

Sustainable Community – Vision or Reality?



SUSTAINABLE ENERGY CONCEPTS LTD.

GRAZ - GIBRALTAR - GÜSSING

2009

D.I. DEAN MARCELJA

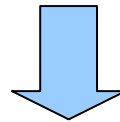
“It’s not that easy being green.”



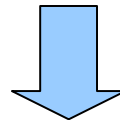
Kermit, the Frog

Energy Life on Credit

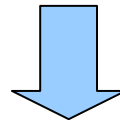
irresponsible use of energy sources



depleting the substance

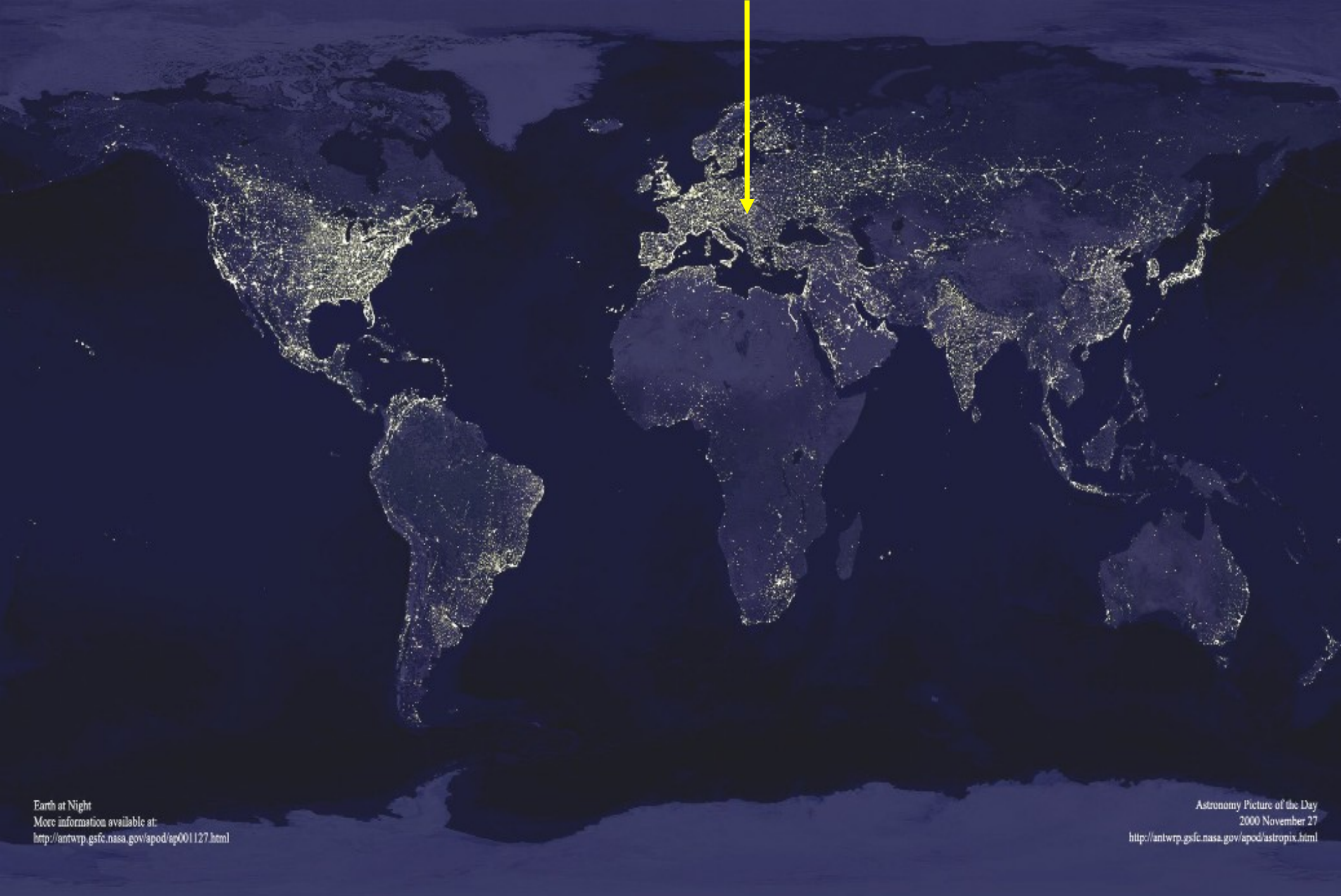


**daily consumption of fosile energy sources on the planet
equals
1347 years of sedimentation process**



many consequences -> nature out of balance

Once upon a time, somewhere in Europe ...



... where the roads ended...



...problems, problems...

