Biomass heating
Feasibility study results
SUNREED project

CNVP

AGRAR Plus

Future in rural area

Overview

Introduction

Survey of basic data

Individual results

Biomass heat supply local effects

Summary of keypoints

Overview

Foundation

1985 by an initiative of Lower Austrian Councillor responsible for agricultural and environmental affairs

Objective target

Support people during successful realisation of their ideas

Achievements

Consulting of about 60 % of all rual biomass district heating projects

Field of business activity

- ✓ individual, independent consulting - project support
- ✓ feasibility - studies
- ✓ realisation and economic concepts/plans
- ✓ foundation consulting
- ✓ projectmanagement and controlling
- ✓ Coaching and Training for operators
- ✓ informative meetings and lectures
- ✓ conferences, workshops and courses
- ✓ agency of experts
- ✓ coordination in the field of research and development

www. evaluationworld.net


www.coaching-bruxelles.be

Introduction survey of basic data

Field visit

- 5 Companies
- 5 Municipalities/Cities

Basic data survey

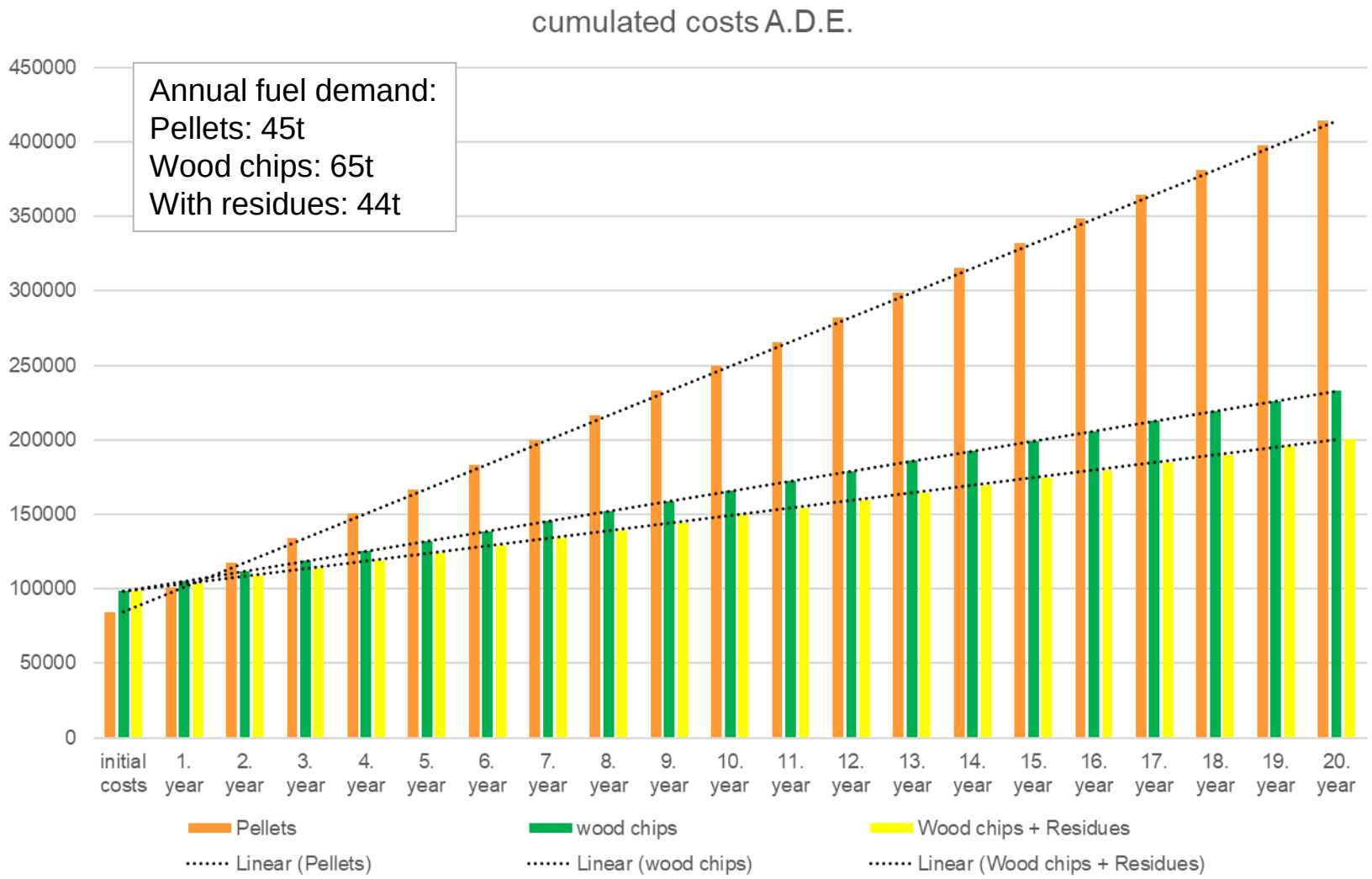
- summary in list
- Mutual synchronisation of the data

Summary of Keypoints

Biomass heating pilot plant A.D.E.

- Exchange of firewood boiler for office and greenhouses by automatic 150 kW biomass boiler (wood chip boiler)
- Allows automatic and reliable heat supply of office and increased area of greenhouses
- 60 → 130 kW capacity for greenhouses at outdoor temperatur -15°C
- Room temperature:
  - 20°C: 162m² → 351m²
  - 10°C: 227m² → 491m²
- Investment costs: € 98 500,--
- Annual wood chip costs: € 5 440,--
- Annual costs + residues: € 3 800,--
- Annual savings to pellets:
  € 9 700 – 11 400,--

Biomass heating pilot plant A.D.E.



Summary of Keypoints

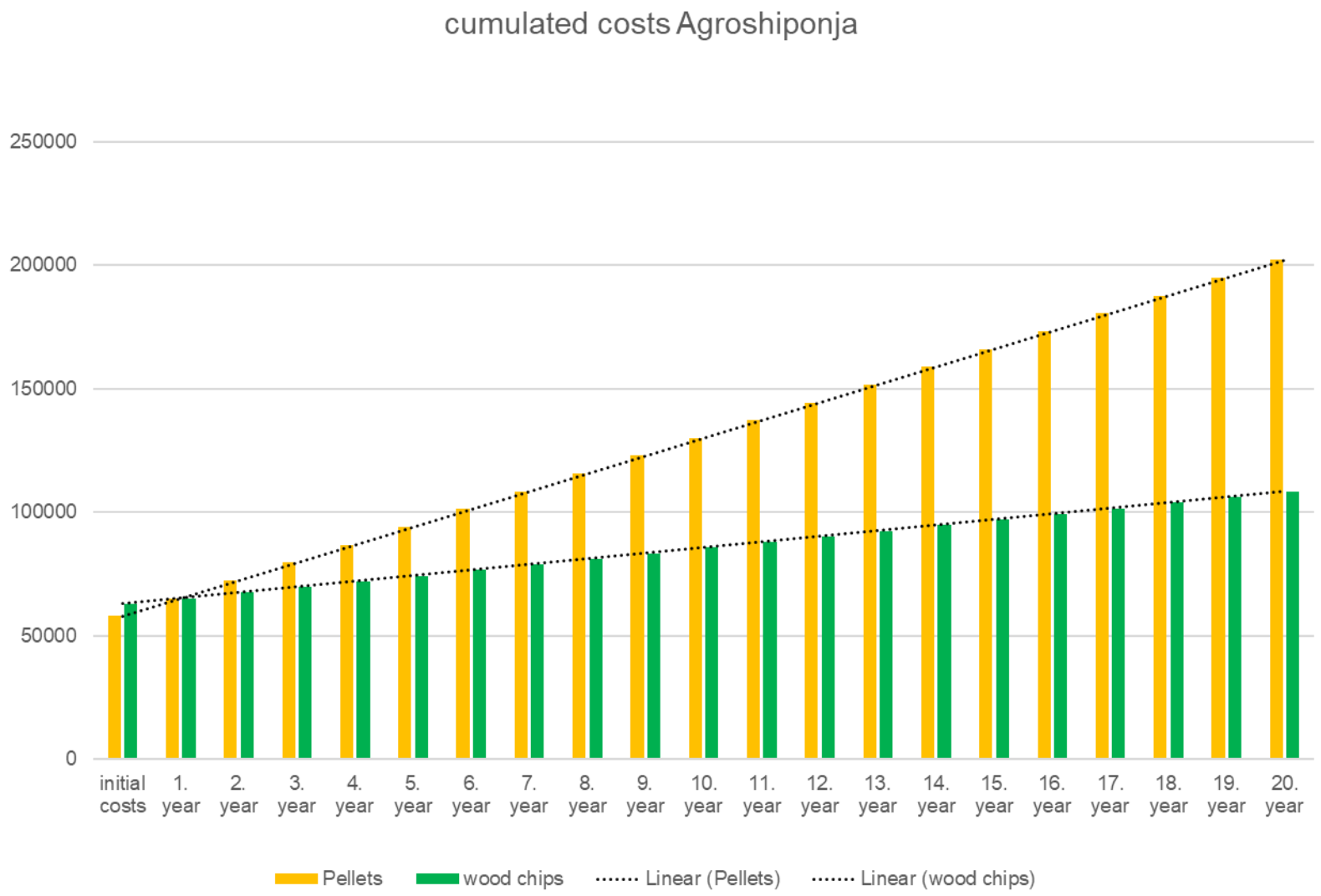
Biomass heating pilot plant Agroshiponja

- Exchange of firewood boiler by automatic 70 kW biomass boiler (wood chip boiler)
- Allows automatic and reliable heat supply of dryer and residential building
- Investment costs: € 63 000,--
- Annual wood chip demand: 30t
- Annual wood chip costs:

  € 1 980,--
- Annual savings to pellets:

