not In My Back Yard”:
 - Legal permits are hell when a community is dead set against something. Even with “green” projects
- How does the local participation work?
 - It starts at the local BBQ
 - Concerned citizens coming together wanting to do something
 - As a club they start to develop their own plan
 - They communicate with neighbours and mobilise local support
 - So they minimise planning related risk
 - Numbers:



2) The key item is insulation

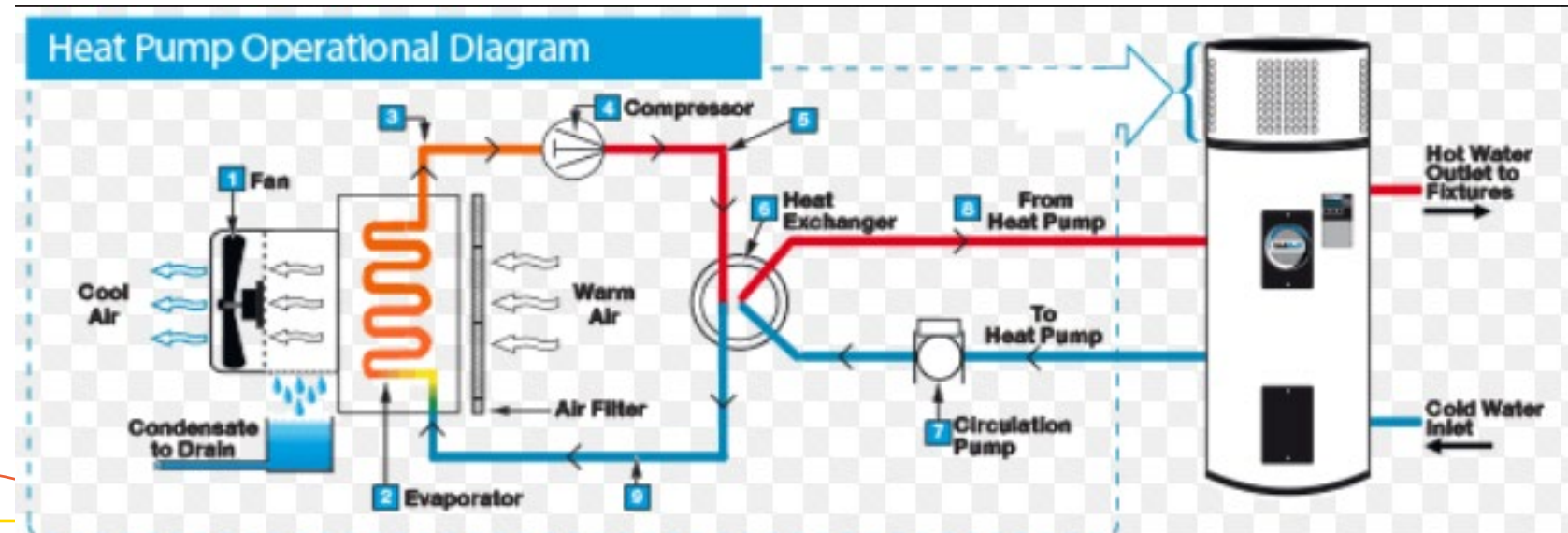
- Insulation is the most effective energy saver
- But not the most efficient!
 - Especially older homes (approx. 7 mln in the Netherlands)
- Insulation must be part of the mix
 - Insulate the easily accessible parts of each house
 - Close all the cracks or crevices
 - Reduce the energy needed for heating as much as is efficiently possible



