



# Best practices of the implementation of renewables policies at local level

Wolfram Sparber, Eurac Research - Italy

## Twinning Project Renewables Development in Ukraine



State Agency on Energy Efficiency  
and Energy Saving of Ukraine



**eurac**  
research



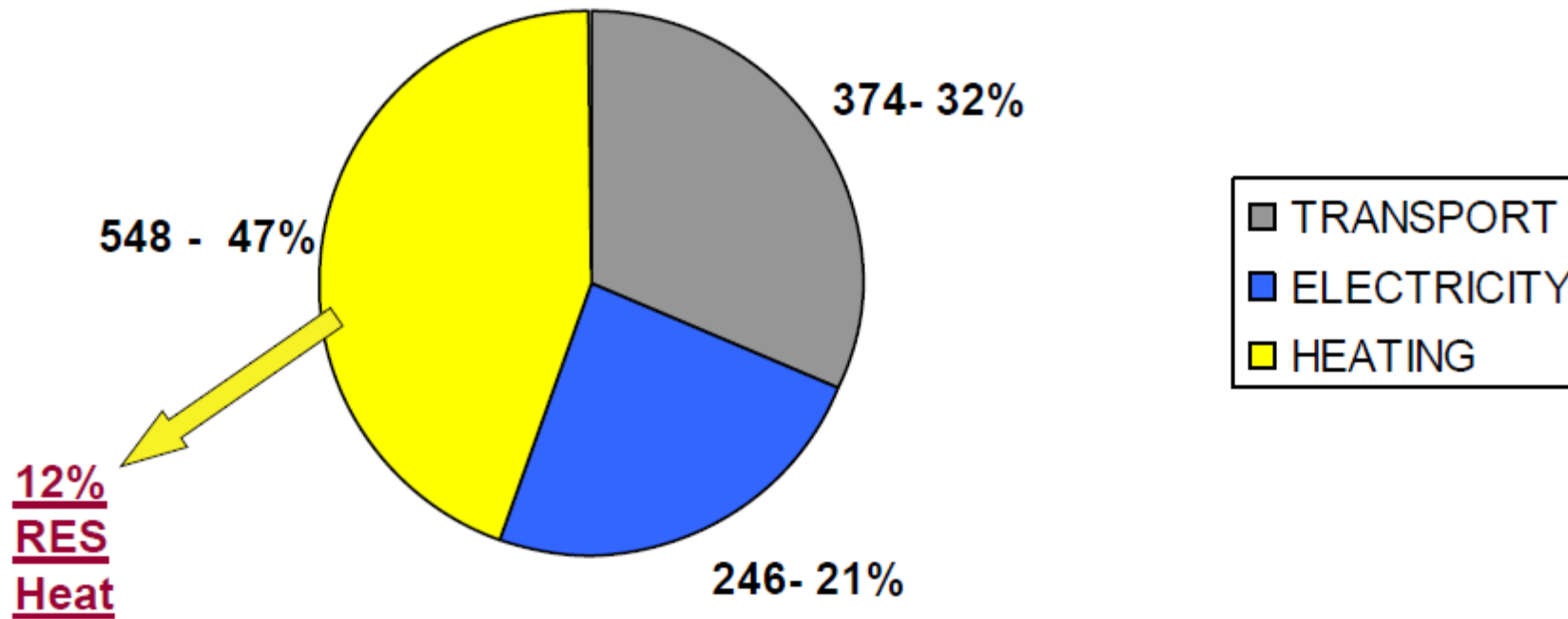
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 Federal Ministry  
Republic of Austria  
Sustainability and Tourism