  € 4 940,--

Summary of Keypoints



Summary of Keypoints

Wood processing company

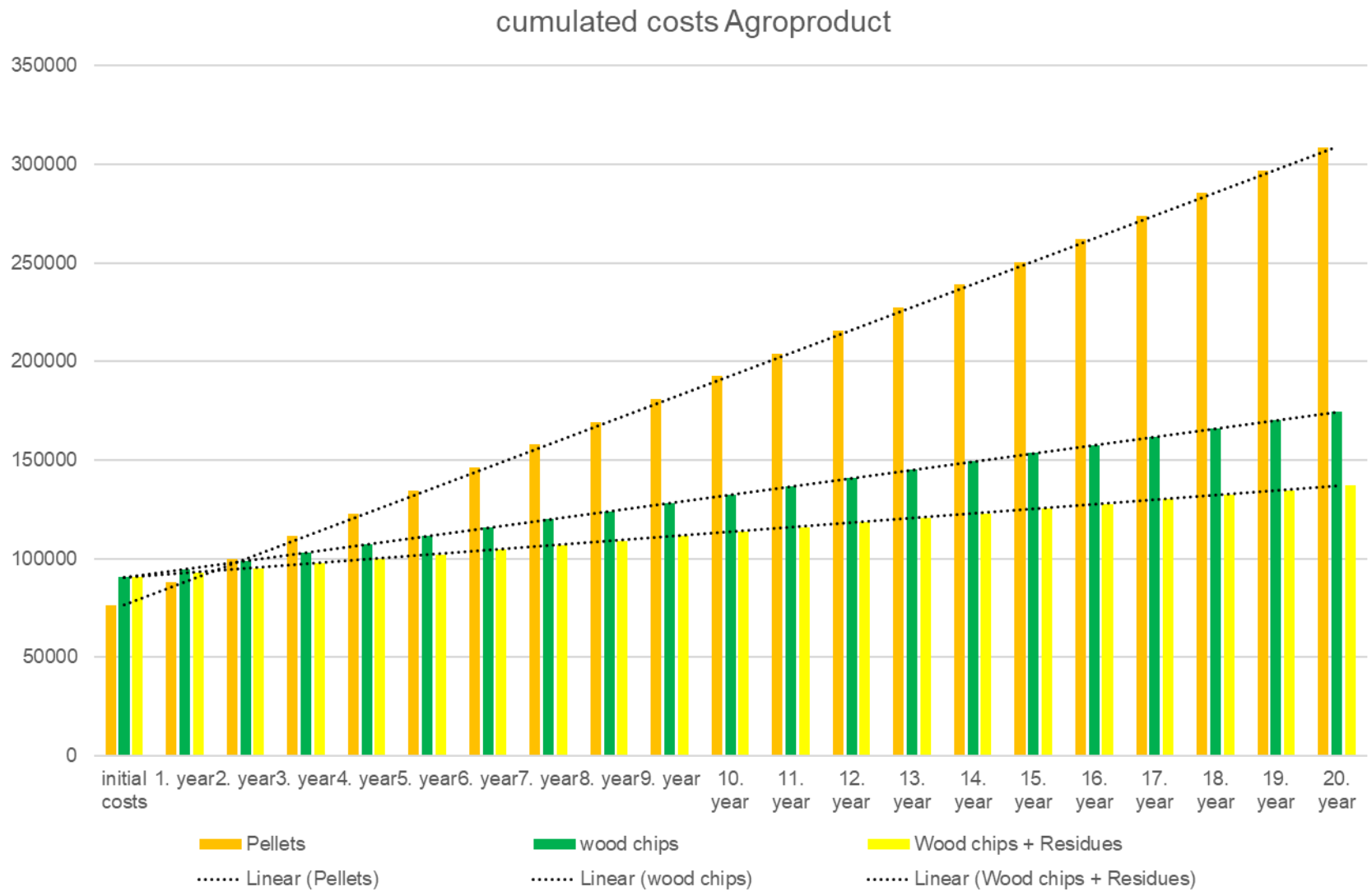
- High quality products, needs stable moisture content of processed wood
- 1qm solid wood needs 2 – 8 kW/qm heating output
- Varies depending on drying speed and wood species
- Furniture construction wood → low drying speed
- Engineering of dryer:
  - 50qm dryer → 100 – 400 kW biomass boiler

Summary of Keypoints

Biomass heating pilot plant Agroproduct

- Exchange of pellet boiler by automatic 150 kW biomass boiler (wood chip boiler)
- Allows automatic and reliable heat supply of dryer
- Use of herb residues in mixture with wood chips 50:50
- Investment costs: € 90 500,--
- Annual wood chip demand: 44t or 22t + 17t herb residues
- Annual wood chip costs: € 3 750,--
- Annual wood chip costs with herbs: € 1 875,--
- Annual savings to pellets: € 7 450 - 9 300,--

Biomass heating pilot Agroproduct



Summary of Keypoints

Biomass heating pilot plant Bleta Beepro, Bejan

- Need of dry wood for beehive production
- Byproduct sawdust available
- Heating of dryer, production area, office
- 2 types of dryer:
  - 30 m³ needs 160 kW
  - 50 m³ needs 230 kW

- Construction of sawdust heating system need high fire and explosion prevention standards
- Investment costs: € 204 500,--
- Biomass boiler output: 350 kW
- Sawdust demand: 142t/a
- Increase of quality and efficiency

Summary of Keypoints

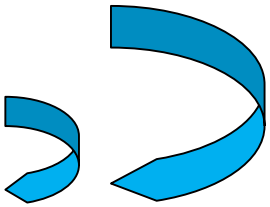
Biomass heating pilot plant Viti

- Development and construction of biomass district heating system in 2 phases
- 1. Construction and operation of biomass heating plant near stadium for the supply of city center
- 2. develpment of heating grid in northern direction to Shkolla Fillore OR construction and operation of biomass heating plant near Shkolla Fillore
- Use of local forest residues and sorted and processed communal cutting residues
- Cost comparison with district heating based on geothermal supply

Summary of Keypoints

Biomass heating pilot plant Viti Phase 1

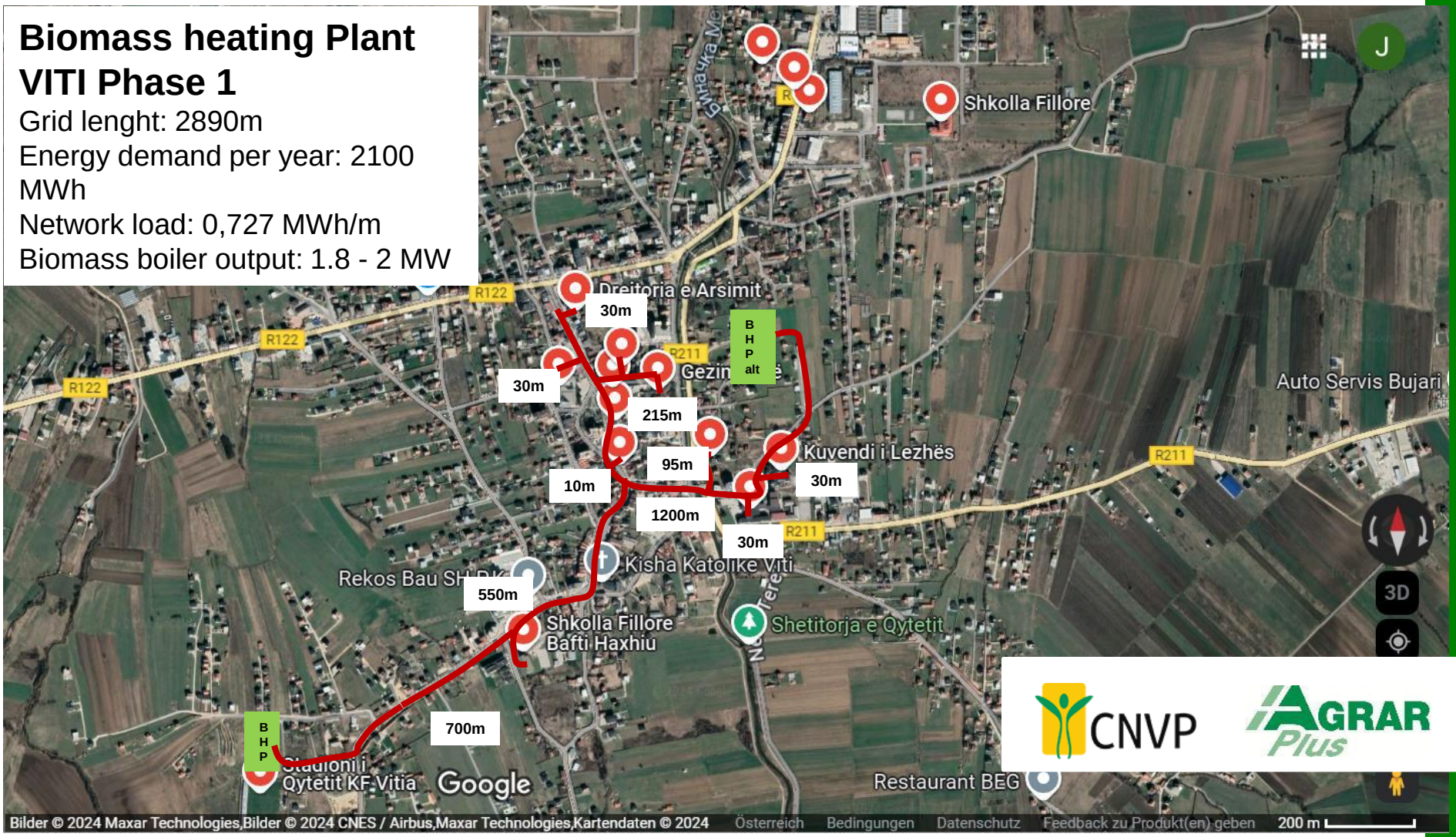
- Investment costs: € 2 522 500,--
- Biomass Boiler output: 1.8 – 2 MW
- Energy demand of supplied buildings per year: 2 100 MWh
- Annual wood chip demand: 850 t
- Annual wood chip costs and regional added value: € 72 100,--
- CO2 Emission Reduction:
  - Electricity: 2 143 680 kg/a 97%
  - Fuel oil: 842 315 kg/a 92,5%
  - Wood chips heat: 63 360 kg/a



Biomass heating plant Viti Phase 1

Biomass heating Plant VITI Phase 1

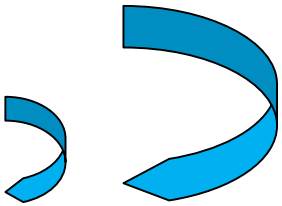
Grid lenght: 2890m
Energy demand per year: 2100 MWh
Network load: 0,727 MWh/m
Biomass boiler output: 1.8 - 2 MW



Summary of Keypoints

Biomass heating pilot plant Viti Phase 2

- Investment costs: € 529 500,--
- Biomass Boiler output: 0.6 MW
- Energy demand of supplied buildings per year: 638 MWh
- Annual wood chip demand: 250 t
- Annual wood chip costs and regional added value: € 21 000,--
- CO2 Emission Reduction:
  - Electricity: 647 976 kg/a 97%
  - Fuel oil: 254 609 kg/a 92,5%
  - Wood chips heat: 19 152 kg/a