- **50 years border region to Hungary**
- **no industry**
- **high rate of unemployment**
- **70% population commuting to Vienna...**
- **high migration rate**
- **small structured agricultural fields**
- **no traffic infrastructure**

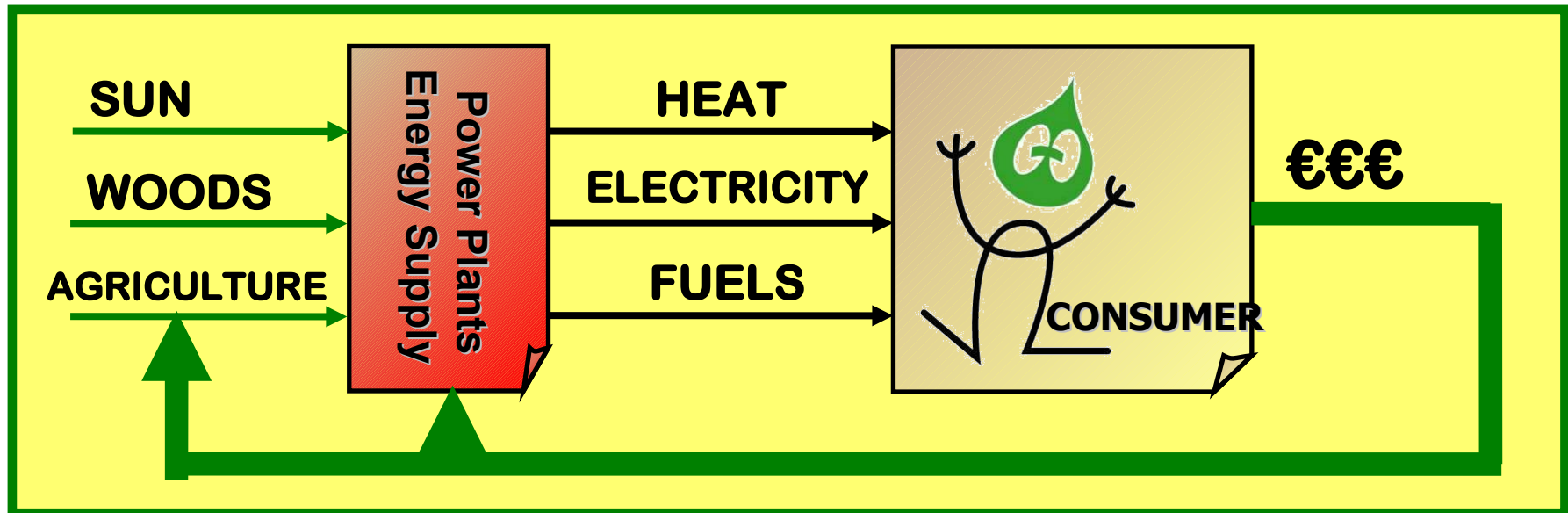
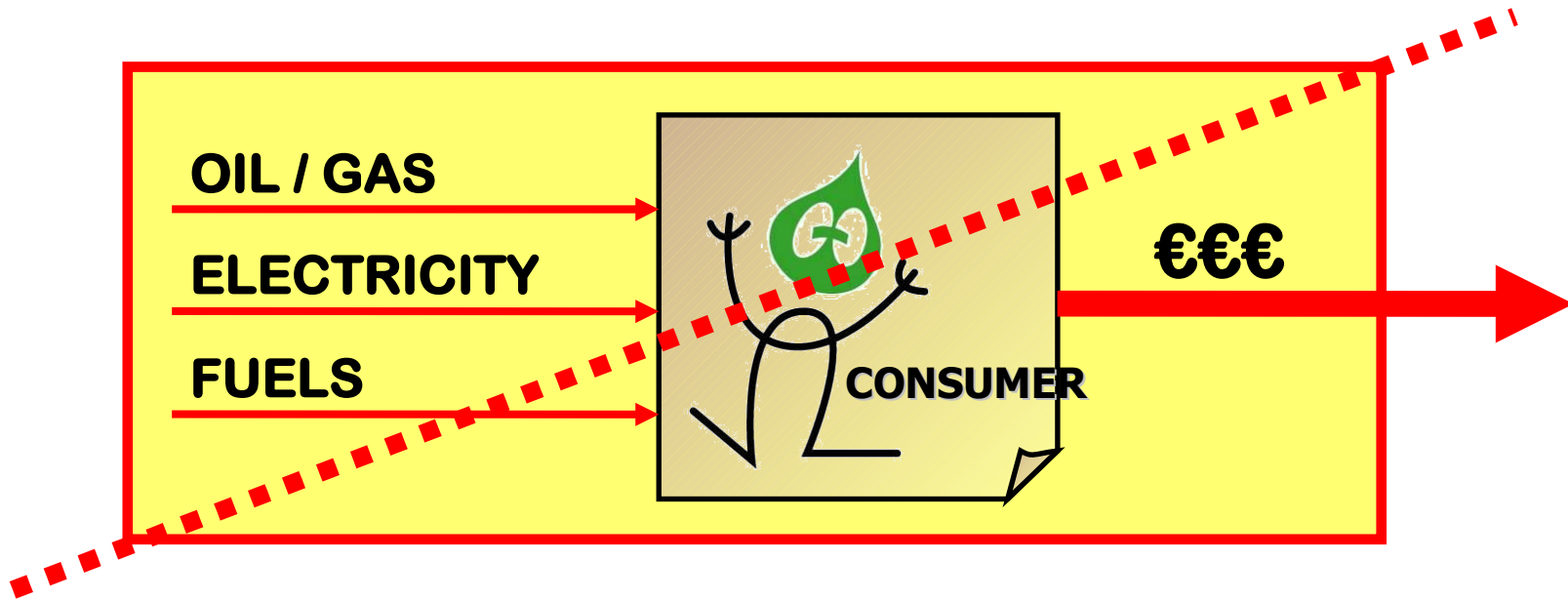
Solution