# Eurac Research - Institute for Renewable Energy

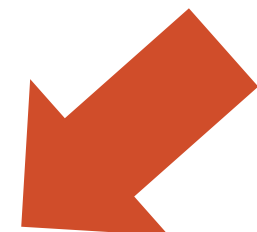
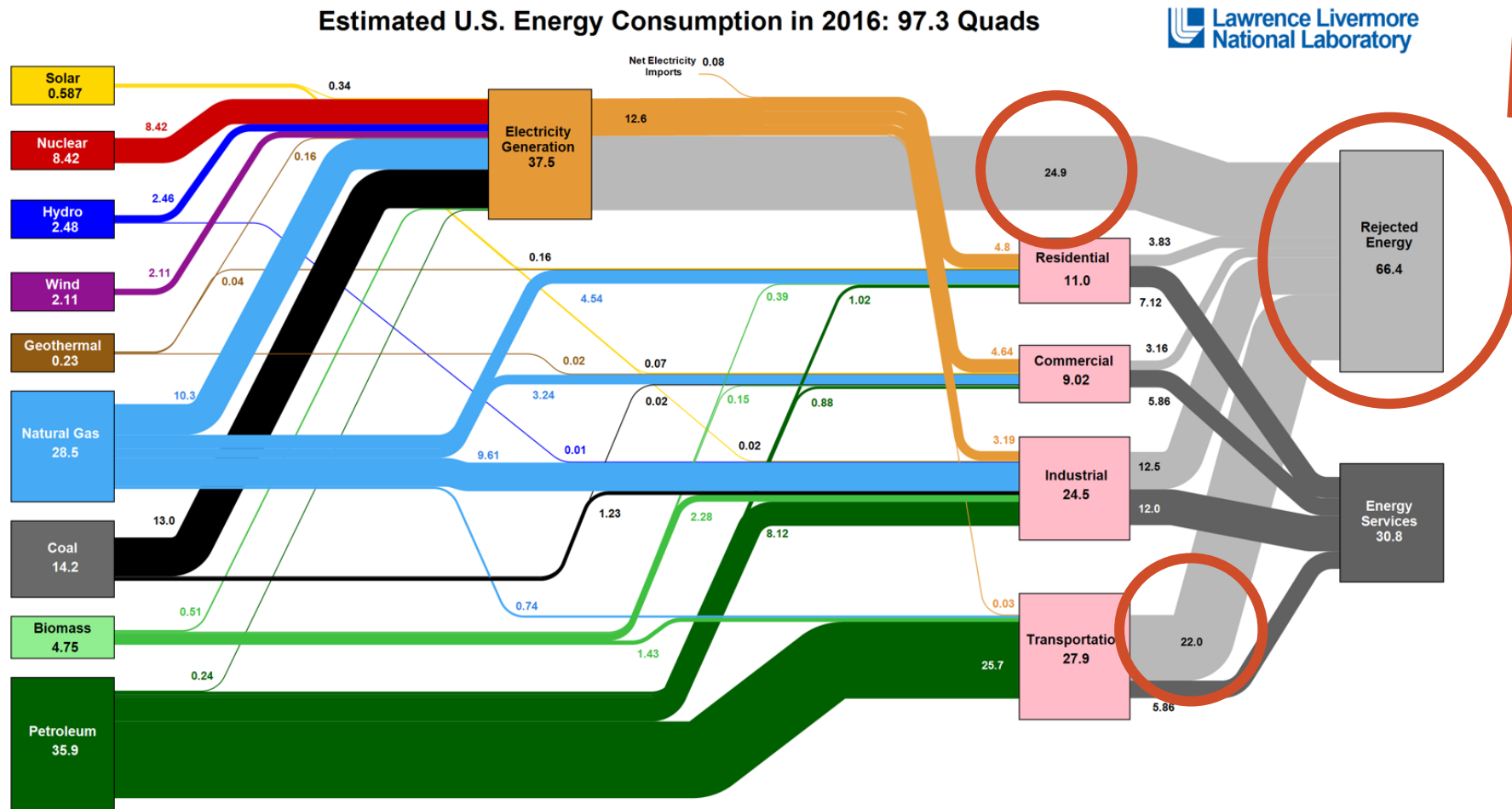


# Energy – what do we need it for?



Credits: M. Donnelly, EU Commission, EU final gross energy demand, 2008

# Energy – how (in)efficient is our system?



Credits: LLNL, Dep of Energy

# Nations Unies

## Conférence sur les Changements Climatiques

COP21/CMP11

### Paris France



ipcc

INTERGOVERNMENTAL PANEL ON climate change

## GLOBAL WARMING OF 1.5 °C

an IPCC special report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty

### Summary for Policymakers

This Summary for Policymakers was formally approved at the First Joint Session of Working Groups I, II and III of the IPCC and accepted by the 48<sup>th</sup> Session of the IPCC, Incheon, Republic of Korea, 6 October 2018.