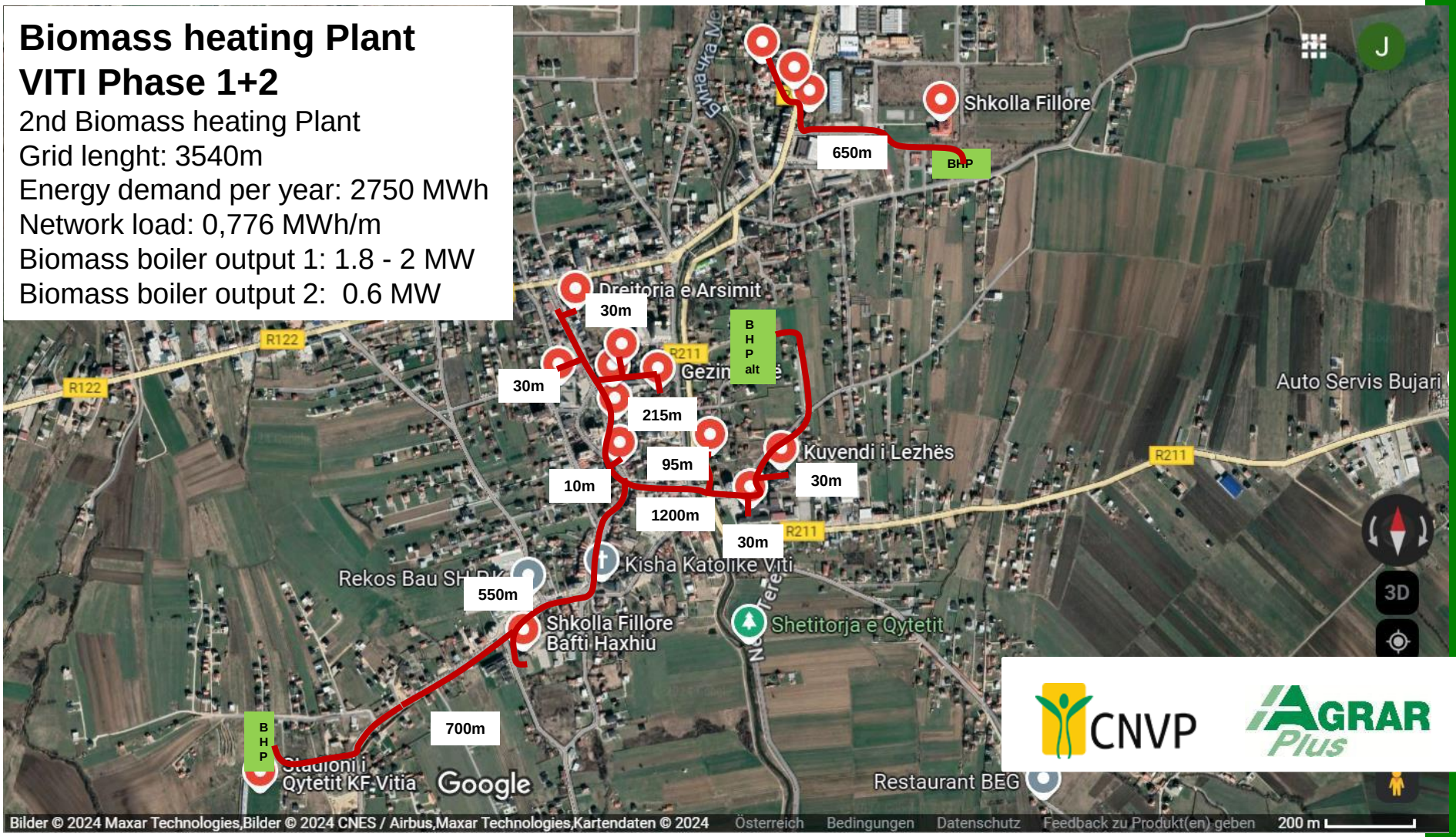


- Prospects: development of both grids with future merger of grids, biomass heating plant 2 as summer plant and for peak loads

Viti plant development Phase 1+2

Biomass heating Plant VITI Phase 1+2

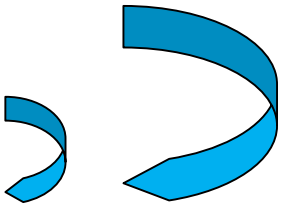
2nd Biomass heating Plant
Grid lenght: 3540m
Energy demand per year: 2750 MWh
Network load: 0,776 MWh/m
Biomass boiler output 1: 1.8 - 2 MW
Biomass boiler output 2: 0.6 MW



Summary of Keypoints

Biomass heating pilot plant Viti Phase 1+2

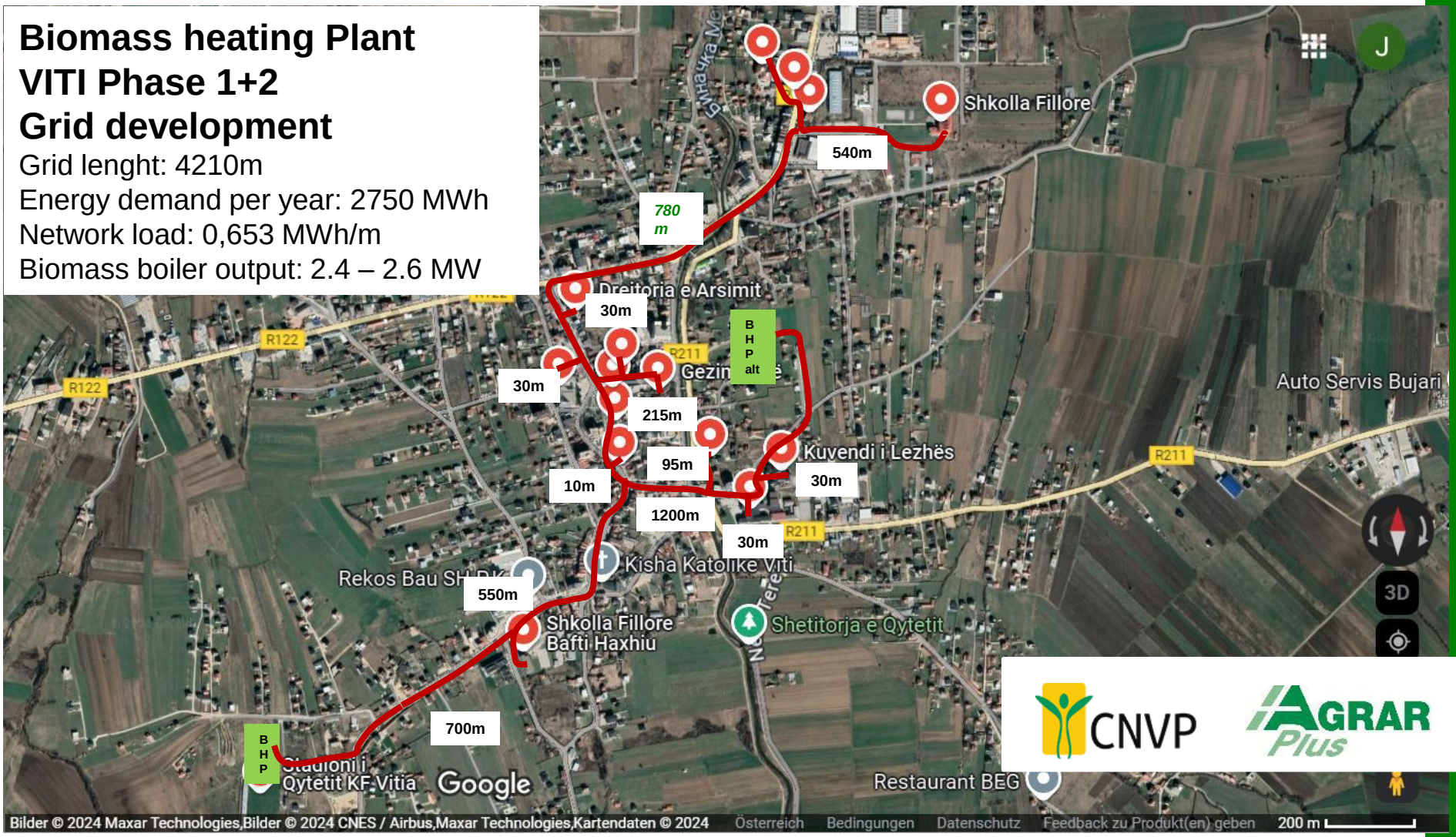
- Investment costs: € 3 098 000,--
- Biomass Boiler output: 2.4 – 2.6 MW
- Energy demand of supplied buildings per year: 2 750 MWh
- Annual wood chip demand: 1 125 t
- Annual wood chip costs and regional added value: € 95 400,--
- CO2 Emission Reduction:
  - Electricity: 2 791 656 kg/a 97%
  - Fuel oil: 1 096 924 kg/a 92,5%
  - Wood chips heat: 82 512 kg/a



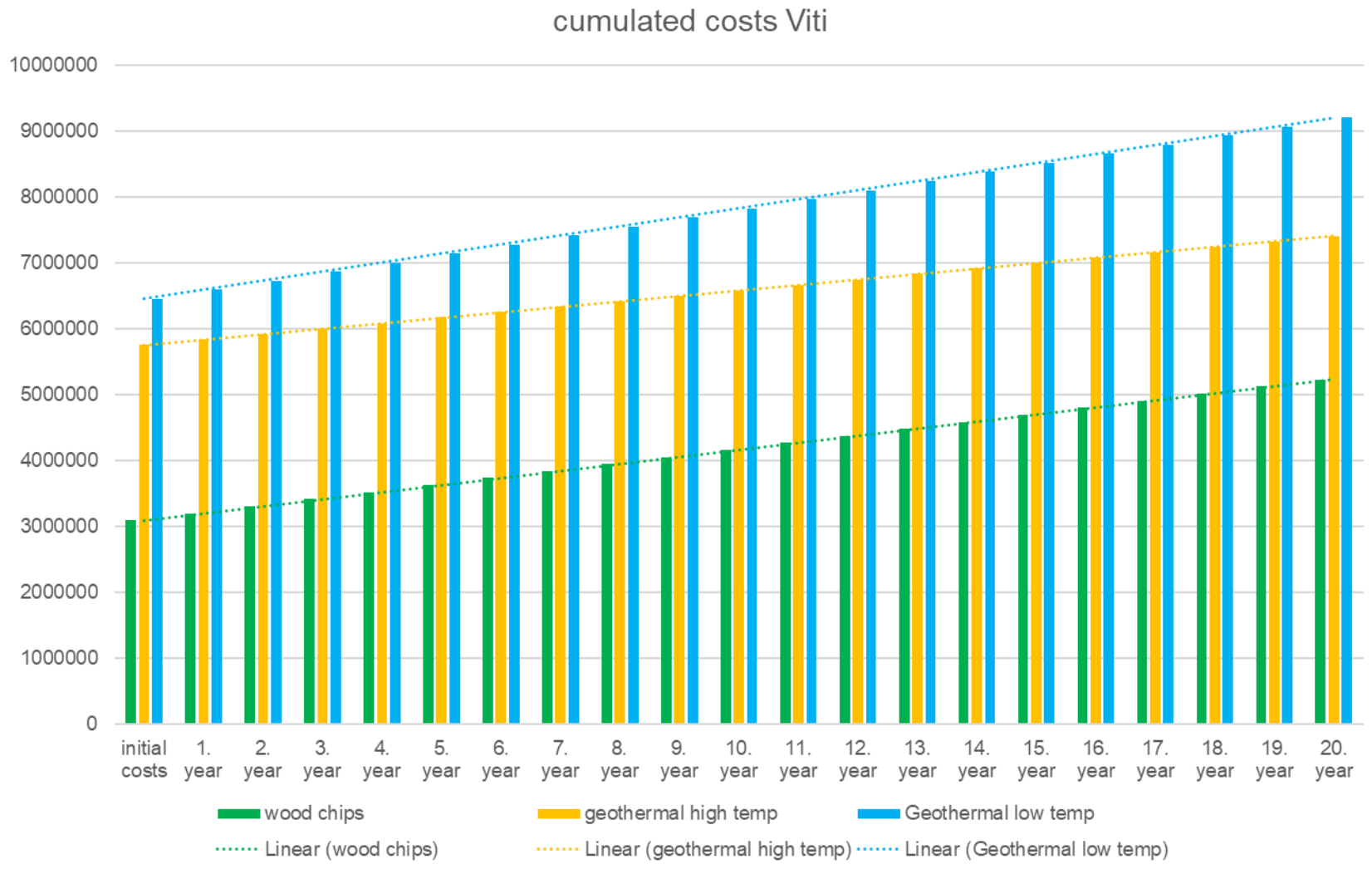
Viti grid development Phase 1+2

Biomass heating Plant
VITI Phase 1+2
Grid development

Grid lenght: 4210m
Energy demand per year: 2750 MWh
Network load: 0,653 MWh/m
Biomass boiler output: 2.4 – 2.6 MW