Concept for a local energy supply from renewable energy sources

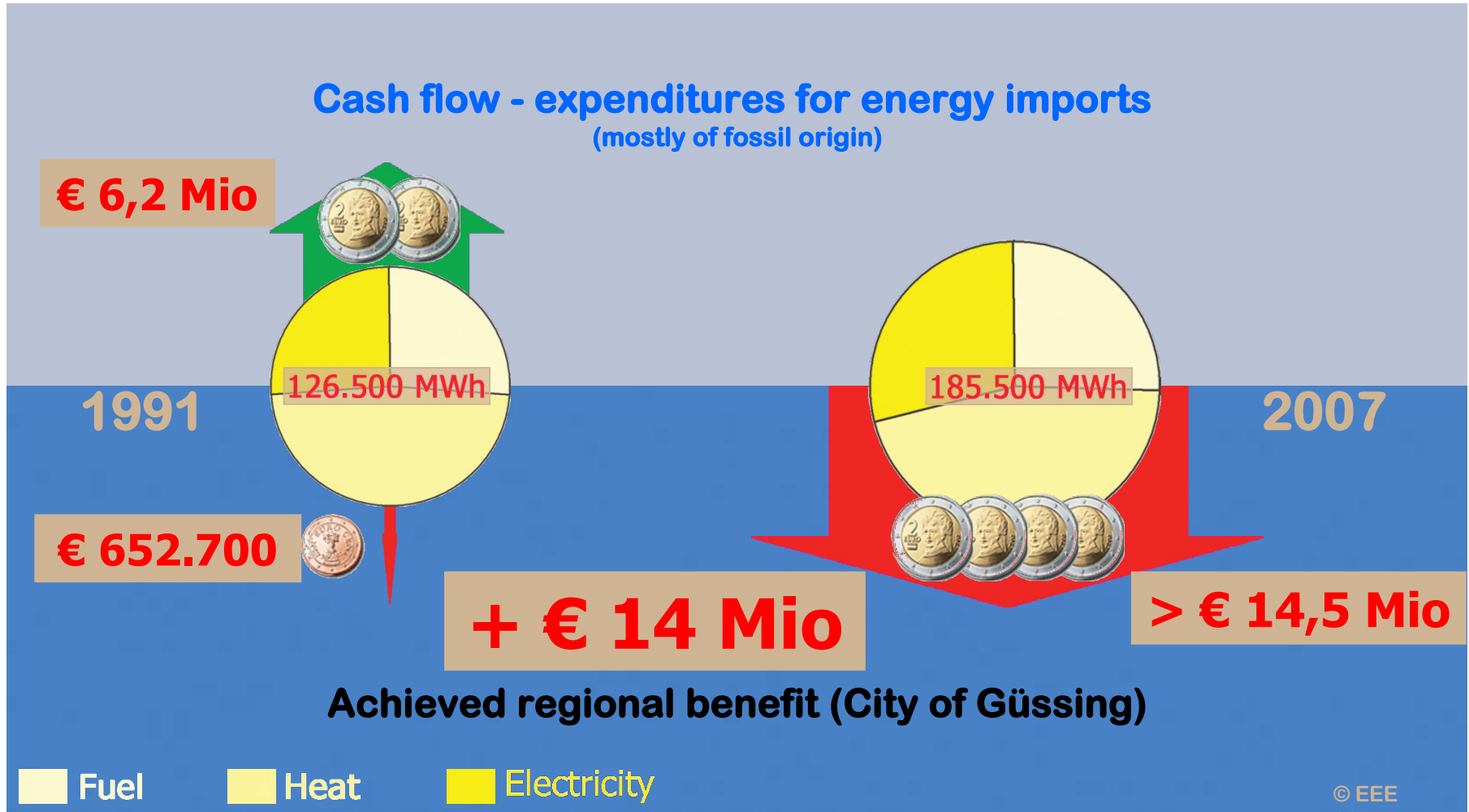
Case Study 1:

➤ The Güssing Model

The Principle

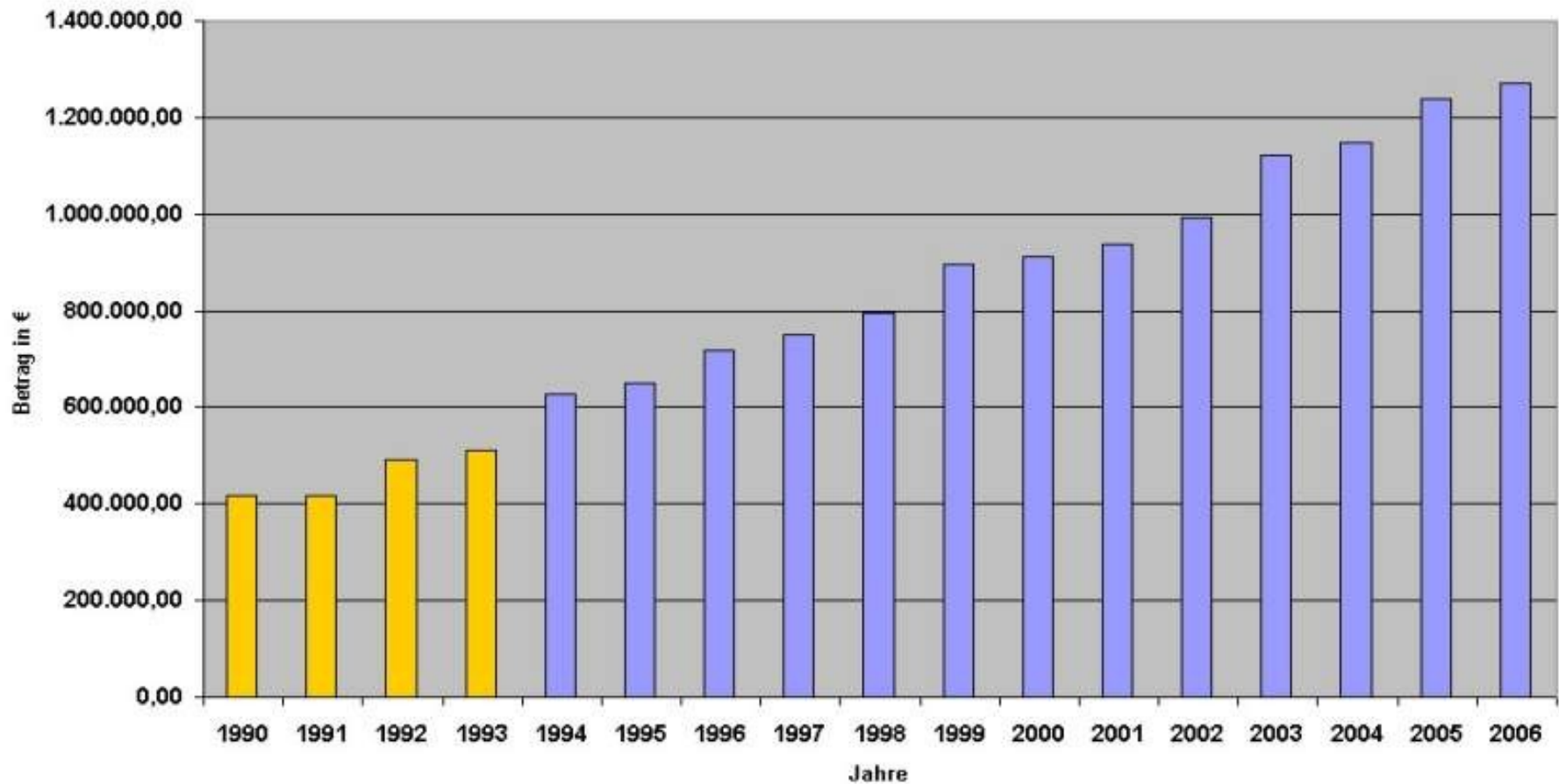


Energy Cash Flow



Municipal Tax Development

Kommunalsteuerentwicklung 1990 - 2006

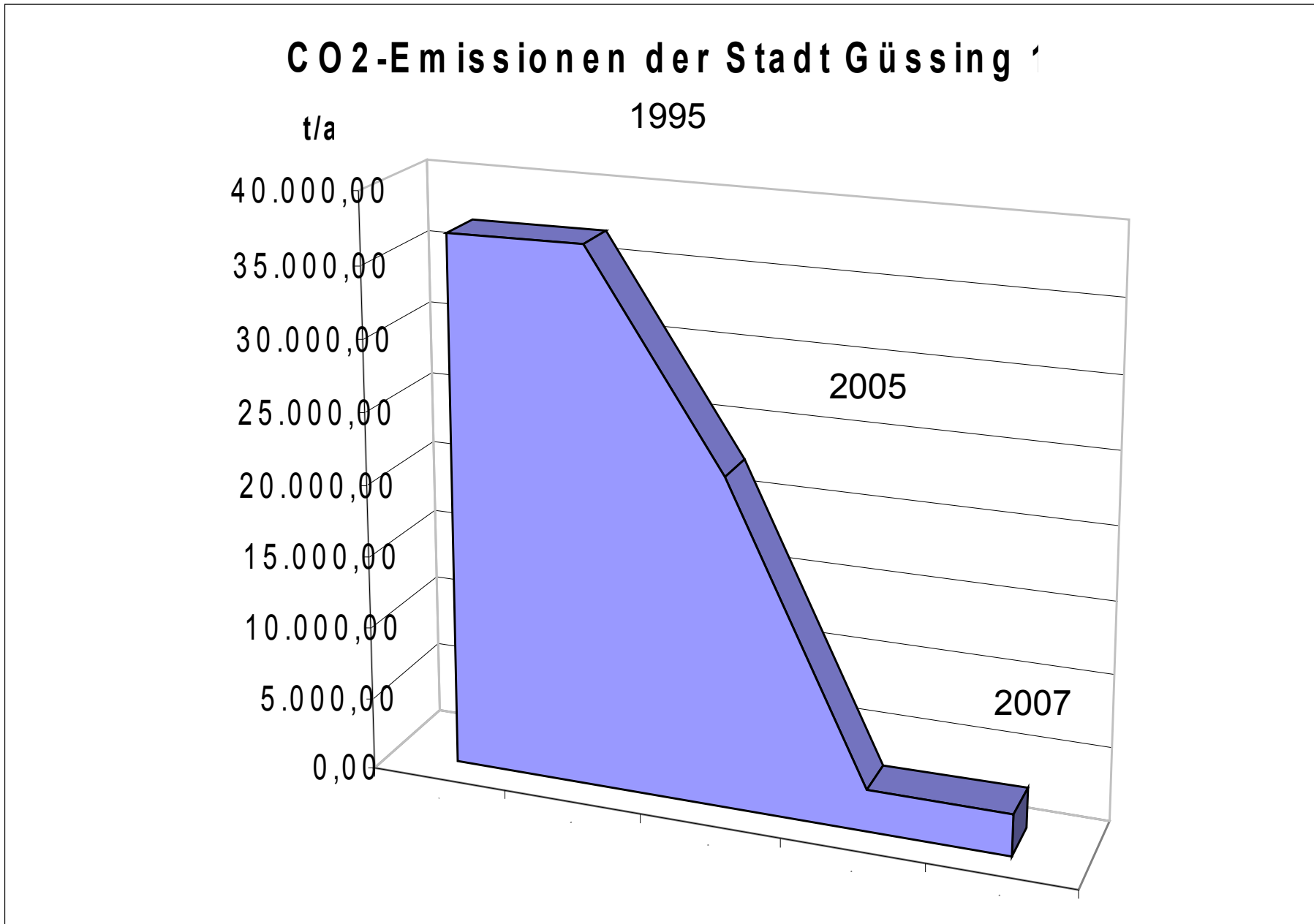


Benefits of Energy-Turnaround

Benefits of switching to regional renewable energy supply

- ✓ **Values remaining within the region**
- ✓ **New jobs (tax income raising)**
- ✓ **Less traffic due to less commuters**
- ✓ **Independency**
- ✓ **Stable prices**
- ✓ **Secured supply**
- ✓ **No political tensions**
- ✓ **CO₂ reduction**