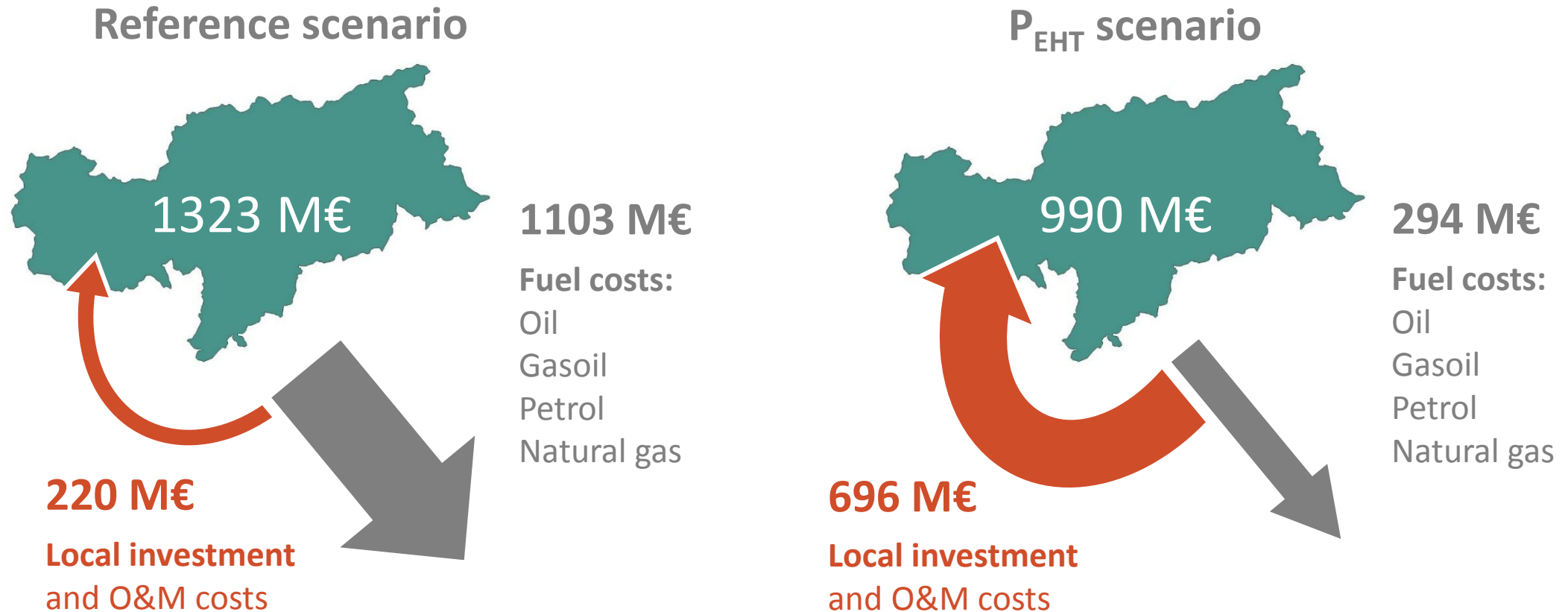
SUBJECT TO COPY EDIT

8<sup>th</sup> October 2018



Arnau

# Decarbonisation – financial opportunities



Results of overall energy system modelling, considering electricity, heating and transport sector hour by hour for the whole year. Executing over 10.000 simulations looking for the most cost effective measures to lower CO<sub>2</sub> emissions by the energy sector.

Credits: Eurac Research, overall energy system modelling

# Heating and Cooling sector



District heating system in northern Italy | Credits: Alperia

# Energy efficiency in buildings

Visible applied energy certificates at building entrances, a mixture of incentives and obligations, training of architects and craftsman, plus controls on the construction site leads to a **drastic enhancement of living comfort and reduction of energy consumption** in buildings



Example of a energy certification to be applied on the building entrance | Credits: KlimaHaus-CasaClima



## (Fiscal) incentives for energy efficiency measures

(Fiscal) incentives for energy efficiency measures for existing buildings (such as thermal insulation, exchange of windows or old heating systems) can be an efficient tool to **enhance investments, create local jobs, enhance comfort and reduce consumption**



Refurbishment with prefabricated façade elements in Germany | Credits: EU project iNSPIRE

# Local benefit: Changing the impression of buildings and districts



Credits: IDM, Michelangelo

## Before refurbishment

Example of social dwellings in Bolzano refurbished within the EU smart city project Sinfonia. The shown figures include energy consumption for heating, domestic hot water and lightning and consider renewable energy production onsite after refurbishment



Credits: Studio Mellano

## After refurbishment



Passeggiata dei Castani building after refurbishment, Comune di Bolzano. Credits: Eurac Research

# Tools and funds for refurbishment of buildings

Software tools and databases can help to keep overview and invest in the most needed buildings. Funds like the European Energy Efficiency Fund eef can support financially large scale refurbishment projects

The screenshot displays the CERPlan web application interface. At the top, there is a language selection menu (English, Deutsch, Italiano), a user profile for Marco Castagna with a Logout button, and the CERPlan logo (a lightbulb) with the text "CERPlan Institute for Renewable Energy - Eurac Research Funded by: Autonomous Province of Bolzano".