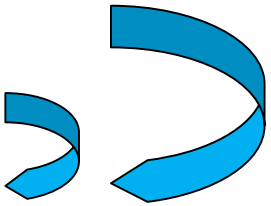
Biomass heating pilot plant Viti 1+2



Summary of Keypoints

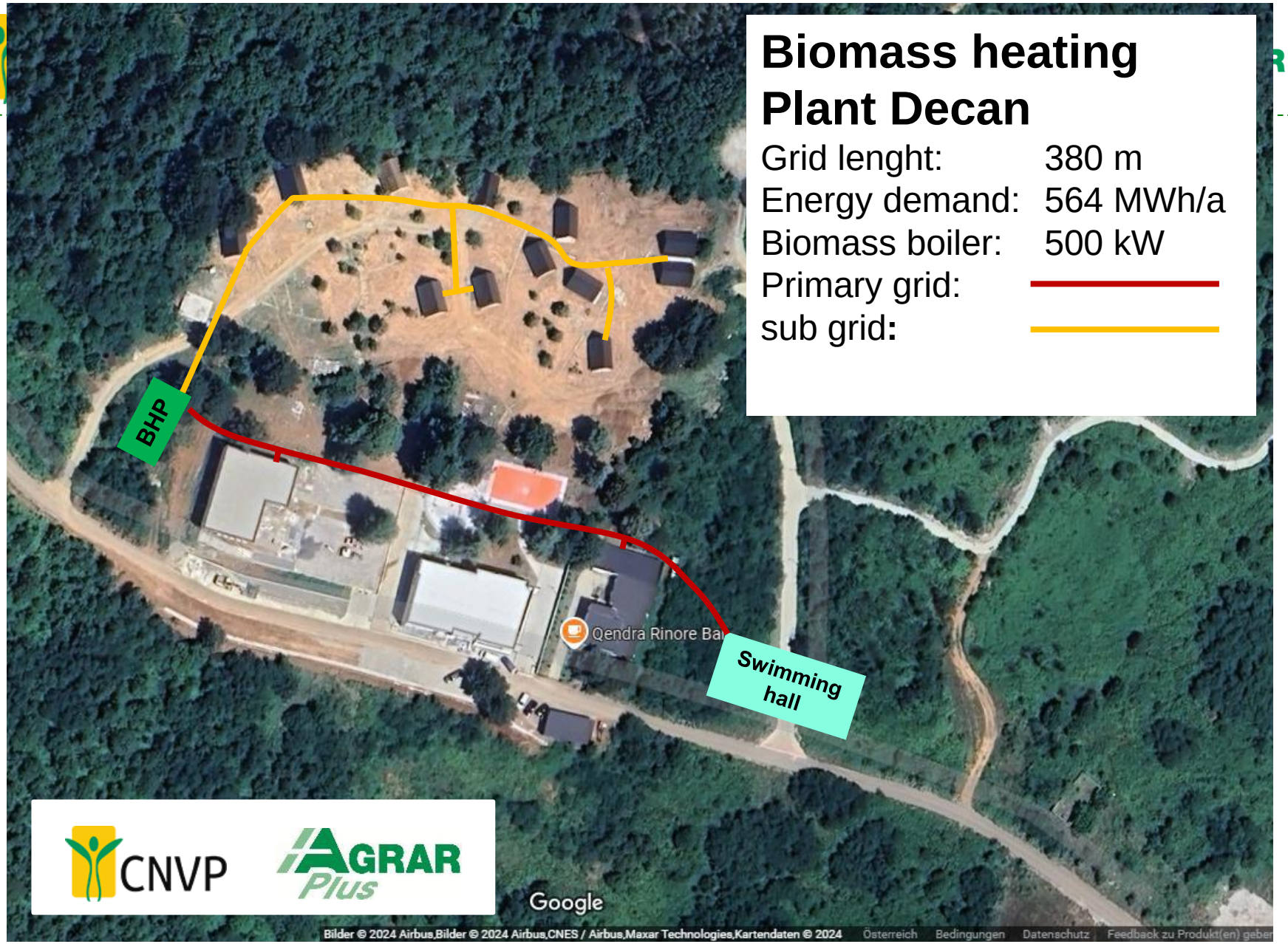
Biomass heating pilot plant Decan

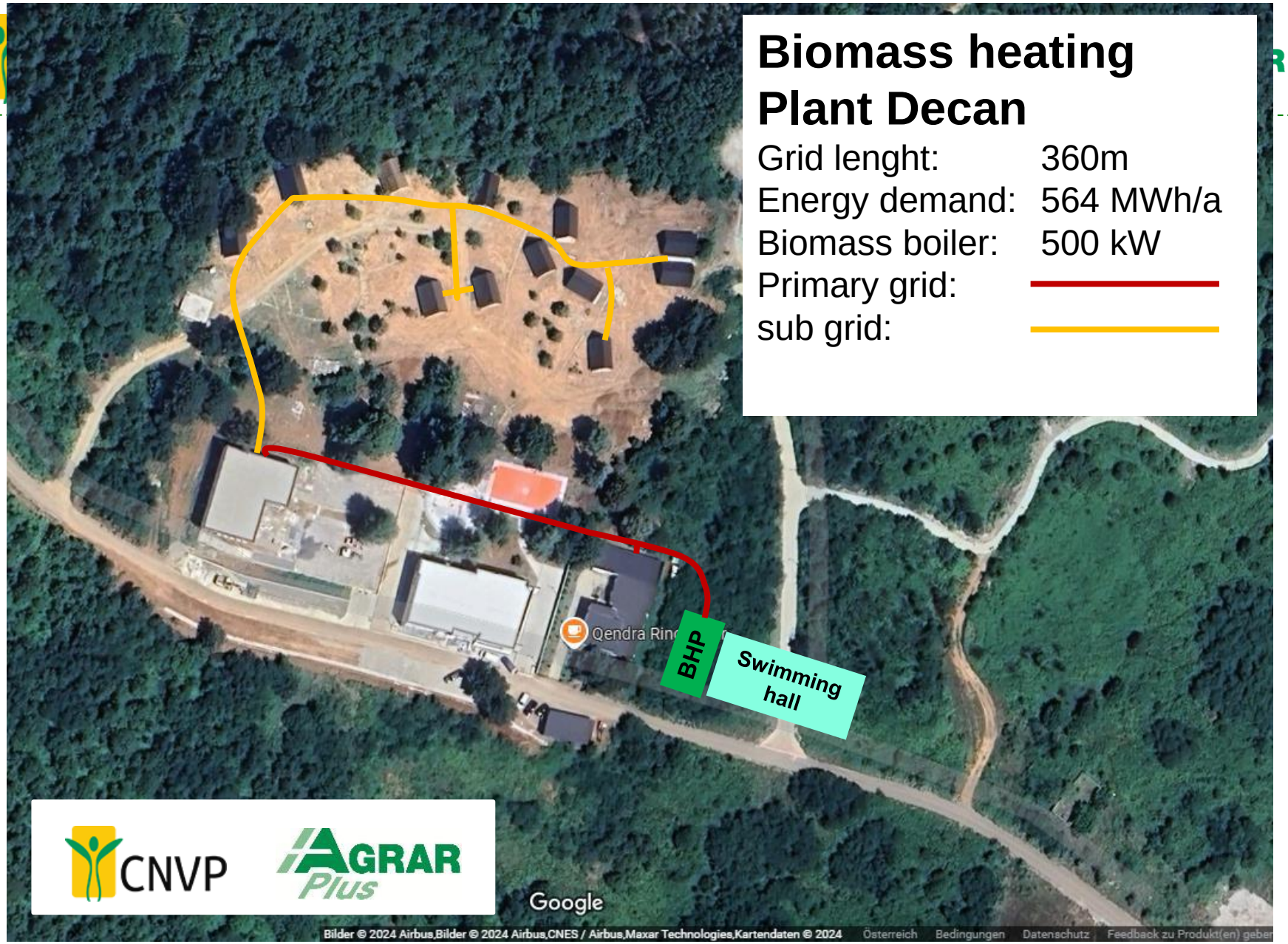
- Construction and operation of biomass heating plant at youth center, connection to Municipality company Higjienia
- After youth center or integrated in the basement of swimm hall for maximum invisibility
- Use of local forest residues and sorted and processed communal cutting residues
- Investment costs: € 447 000,--
- Annual wood chip demand: 216t
- Annual wood chip costs and regional added value: € 18 350,--
- CO2 Emission Reduction:
  - Electricity: 572 460 kg/a 97%
  - Fuel oil: 224 936 kg/a 92,5%
  - Wood chips heat: 16 920 kg/a