Reduction of CO₂ Emissions – 93%



Values achieved within the past 10 years

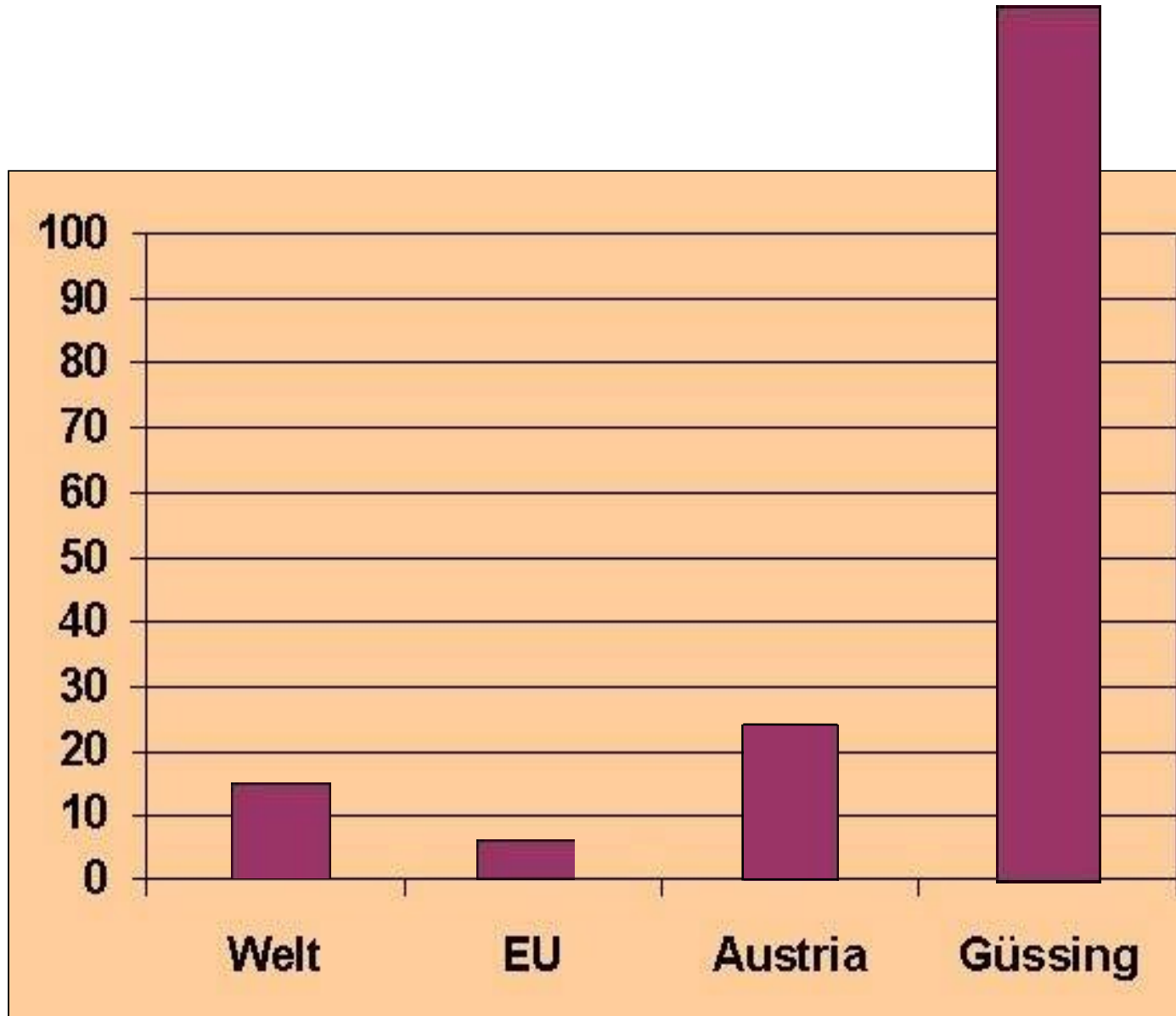
Güssing City:

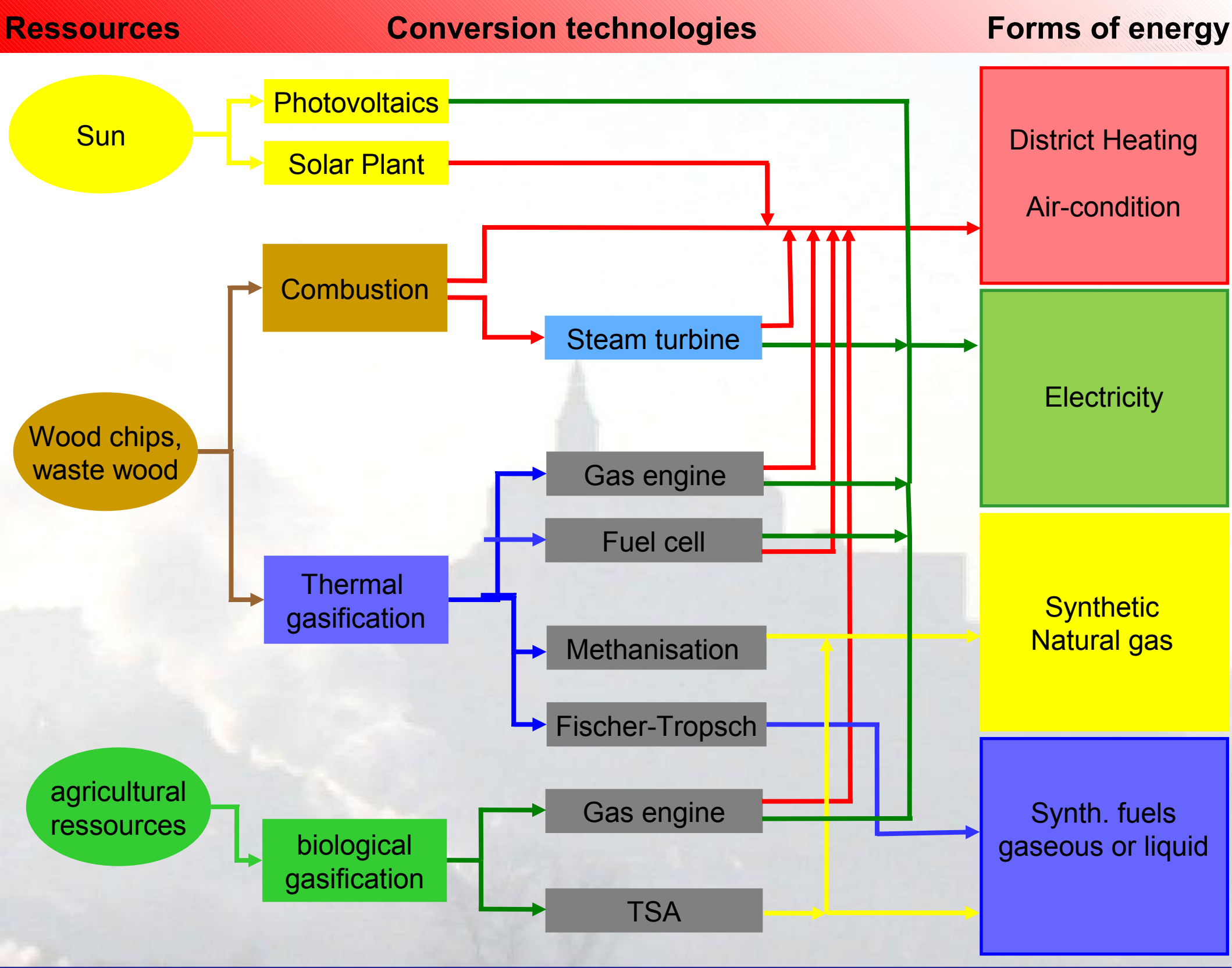
- ▶ **50 new companies**
- **over 1.100 new jobs**
- **net income of 9 Mio. EUR/year**
- **energy sales volume > 14 Mio. EUR/year**
- **wood consumption some 22.000 t/year**