The main area is a map of the Dolomites region in Italy, showing numerous blue location pins representing buildings. The map includes labels for various natural parks such as "Parco Nazionale dello Stelvio - Nationalpark Stilfser Joch", "Biosfera Val Mustair", "Parco Naturale Fanes-Sennes-Prags", and "Parco Naturale Tre Cime".

Below the map is a navigation and filtering interface. It includes a "Hide map" button, a search bar, and a list of filters for building characteristics: Planning building, Building board, Audit, Energy saving, Planning interventions, General data, Building services, Geometric data, Accessibility, Energy consumption, Envelope floor, Envelope roof, Envelope facade, HVAC Heating, HVAC Water, HVAC Cooling, Elevators, HVAC Ventilation, Renewable energy, Architectural barriers, Lighting, and Security systems and communication. A "Show 1000 entries" dropdown is also present.

At the bottom, there is a table header with the following columns: Building code \*, Building name \*, Address, Municipality, Typology, Construction year, Maintenance costs [€/year], Renovation year, Description renovation, Number of computers, Number of users, Ownership, and User \*.

# Renewable heating: wood biomass applications

Wood from local forests can directly substitute oil or gas in household and district heating systems. **Creating jobs on site, enhancing local economic value chains, reducing the need for energy imports**



Biomass district heating plant in Sesto – Italy | Credits: Alperia

# Renewable heating: solar heat

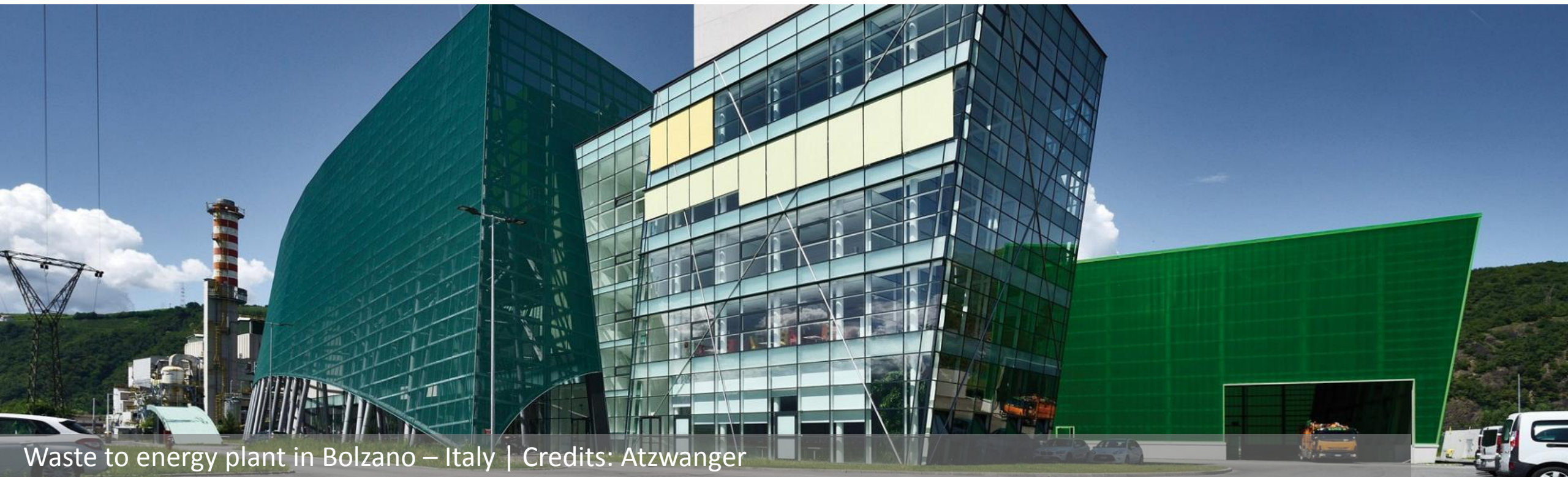
In some EU countries (especially Denmark) large scale solar thermal plants are becoming more and more common practice. **Supportive framework conditions, local interest and acceptance and local permits** are key factors