Biomass heating Plant Decan

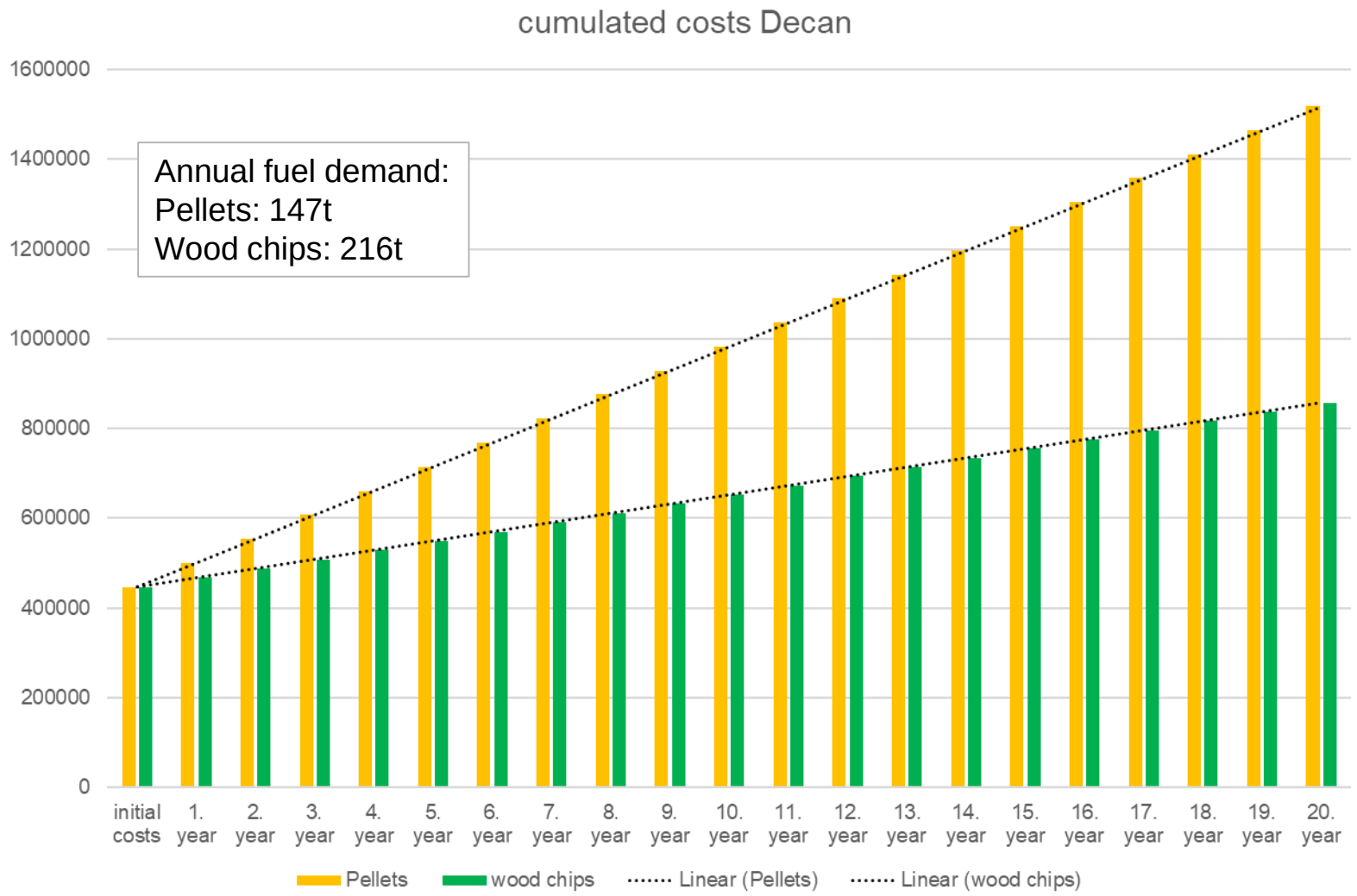
Grid lenght:	380 m
Energy demand:	564 MWh/a
Biomass boiler:	500 kW
Primary grid:	
sub grid:	




Biomass heating Plant Decan
Grid lenght: 360m
Energy demand: 564 MWh/a
Biomass boiler: 500 kW
Primary grid:
sub grid:
BHP
Swimming hall
CNVP
AGRAR Plus
Google
Bilder © 2024 Airbus,Bilder © 2024 Airbus,CNES / Airbus,Maxar Technologies,Kartendaten © 2024
Österreich
Bedingungen
Datenschutz
Feedback zu Produkt(en) geben

Building integration examples

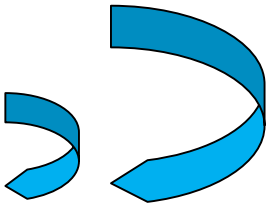
Biomass heating pilot plant Decan



Summary of Keypoints

Biomass heating pilot plant Decan Alpine resort

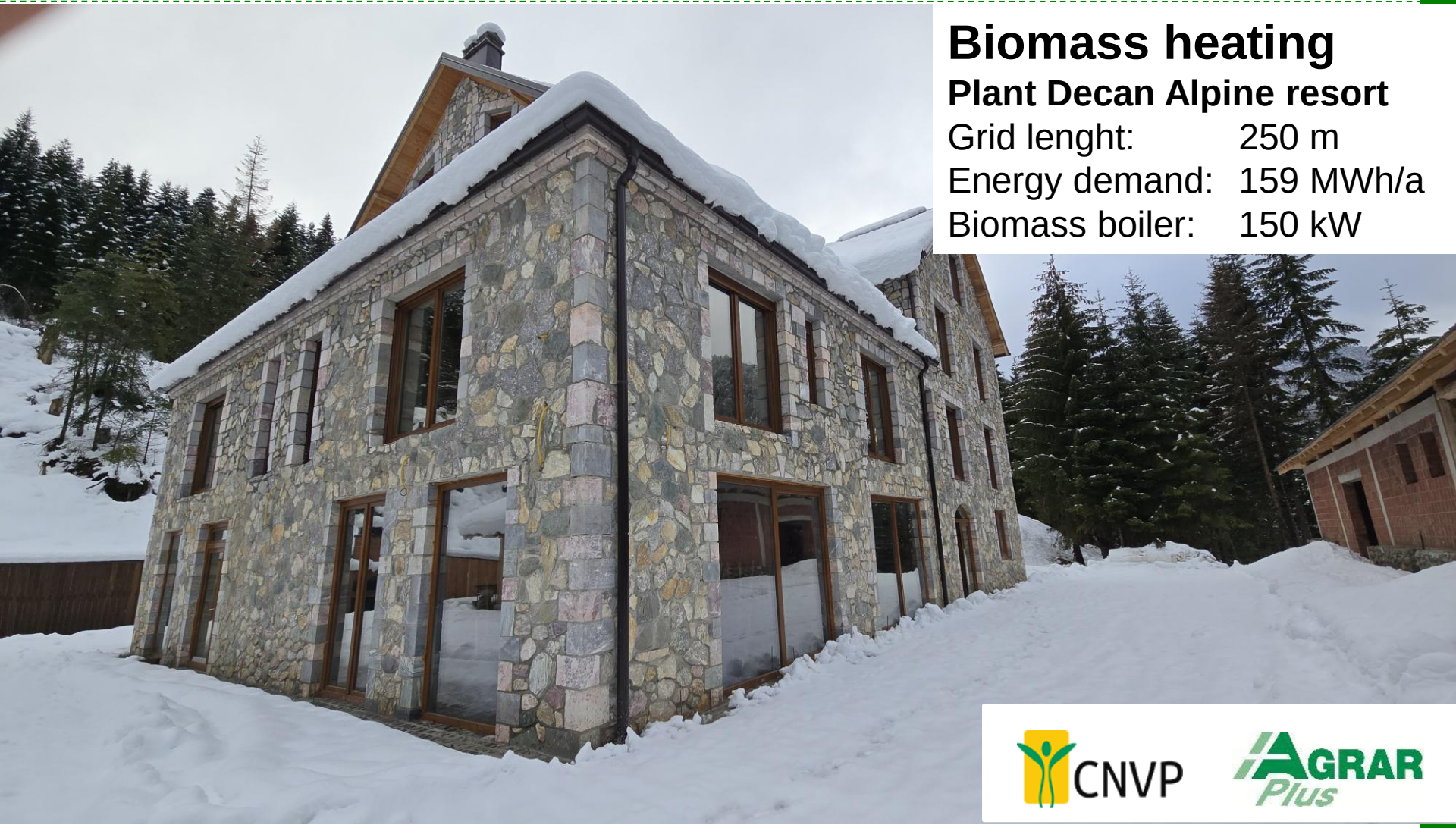
- Construction and operation of biomass heating plant at Alpine resort
- Integration in the basement of the outbuilding from the main house for maximum invisibility
- Use of local forest residues
- Investment costs: € 244 000,--
- Annual wood chip demand: 69t
- Annual wood chip costs and regional added value: € 5 850,--
- CO2 Emission Reduction:
  - Electricity: 161 994 kg/a 97%
  - Fuel oil: 57 268 kg/a 92,5%
  - Wood chips heat: 4 150 kg/a