3) Item is Hybrid Heat Pump

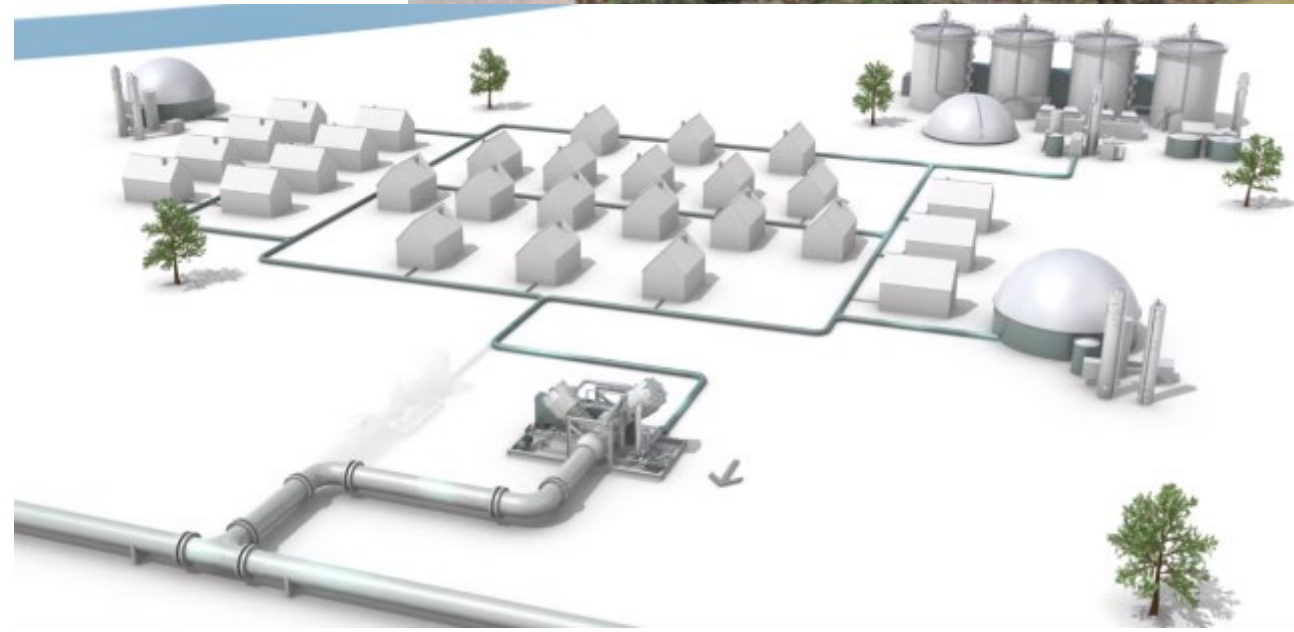
The base load for heating of the houses comes from Hybrid Heat Pumps.

- Generally Uses (green) Electricity for heating
- When outside temperature is too low ($<4^{\circ}\text{C}$) or the electrical grid is reaching peak capacity, additional heat by burning green (bio) gas
- Still great comfort in the home



Finally: The Green Gas Production

- Biomass conversion
 - Locally produced by e.g. farmers
 - CO₂ used for crops, or food industry etc
 - Sewer system adaptation
 - At home, food waste in the waste disposal unit
 - Sewage works produce Green Gas
- Transport and seasonal storage through the local and national grid
- Green Gas certificates to show the origin of the Biogas



Typical planning

- **Insulation:**
 - Investigation of participating member houses
 - Start tomorrow and insulate the day after
- **Hybrid heat pump next step**
 - Selection of Suppliers of HWP
 - Training of technicians to install them
 - Teaching participants to use them
 - Provide green power and manage grid congestion
 - Usually can start within one year
- **Introduction of Green Gas as the final step**
 - Planning and project management
 - Permits
 - Subsidies / loans
 - Usually takes little over 2 years for start of production

Birmingham, 8 mei 2019



Typical Dutch plan

- A typical Dutch plan consists of:
 - Solar panels per house or on a local PV field
 - Closing cracks in the houses
 - Install HWP in each house
 - Green gas production
 - Sewers adjustment or
 - Manure gasification
- Project
 - Planning takes about three years (from BBQ to the start of the first project)
- Financing:
 - Budget neutral for participants for 8 years
 - After 8 years all benefits for participants



Where does the money come from?

There are two challenges:

1. How to finance local initiatives for their overhead:

1. Make a plan
2. Communication
3. Overhead

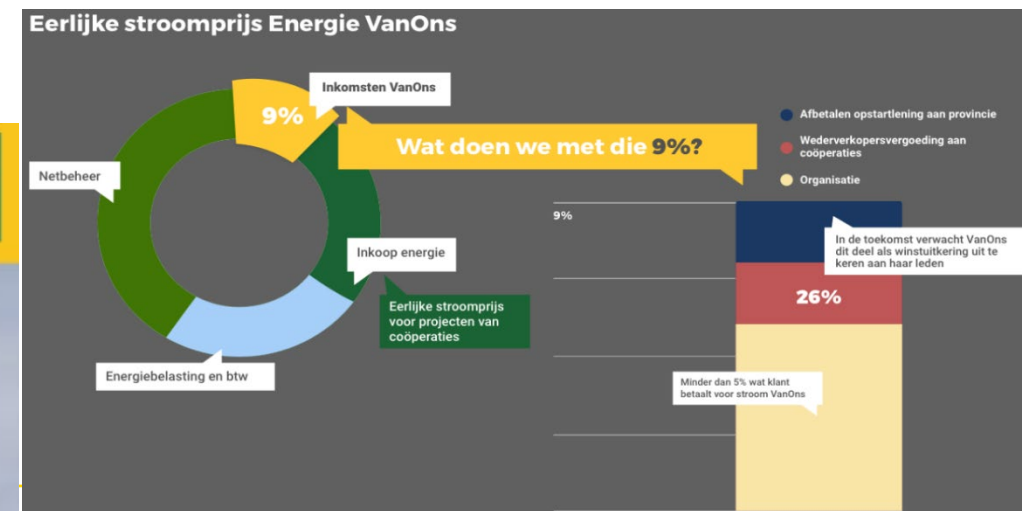
2. How to finance the execution of the plans:

- Program management
- Project management
- Project execution

Financing local initiatives for their overhead?

1. How to finance local initiatives for their overhead:

1. Make a plan
 2. Communication
 3. Overhead
- Most of the work is done by volunteers
 - Each local initiative is joined with a dedicated Green Energy trader (Energie van Ons)
 - This trader has substantial buying power to reduce the price of energy for its' customers.
 - 1/3 of this price difference is for the local initiatives to organize their work.



How to finance the execution of the plans?

2. How to finance the execution of the plans:

- Program management
- Project management
- Project execution
- Subsidies on investments for sustainable projects (SDE+)
- About 8 years' reduction on energy bills used for the investment.
- Donations / sponsors.

Two Examples

- Boven pekela / Doorsnee buurt (Volunteer participation based)
 - Cracks insulation
 - 12 PV's for each house
 - Hybrid Heat Pump
 - Bio Gas from Sewer system
 - CO₂ capture and storage
- Stake holders
 - Locals
 - Municipality
 - Grid operators
 - Alliander
 - Gasunie
 - Water Authority
 - SEN
 - **LOCALS**



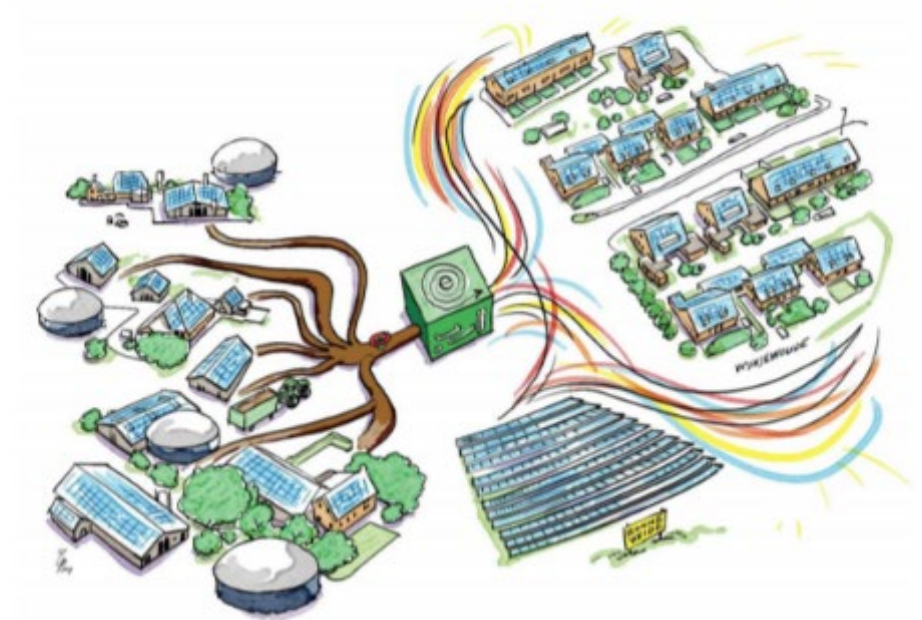
Examples

- Wijnjewoude
(also Volunteer participation based)
 - Insulation
 - PV field
 - Hybrid Heat Pump
 - Bio Gas from manure
- Stake holders
 - Locals
 - Municipality
 - Grid operators
 - Water Authority
 - Farmers
 - SEN
 - **LOCALS**

Birmingham, 8 mei 2019

Wijnjewoude Energie Neutraal 2025

Van gedacht beleid naar gedaan beleid



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