Solar heating plant of Silkeborg Denmark. Credits: Silkeborg, goexplorer.org

## Waste-to-energy: efficiency for heating, electricity and waste management

Waste to energy plants\* can directly substitute oil, gas or coal plants in district heating systems of urban areas. Allowing an **efficient waste management, creation of a local value chain and reducing energy imports**



Waste to energy plant in Bolzano – Italy | Credits: Atzwanger

# Electricity sector



Hydropower plant near Bolzano – Italy | Credits: Alperia



## Renewable electricity: implementation of large project

For the implementation of large scale projects, the **national framework conditions must be favorable** (incentives / taxation / grid access ...). But the **local conditions, permits, fast or slow baurocracy can be THE game changer**



Wind farm Höflein, Lower Austria | Source: Peter Haas, [www.commonswikimedia.org](http://www.commonswikimedia.org)

## Renewable electricity: implementation of small installations

Small RES applications at the consumer (especially on roof PV) via *feed in tariffs* allow **direct benefits for a large population share** (especially from rural areas) and a reduction of grid electricity consumption on-site



Photovoltaic system on the roof of a social housing building in Bolzano – Italy | Credits: IPES

# Transport sector ...



Hydropower plant near Bolzano – Italy | Credits: Alperia

## Local transport and mobility ...

Transport is not the focus of this session but of major importance for the overall energy picture.

Local entities are directly responsible for local transport

- Safe and comfortable **walking ways, bicycle lines** and **bicycle infrastructure** can strongly enhance the number of pedestrians and cyclists
- This reduces traffic jams, urban emissions and enhancing health of population
- **Public transport** is a strong **energy efficiency measure**. Reducing energy and fuel consumption and local emissions
- **New forms of mobility** arising (sharing, pooling, ...) and can allow to further reduce the need to travel by the own car

## Alternative fuels infrastructure ...

It is very unlikely that a relevant share of customers changes to alternative fuel vehicles if there is no or limited infrastructure available. **The infrastructure set up on local level has to anticipate the fleet expansion...**



Credits: Tesla Supercharger | [tesla.com](https://tesla.com)

# Overall reflections ...



Hydropower plant lago di Neve - Italy | Credits: Alperia

# Covenant of Mayors / Regional Energy & Climate Plans

Local and regional planning allows the setting a clear targets and tracking the progress ...



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**CHANCEN  
NUTZEN.**

NÖ KLIMA- UND ENERGIEFAHRPLAN  
**2020 bis 2030**

mit einem Ausblick auf 2050

# Who invests in local energy projects?

Investors can be large **international cooperation's**, **national companies**, **regional companies & utilities**, **local companies**, **cooperatives**, **private persons**



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Press release : CEDEC Congress 2019 "Local Energy Transition - Mission possible !"

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## Welcome to REScoop.eu

REScoop.eu is the European federation of renewable energy cooperatives. We are a growing network of 1,500 European energy cooperatives and their 1.000.000 citizens who are active in the energy transition.



**Local**

**versus**

**national?**



National incentives and taxation

Energy efficiency in Buildings

District heating

Heating

Urban transport

regional transport

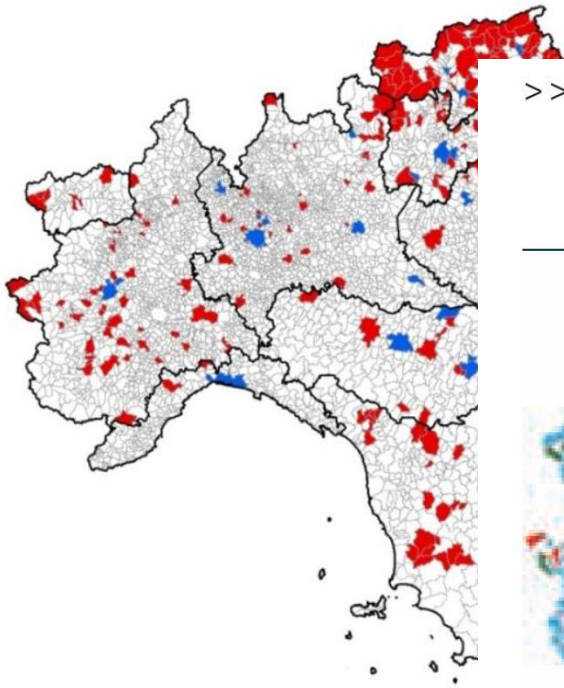
national transport

Distributed electricity generation

“Prosumers”

