



EU CAP Network Seminar 'Smart circular farming to address high energy and fertiliser prices'

6-7 December 2022
Porto| Portugal



Funded by
the European Union

Hyperfarm

Wouter Merckx

EU CAP
NETWORK



Funded by
the European Union





HyPERFarm

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HYDROGEN AND PHOTOVOLTAIC ELECTRIFICATION ON FARM



This project has received funding from the European Union's Horizon
2020 research and innovation programme under GA ID 101000828

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Project general info

Call: Defossilising agriculture – solutions and pathways for fossil-energy-free farming

Type: Innovation Action

Project title: HyPErFarm - Hydrogen and photovoltaic electrification on farm

Time: 48 months, started November 2020



Consortium partners



13 partners, 4 European countries

Multi-actor approach: Research, Industry, Farmers – farmer association





Objective:

demonstrate effective decarbonisation of farms by agrivoltaics while maintaining the crop yield

Aim:

to provide a show and business case for farmers to facilitate implementation of renewable energy on farm:

production and its local deployment
(electricity – H₂)



3 agrivoltaic demonstration sites:
BE – DE – DK

develop optimised agrivoltaic
systems to guarantee
sustained or even enhanced
crop production



implement H2
production and usage
in a cost-effective
manner

HyPERFarm Key innovations

Deploy local e-
production towards
electrification of farm
operations (e-robotics,
intelligent climate
control and e-driven
pyrolysis)



demonstrate business case
and public acceptability of
producing solar-based
energy sources locally on
farm



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Carl, 38y

Livestock farmer
Part-time at a
farming business



*"Agrivoltaics is a
great fit with my
installations &
allows me to keep
up to date."*



Ines, 51y

Organic farmer
Has greenhouses &
plastic tunnels for
high-value fruits

*"Agrivoltaics seem
interesting, but it
sounds quite
complicated to
me."*

Claudia, 42 y

Works for an
energy research
institute
Commercial PV
solutions



*"Agrivoltaics are a
piece of the puzzle
to change our whole
energy system to
become more just &
fair."*

*"How can we
ensure that crops
come first and
energy production
second?"*



Ian, 57y

Senior researcher
Focus on
Agroecology

Claude, 35y

Journalist with a
focus on climate
change & green
transition topics



*"We all want the
green transition,
but at no cost.
People want
invisible solutions."*

*"Renewables are
never completely
fun, there is no
perfect solution."*



Ingrid, 46y

Energy advisor at
the municipality's
planning
departement

Lovenjoel – Univ. Leuven - TRANSfarm



www.agrivoltaics.one

Agrivoltaics webtool

Please input the coordinates of the location you would like to simulate.

Latitude: Longitude:

Current location: Latitude= null Longitude= null

Height

meter

< 3 >

Ground coverage ratio

%

< 30 >

Tilt

°

< 10 >

Direction

0 = South, -90° = East and +90° is West



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TRANSfarm - Electricity chain



PV power:

Agrivoltaics: 60 kWp

Rooftop: 160 kWp

Supply to:

1. Pilot:

- 360 kW
- Appr. 55 kW/unit
- Basic utilities

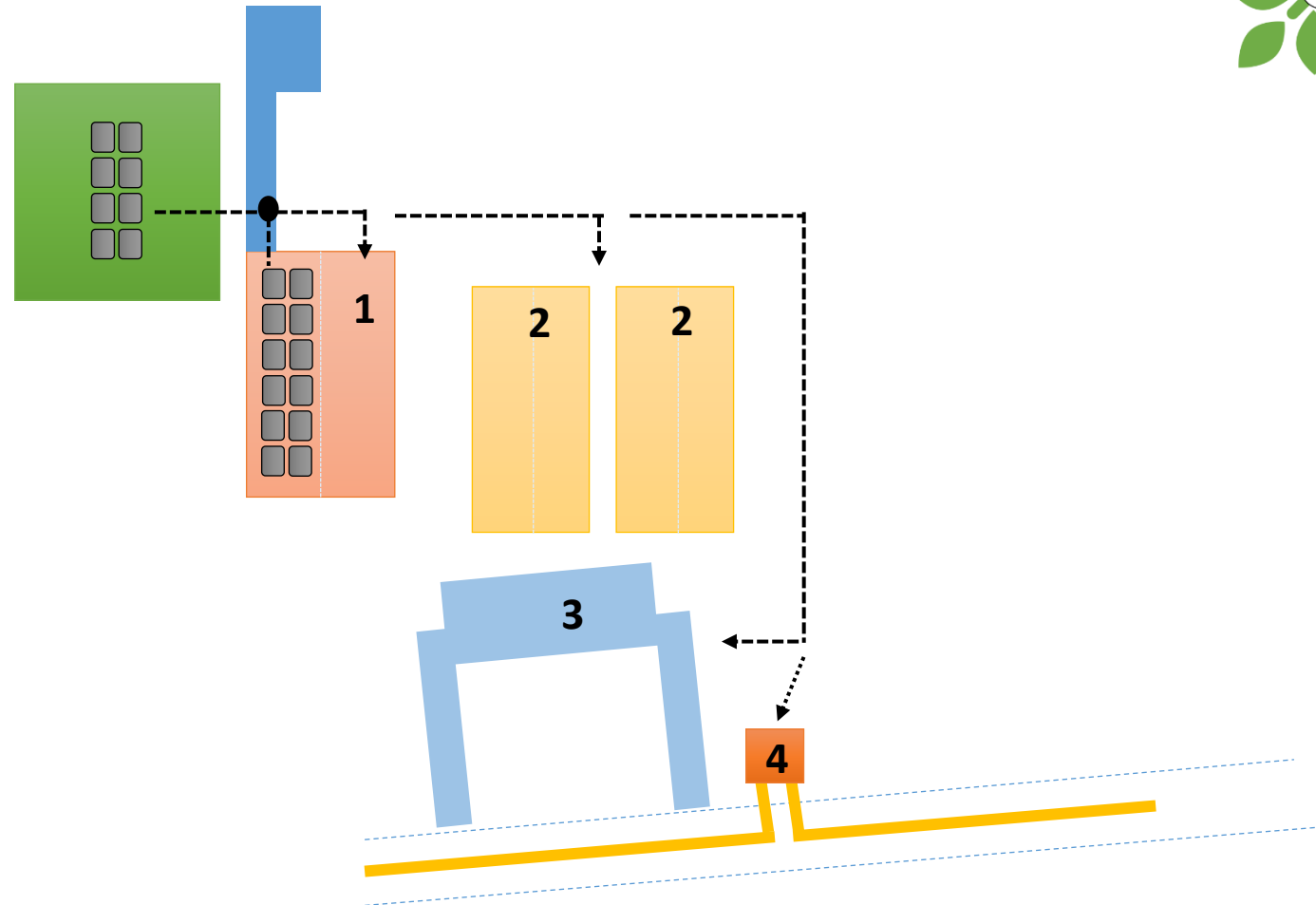
2. Animal facilities:

- Poultry: 110 kW (max)
- Pig: 110 kW (max)
- 2 heatpumps (2 x 200 kW)

3. Logistics:

- Wheel loader
- forklift

4. Excessive: grid injection





Usage on farm:

- Electric bulldozer →
 - Climate system farm:
 - 2 heat pumps
- Ventilation: air groups



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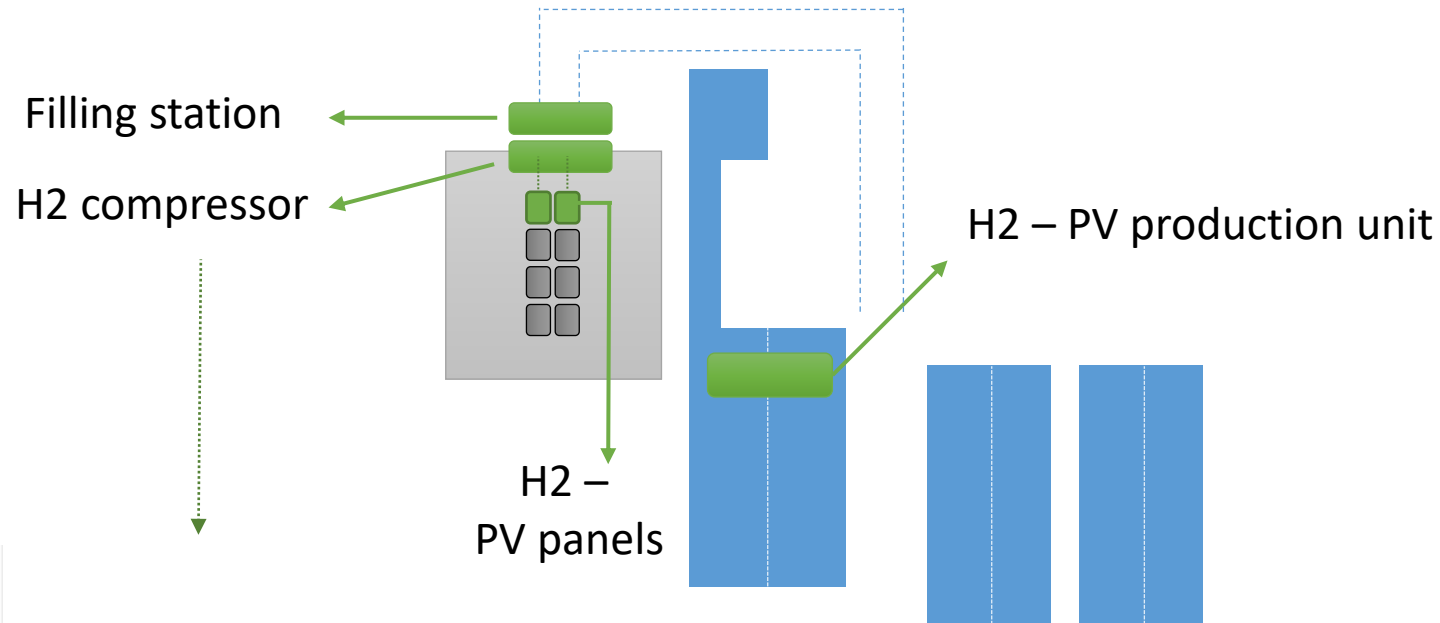


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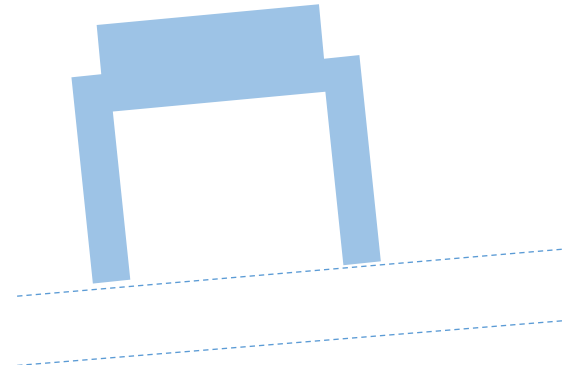
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TRANSfarm – H2 chain



Timing:
Housing H2 PV production unit:
scheduled December 2021

- Tractor
- Forklift
- H2 - bike
- H2 - car



Thank you

Wouter Merckx

KU Leuven TRANSfarm, pilot facilities
Science, Engineering and Technology group

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www.transfarm.be