Güssing County:

- **Due to ~60% self-sufficiency in total energy supply, the region profits *> EUR 19 Mio p.a.***
- **Potential when 100% self-sufficiency goal achieved: -> *EUR 37 Millionen p.a.***

Renewable Energy Ratio Compared (%)





Power Plants in Güssing



Biomass Power Plant



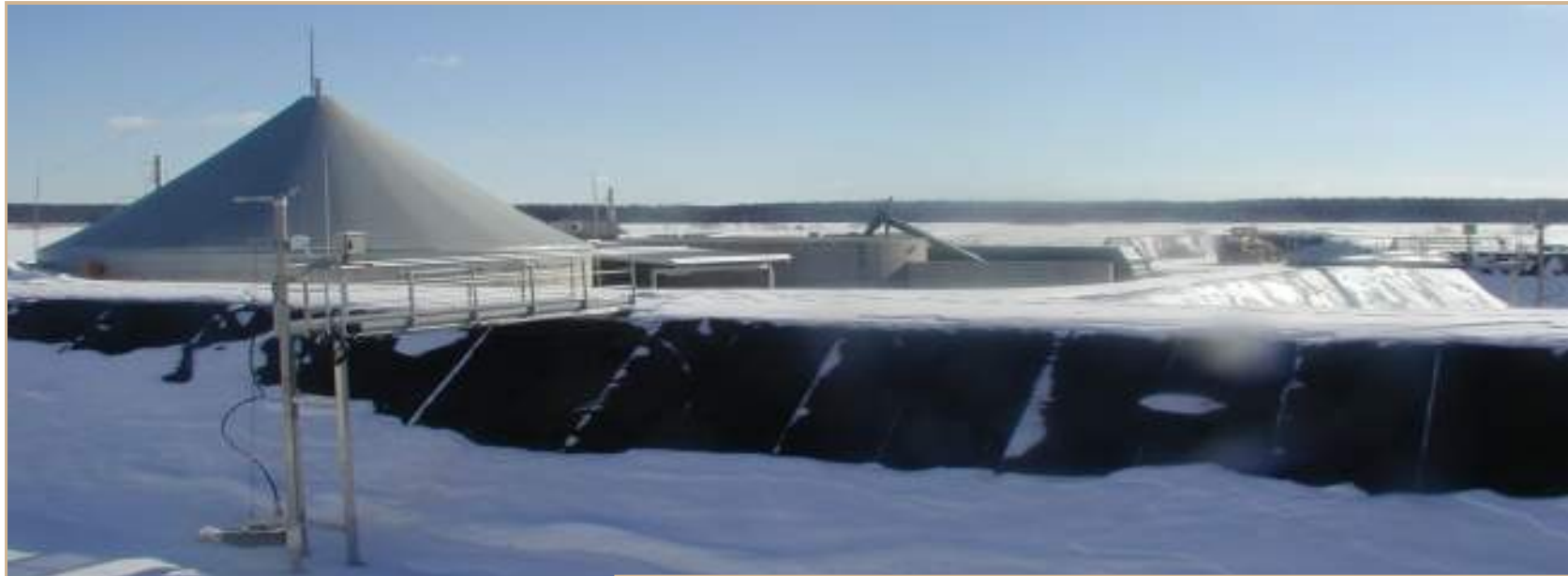
District Heating Plant Güssing



Urbersdorf Combined Plant



Biogas Power Plant



Power Plant „II“ Güssing



Parador Parkett



Weitzer Parkett



Research Institute

TECHNIKUM

bioenergy 2020+
 Erforschung der energetischen Nutzung von Biomasse
 Herstellung von Strom, Wärme, Treibstoffen und Chemikalien