Large scale renewable power plants (wind and PV parks, hydro)

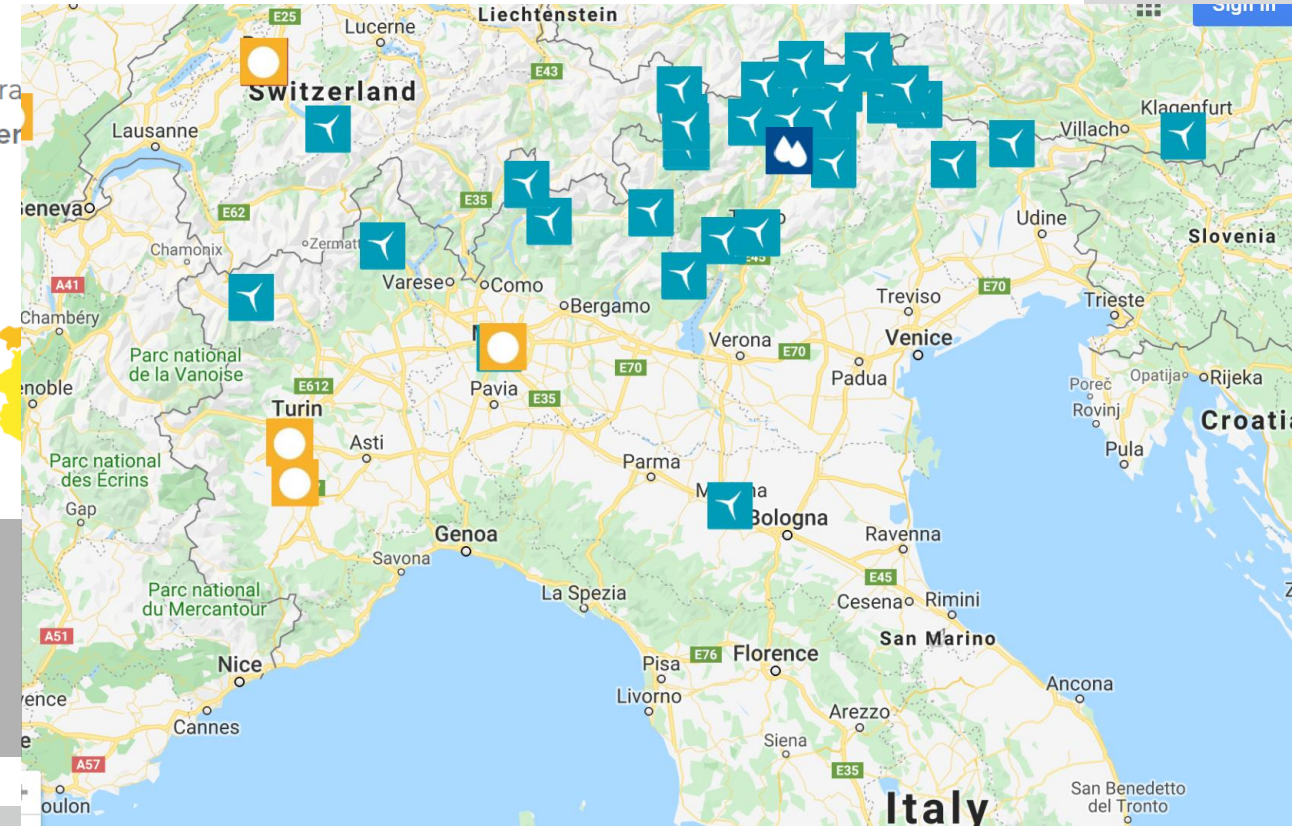
# Local actions – example Italy



>> Distribuzione dei comuni 100% rinnovabili in Italia

## I provvedimenti a supporto delle auto elettriche in Italia: una visione d'insieme

- Il grafico mostra  
neo tra le diver



Sources: GSE - DistrictHeating Italy 2019,  
Legambiente - Renewable Communities Italy 2019,  
Energy&Strategy Group Emobility 2019  
RESCoop.eu

## Local actions – examples in Europe

There are many examples, in the following just a few

- Oslo -> **electrification of transport**
- Copenhagen -> **district heating system**
- Alkmaar -> **bicycle infrastructure**
- Munich -> **geothermal + district heating**
- Freiburg im Breisgau -> **overall sustainable development**
- Oberösterreichischer Energiesparverband -> as very **active local association**
- Lower Austria -> for the regional support of local communities in **energy efficiency data** of public buildings

• ...