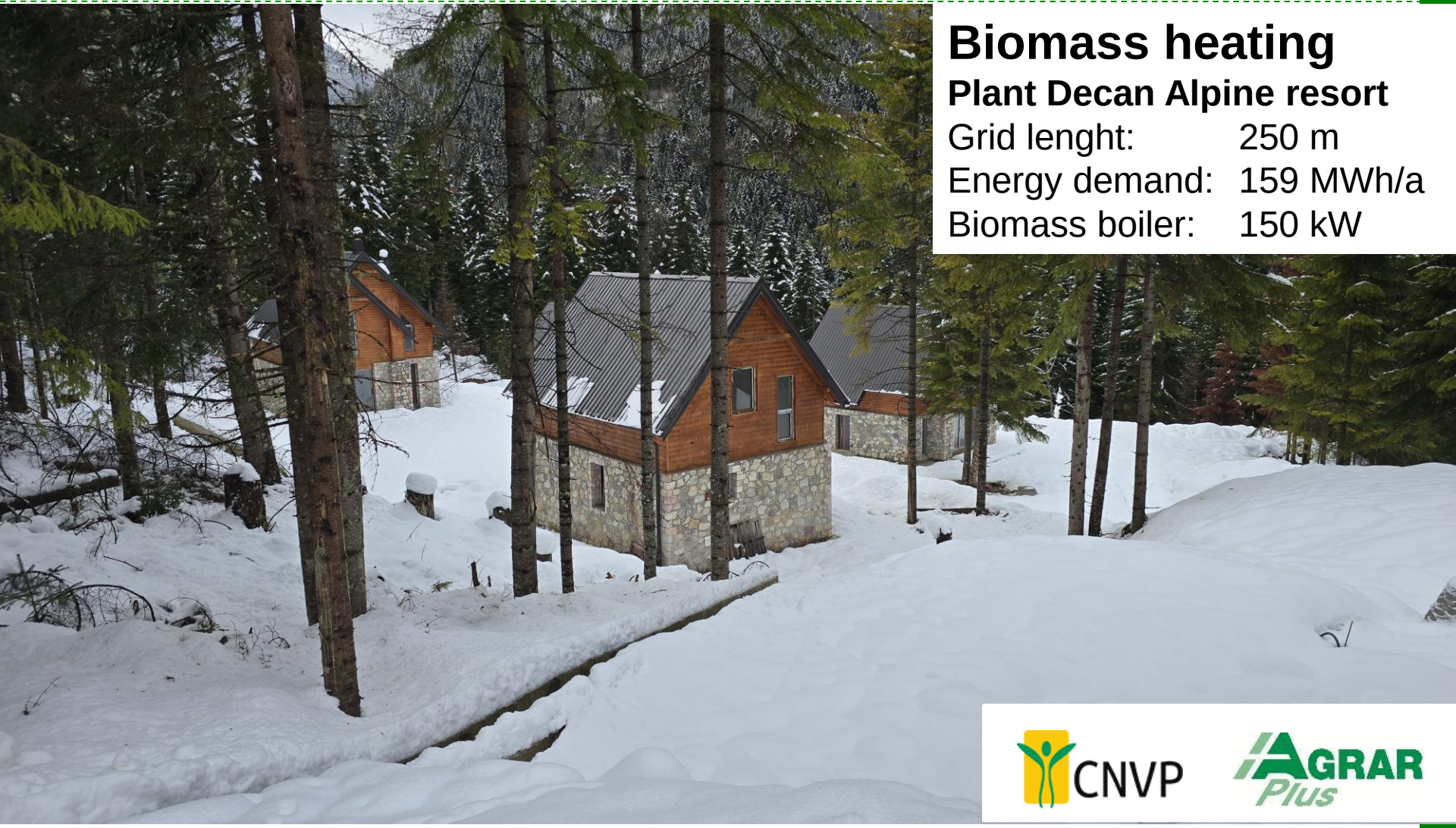
Biomass heating

Plant Decan Alpine resort

Grid lenght: 250 m
Energy demand: 159 MWh/a
Biomass boiler: 150 kW



Including chalets

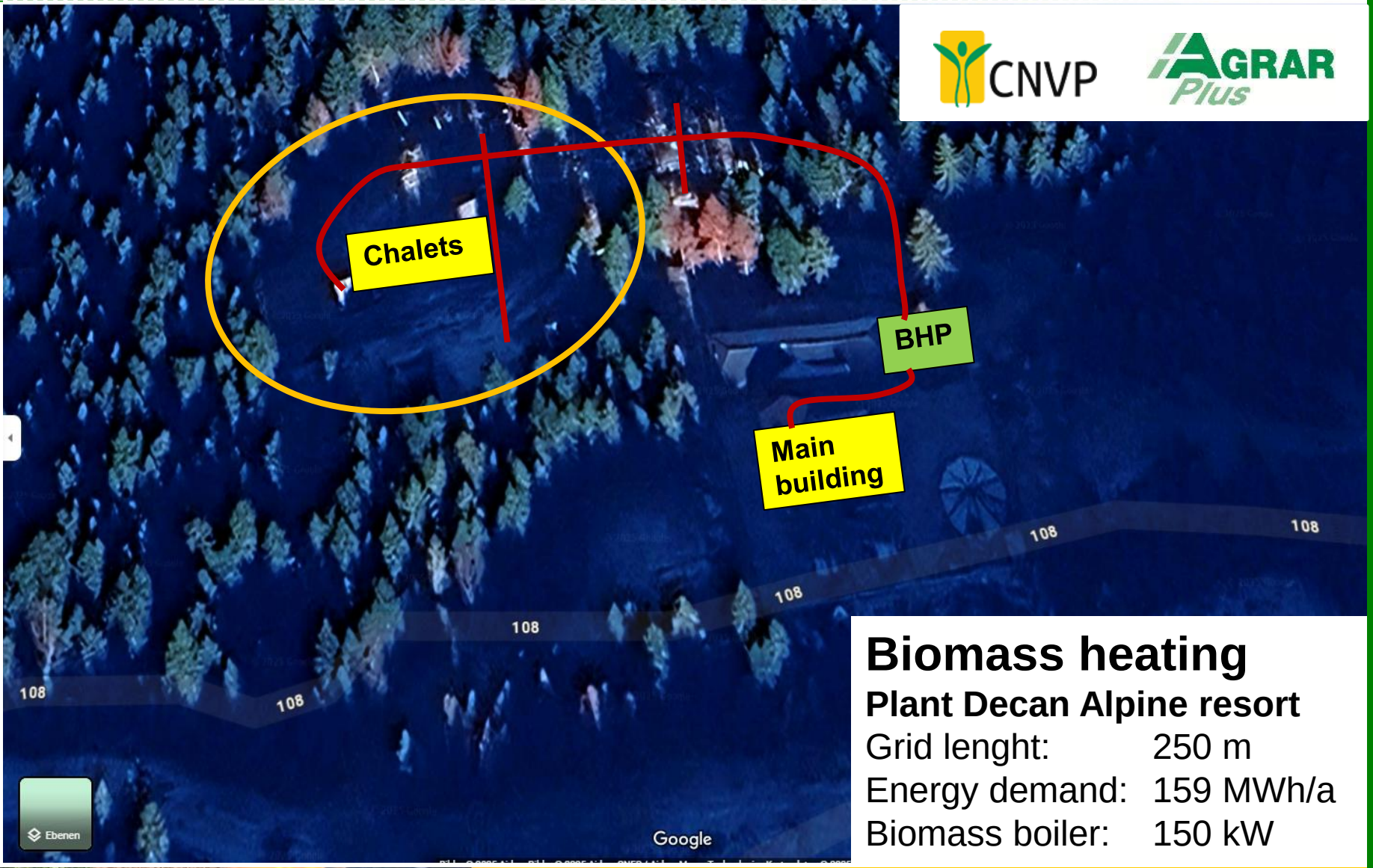


Biomass heating

Plant Decan Alpine resort

Grid lenght:	250 m
Energy demand:	159 MWh/a
Biomass boiler:	150 kW

Decan Alpine resort

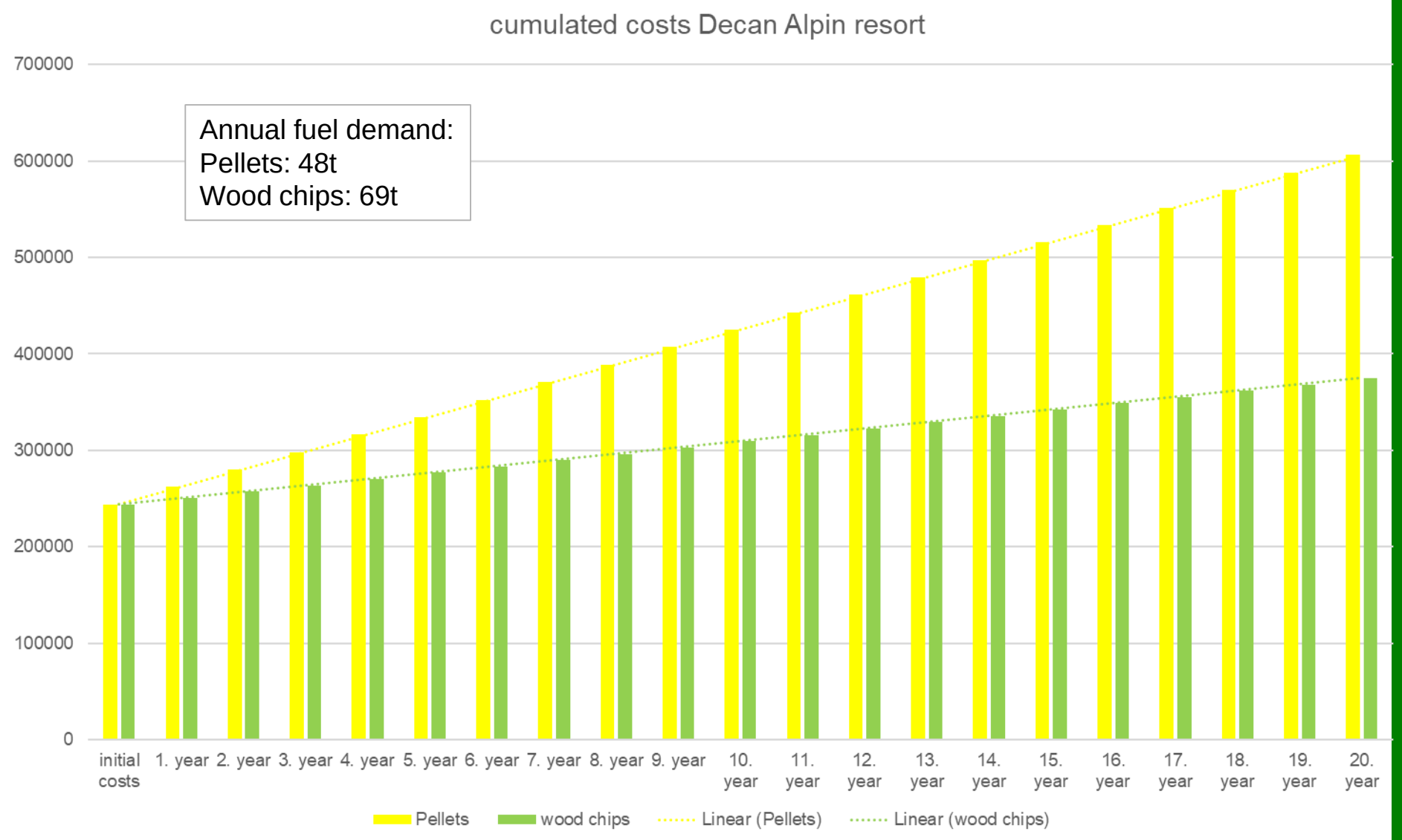


Biomass heating

Plant Decan Alpine resort

Grid lenght:	250 m
Energy demand:	159 MWh/a
Biomass boiler:	150 kW

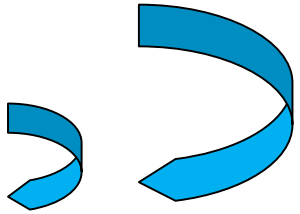
Biomass heating pilot plant Decan



Summary of Keypoints

Biomass heating pilot plant Lipjan

- Construction and operation of biomass heating plant for the City of Lipjan
- Construction and operation of biomass heating plant along heating grid till Mosque of Lipjan
- Use of local forest residues
- Investment costs: € 6 384 000,--
- Annual wood chip demand: 3 640t
- Annual wood chip costs and regional added value: € 310 000,--
- CO2 Emission Reduction:
  - Electricity: 9 546 000 kg/a 97%
  - Fuel oil: 3 375 000 kg/a 92,5%
  - Wood chips heat: 244 000 kg/a