# Can local actors make a difference?

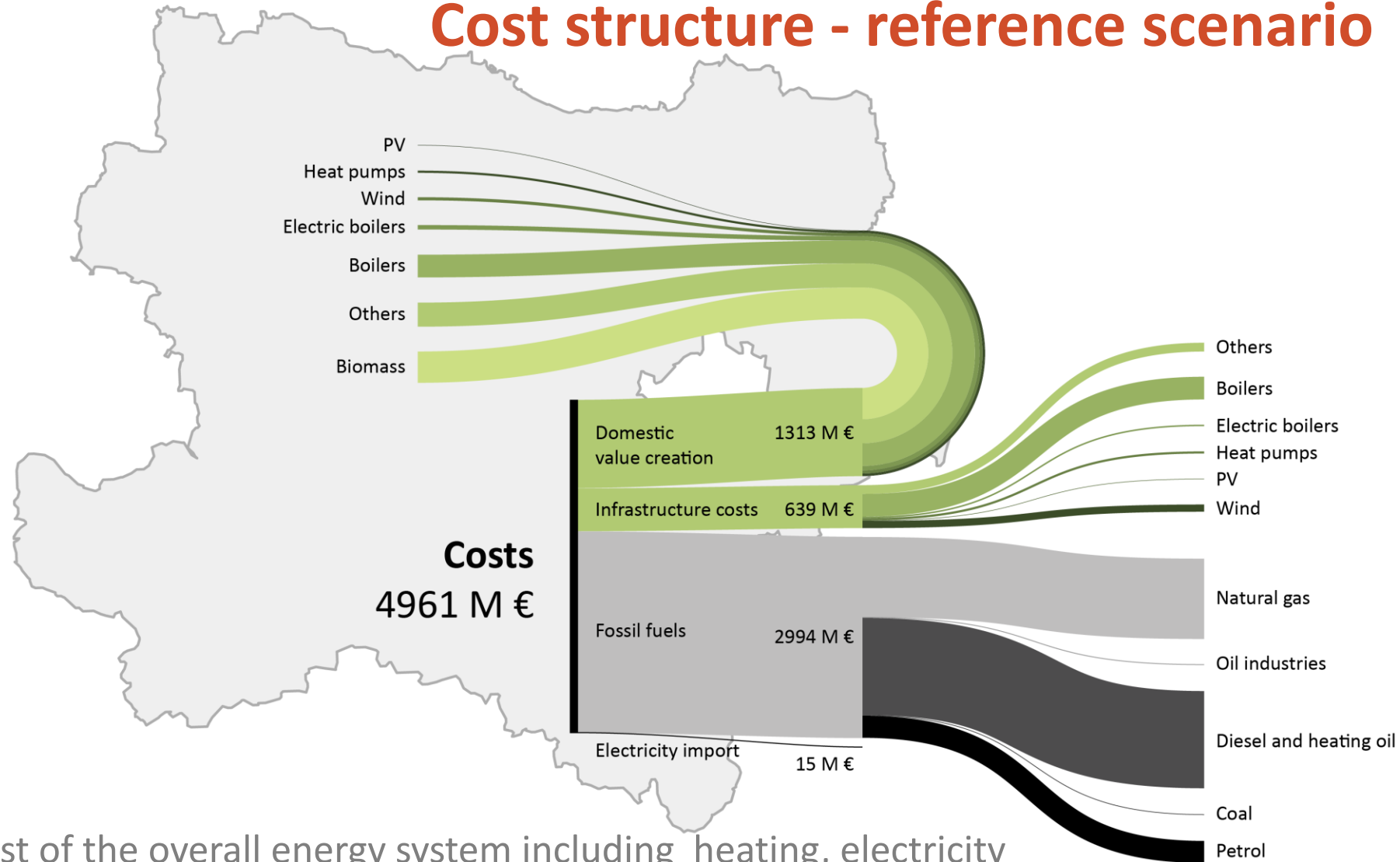
Local actors can

- **Inform** companies and population and support public awareness
- Support **practical knowledge** for professionals and craftsman
- Put **incentives, limitations and obligations**
- Lower bureaucracy and **speed up processes**
- **Permit, allow, support, attract investments** in renewables and energy efficiency

Local actors can **strongly support or hinder** the energy transition on their territory with all respective consequences ...