Biomass heating Plant LIPJAN

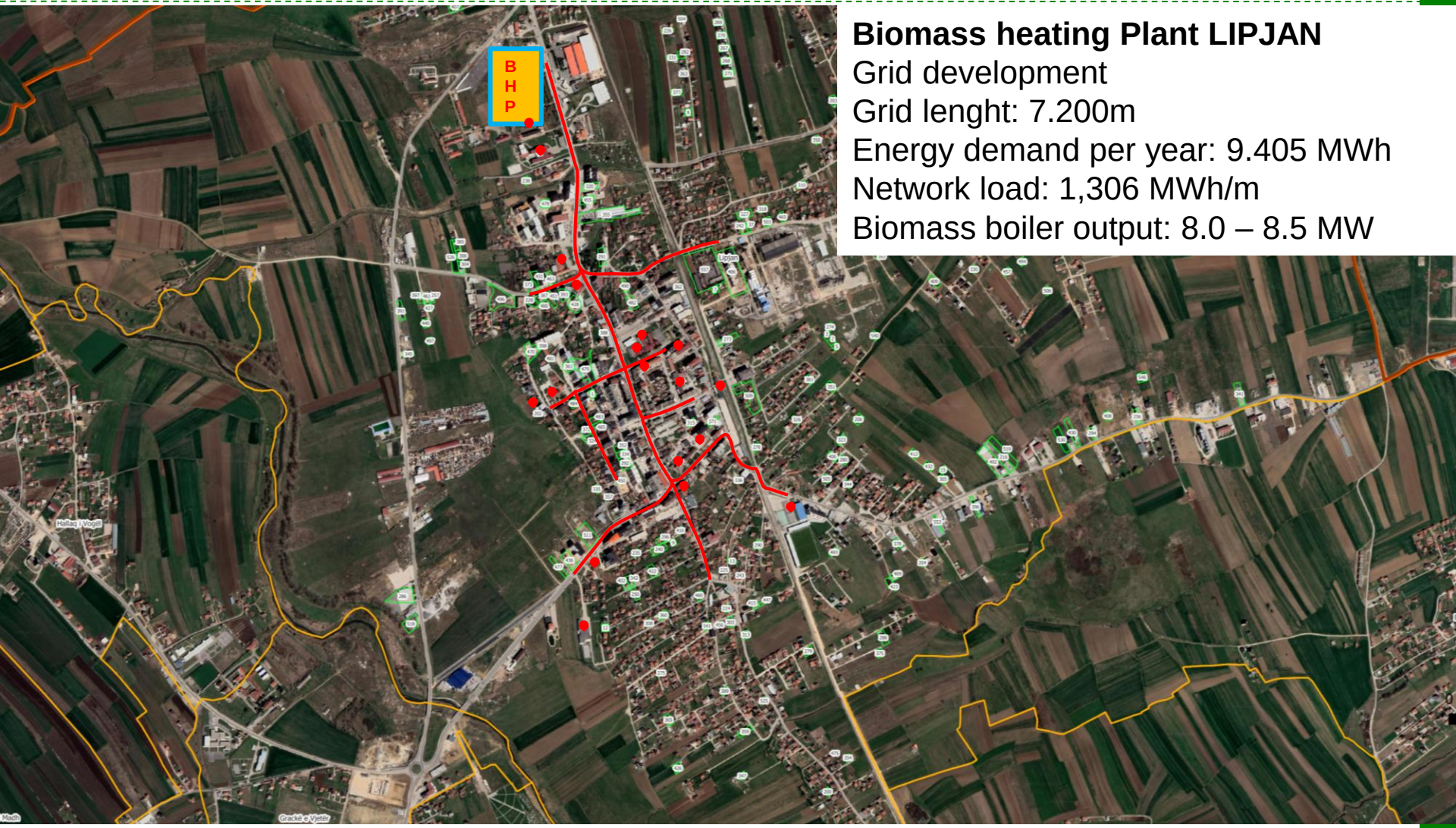
Grid development

Grid lenght: 7.200m

Energy demand per year: 9.405 MWh

Network load: 1,306 MWh/m

Biomass boiler output: 8.0 – 8.5 MW

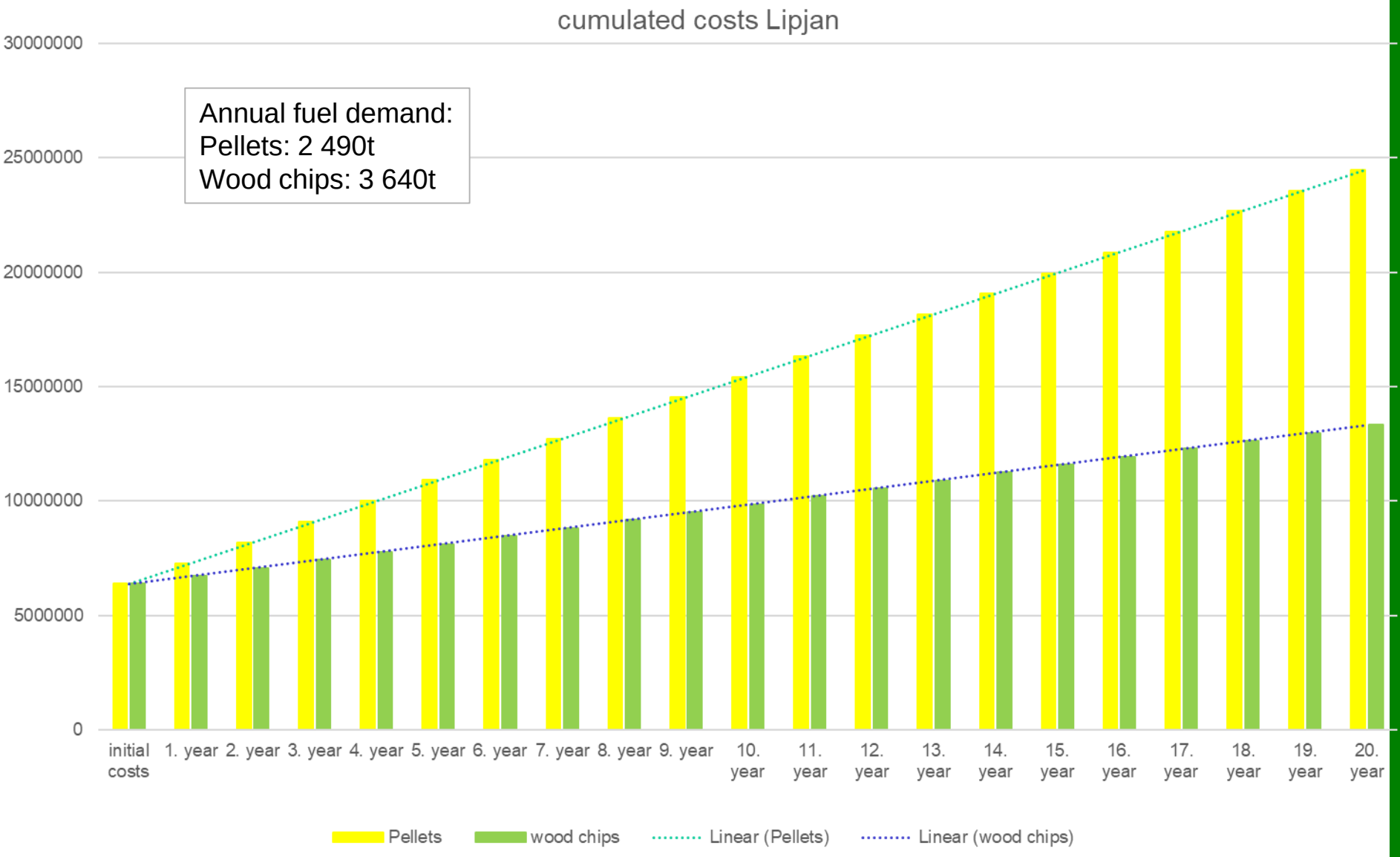


Summary of Keypoints

Biomass heating pilot plant Lipjan

- Total grid length: 7 200m
- Number of supplied buildings: 109
- Heating output demand of supplied buildings: 10 072 MW
- Energy demand of heat consumers: 9 405 MWh per year
- Network load: 1,306 MWh/m
- Biomass boiler output: 8 – 8,5 MW (e.g. 3 + 5 MW)
- Efficiency biomass boiler: 85%
- Efficiency heating grid: 89%
- Efficiency total plant: 75%

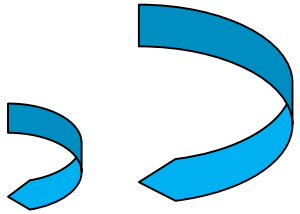
Biomass heating pilot plant Lipjan



Summary of Keypoints

Biomass heating pilot plant Kamenica

- Construction and operation of biomass heating plant for the City of Kamenica
- Construction and operation of biomass heating plant along heating grid
- Use of local forest residues
- Investment costs: € 3 090 500,--
- Annual wood chip demand: 1 314t
- Annual wood chip costs and regional added value: € 111 400,--
- CO2 Emission Reduction:
  - Electricity: 3 409 998 kg/a 97%
  - Fuel oil: 1 339 889 kg/a 92,5%
  - Wood chips heat: 100 788 kg/a