# Added value – example Lower Austria

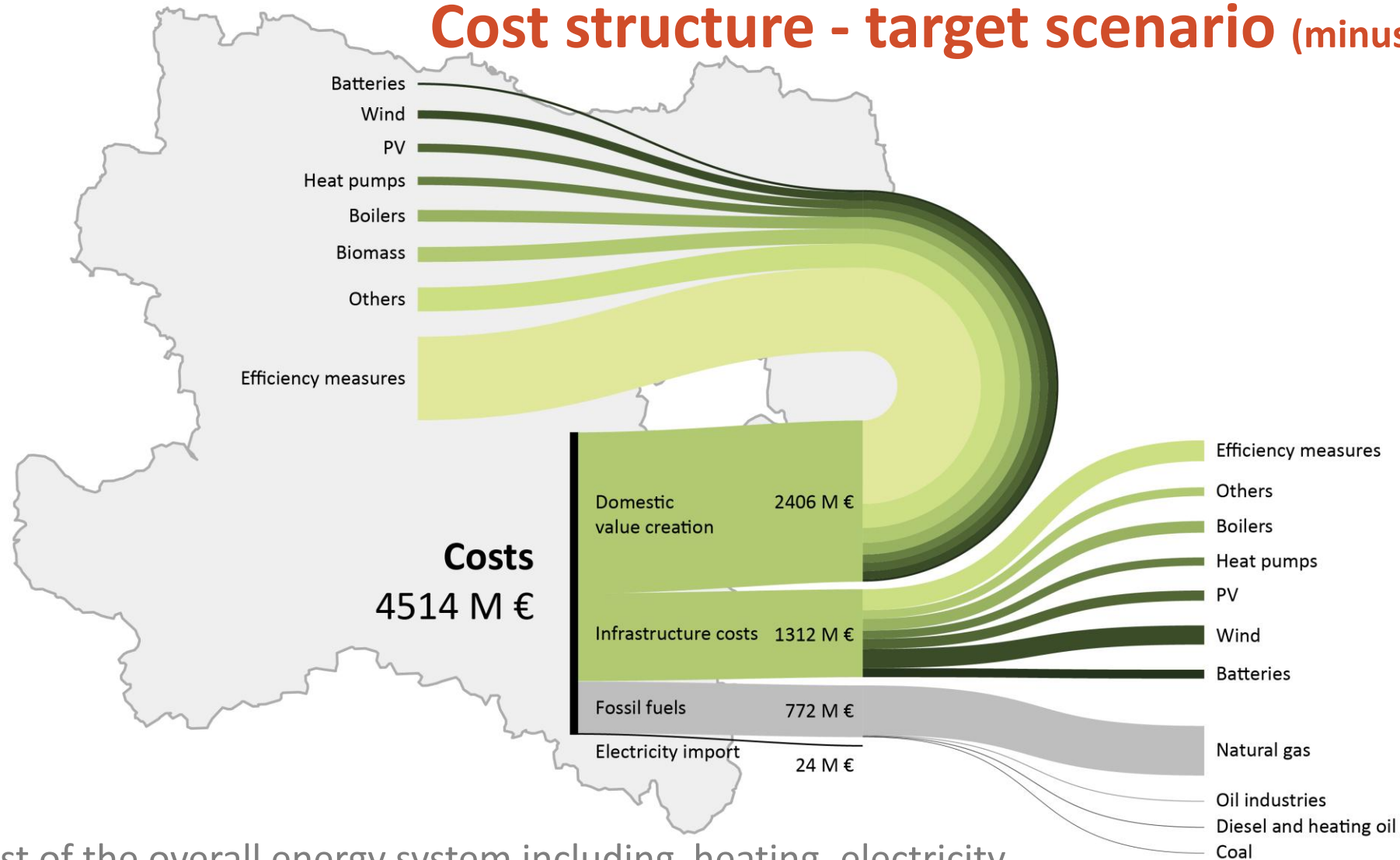
## Cost structure - reference scenario



Annual cost of the overall energy system including heating, electricity and fuel for transport. Subdivision of investments in the region and import of technology and raw materials

# Added value – example lower Austria

## Cost structure - target scenario (minus 80% CO<sub>2</sub> emissions)



Annual cost of the overall energy system including heating, electricity and fuel for transport. Subdivision of investments in the region and import of technology and raw materials



# Thank you for your attention ...

[www.e-twinning.at](http://www.e-twinning.at)

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