Biomass heating plant Kamenica

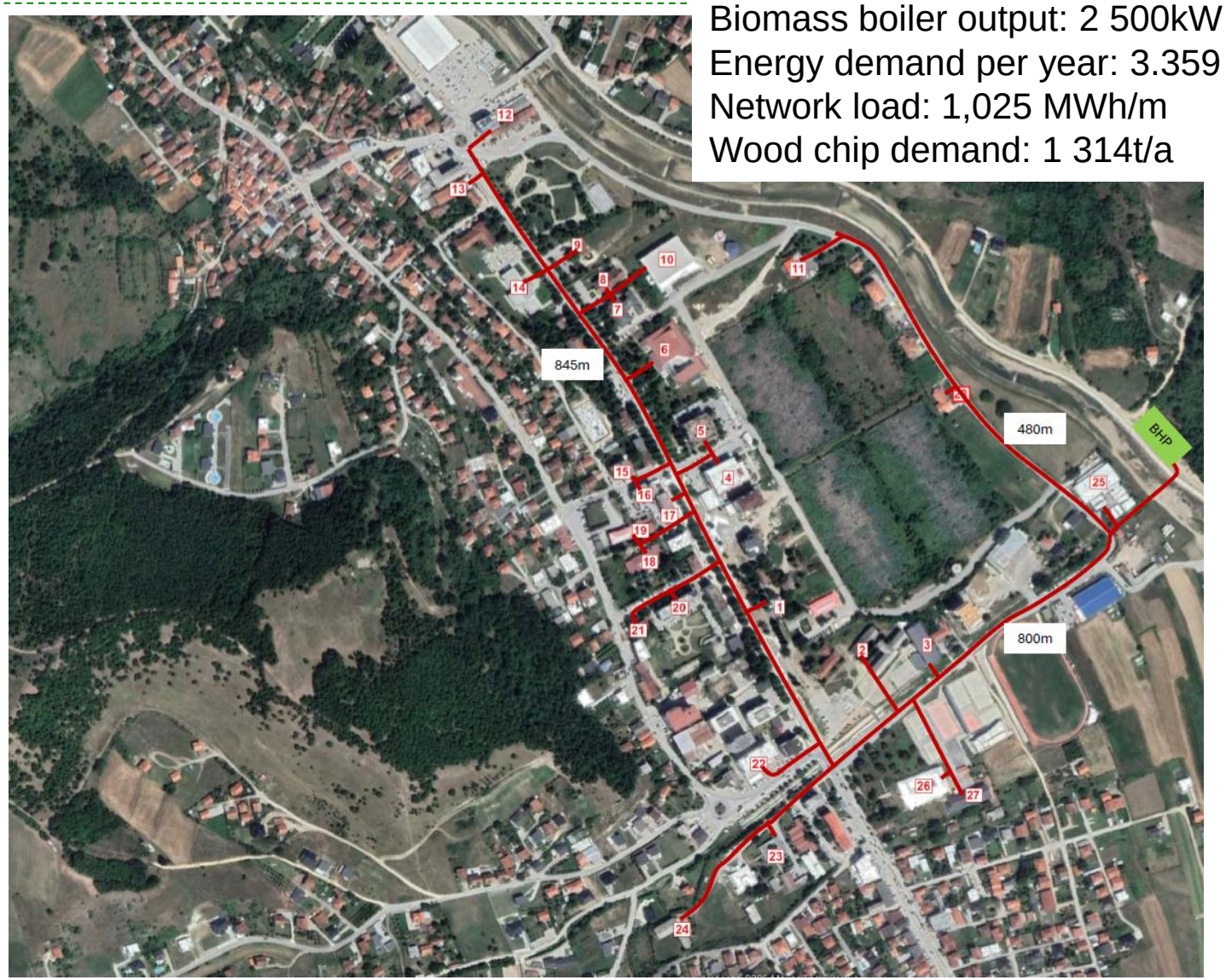
Grid lenght: 3.275m

Biomass boiler output: 2 500kW

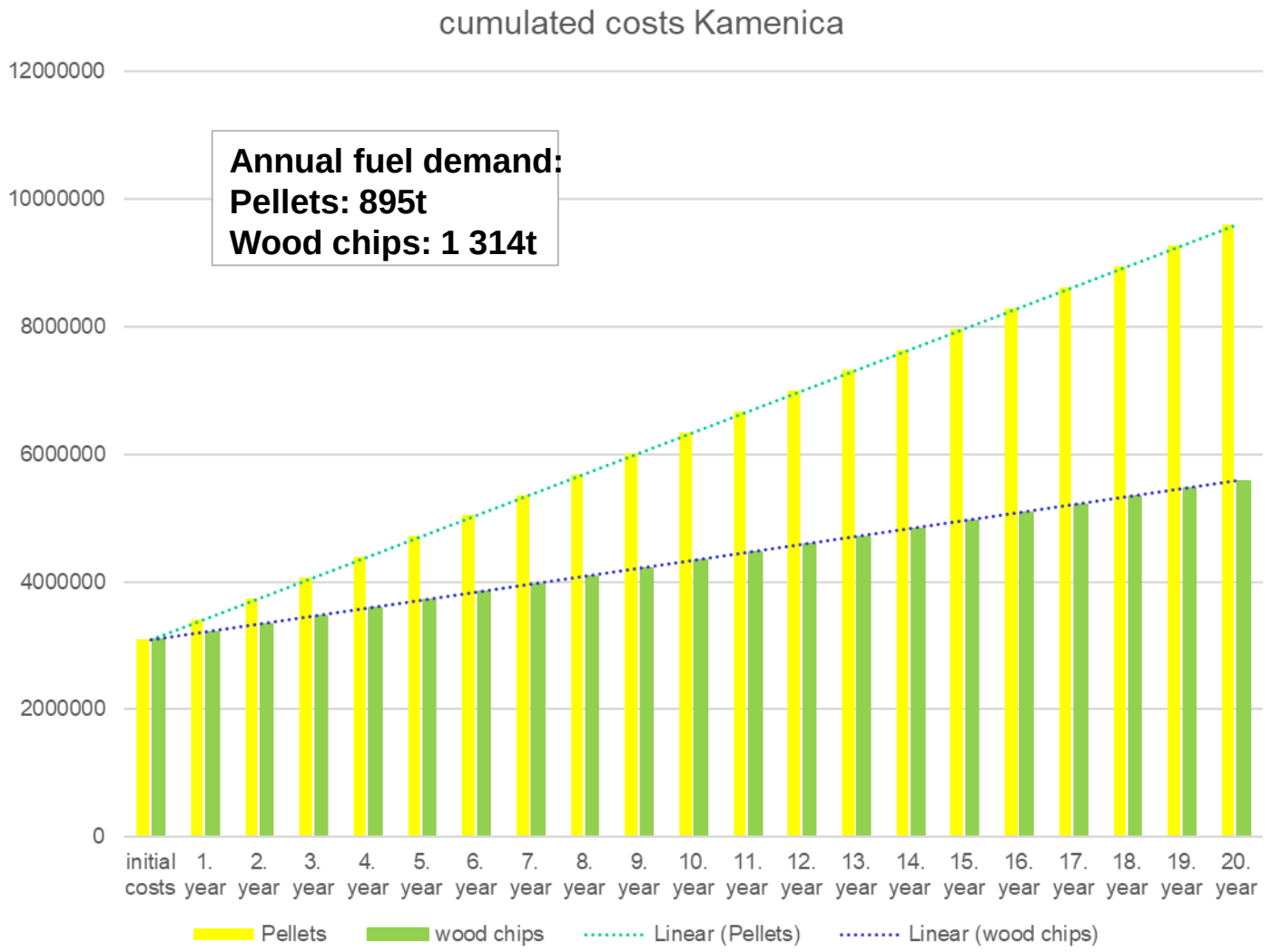
Energy demand per year: 3.359 MWh

Network load: 1,025 MWh/m

Wood chip demand: 1 314t/a



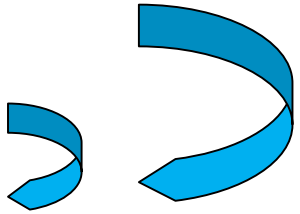
Biomass heating pilot plant Kamenica

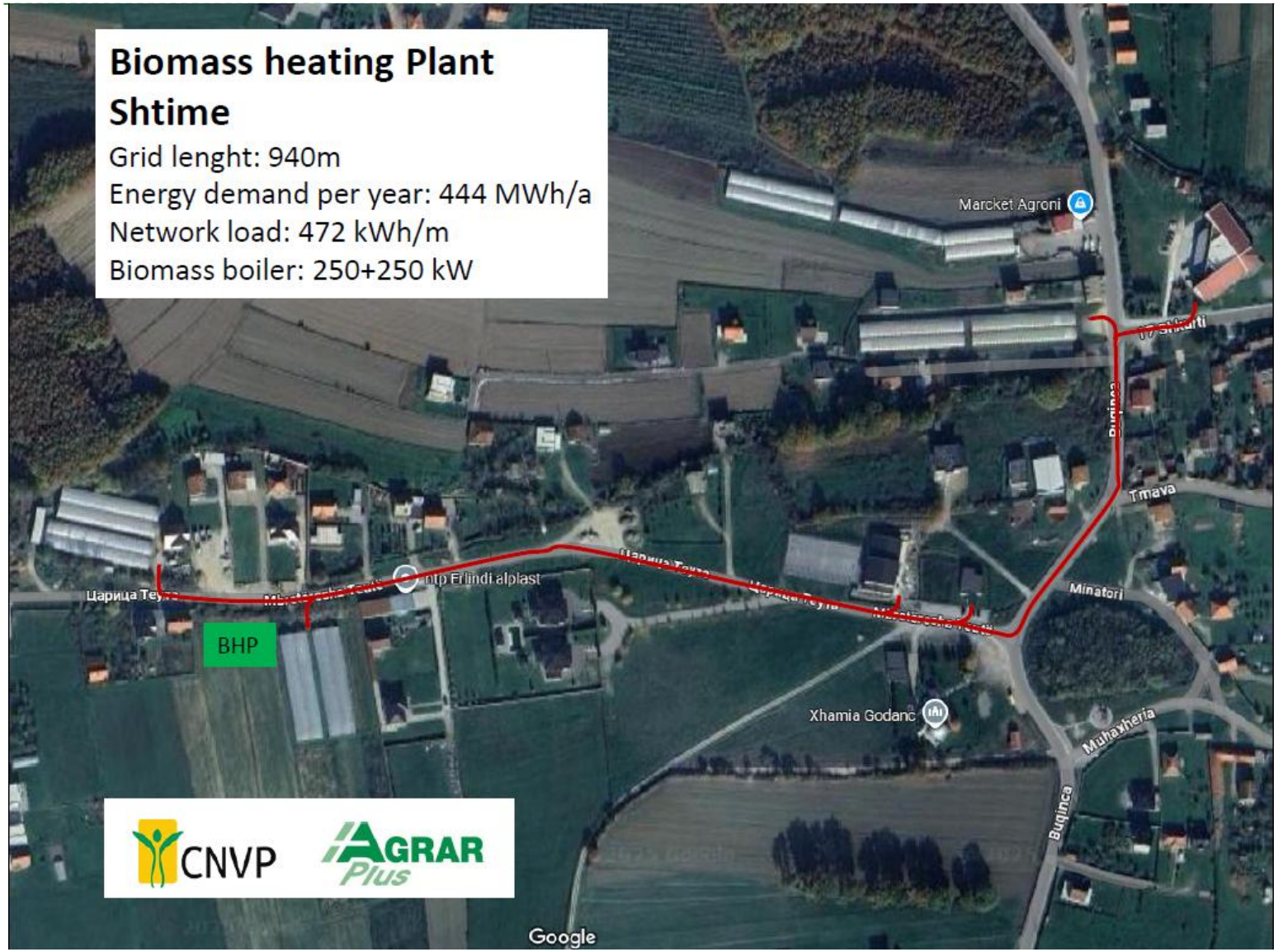


Summary of Keypoints

Biomass heating pilot plant Shtime

- Construction and operation of biomass heating plant several buildings of the Village of Shtime
- Construction and operation of biomass heating plant with heating grid
- Use of local forest residues
- Investment costs: € 619 500,--
- Annual wood chip demand: 208t
- Annual wood chip costs and regional added value: € 17 680,--
- CO2 Emission Reduction:
  - Electricity: 450 660 kg/a 97%
  - Fuel oil: 177 078 kg/a 92,5%
  - Wood chips heat: 13 320 kg/a




Biomass heating Plant
Shtime
Grid lenght: 940m
Energy demand per year: 444 MWh/a
Network load: 472 kWh/m
Biomass boiler: 250+250 kW
Marcket Agroni
Trnava
Minatori
Xhamia Godanc
Muhajheria
Bugjinca
BHP
ntp Erlindi alplast
CNVP
AGRAR Plus
Google

Biomass heating pilot plant Shtime

Project summary

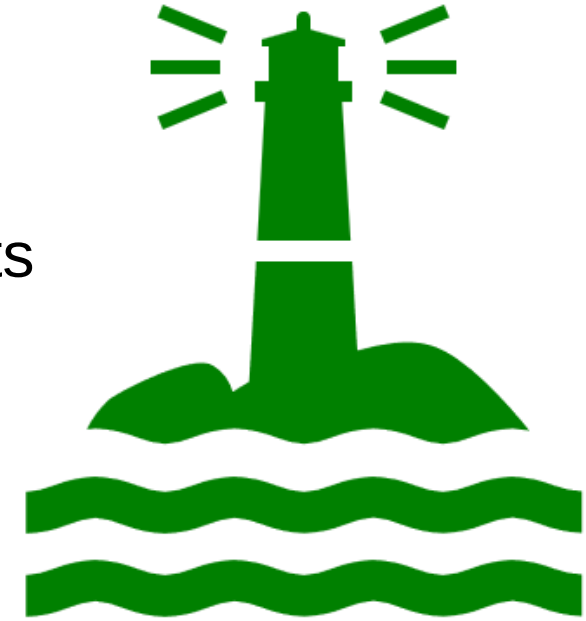
Realisation of studies biomass heating plants will:

- Triggered investment: € 13 000 000,--
- Installed biomass boiler output: 15 500 kW
- Annual cost savings: € 1 029 000,--
- Annual regional added value: € 565 000,--
- Additional annual wood chip demand: 6 700 t
- CO2 emission reduction: 92,5 – 97 %

- Improvement for rural area
- Reduction of emissions
- Reduction of dependence on fossil fuel
- Stimulation of forest management and forest conditions

Pilot plants

- Situated in all rural areas of Kosovo
- Act as lighthouse projects
- Trigger further biomass heating plants
- To maximise rural and environmental effects



Development of biomass heating system needs

- Advise, consulting and project development
- Development of raw material production and supply
- Funding
- Training of all engaged
- Association of stakeholders

For further information please ask or contact us!

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