DIESES PROJEKT WIRD VON DER EUROPÄISCHEN UNION, VON BUND UND LAND BURGENLAND KOFINANZIERT

Bauherr



**TECHNOLOGIEZENTRUM
GÜSSING**
 Markstraße 3
 7000 Güssing

Bauherrenvertretung / Projektmanagement



FMB GmbH
 Markstraße 3
 7000 Güssing
 Tel: +43 30710 2000
 Email: office@fmbgussing.at
 www.fmbgussing.at

Planung / Bauaufsicht



**ARCHITECT
HERBERT
SCHMÖLZER** 
 HERBERT SCHMÖLZER ARCHITECTUR
 7040 Güssing Hauptplatz 1 +43 (0)3322 43000 www.schmoelzer.at office@schmoelzer.at

Tragwerksplanung



**WE WOSCHITZ
ENGINEERING**
 WE INGENIEURBÜRO
 WWW.WE-ET.AT

Gebäudetechnik



IKG GmbH Ingenieurbüro für
 Lüftungstechnik und Gebäudetechnik
 Europaplatz 1
 7040 Güssing
 Tel: +43 3 30710 2000
 Email: info@ikg.at



reNet
 René Kompertner (Güssing)
 Forschungsinstitut für erneuerbare
 Energie (Güssing)
 Europaplatz 1
 7040 Güssing
 Tel: +43 3 30710 2179 21
 www.renet.info.at

Baubefehlkoordinierung



BÜRO REISS
 BAUSICHERHEITSKOORDINATION

Vertreter von bioenergy 2020+



**TU
WIEN**
 TECHNISCHE
 UNIVERSITÄT
 WIEN
 VIENNA
 UNIVERSITY OF
 TECHNOLOGY



**Institut für Verfahrenstechnik,
Umwelttechnik und
Technische Biowissenschaften**

Methanisation





The "Öko-Energiewald"

Eco-Tourism

Overnight stays:

	Güssing City	Güssing Region
1995	1.700	27.000
2005	22.047	
2006	24.164	
2007	27.658	> 200.000

Source: EEE Güssing GmbH; municipal office Güssing; Feb. 2008



Güssing Highlight

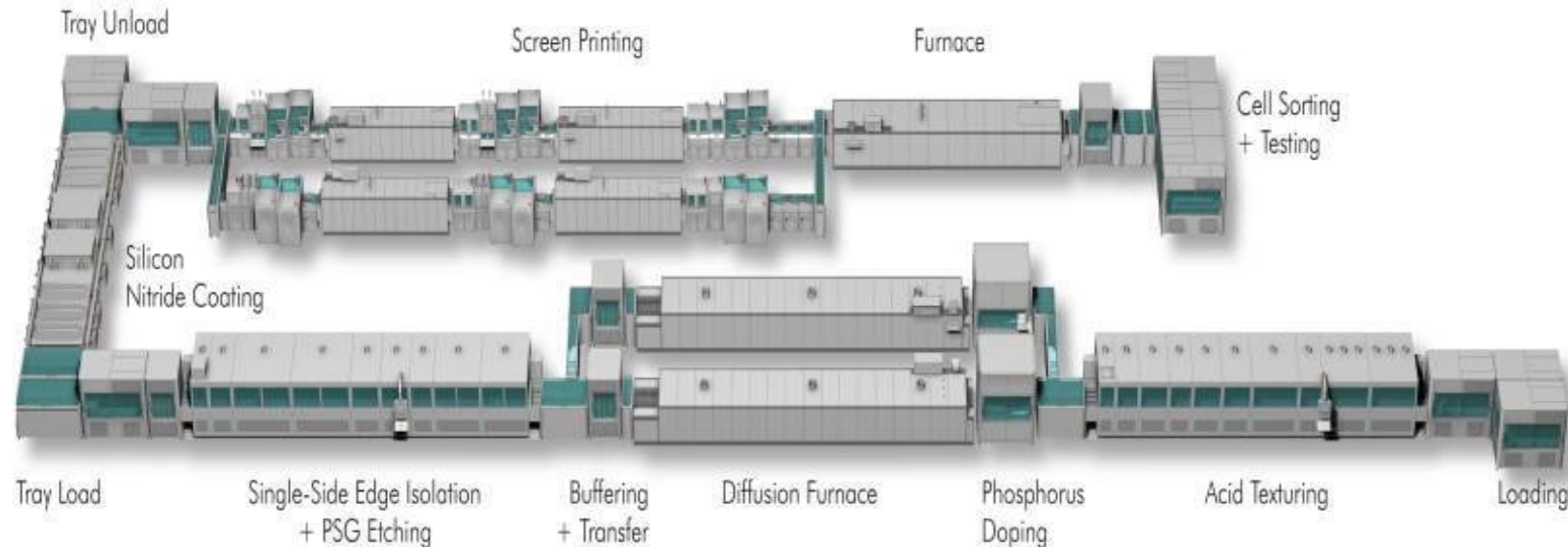
**1st hi-tech production
Worldwide
of renewable energy
hardware equipment
powered entirely
with renewable energy
from within the region...**

BLUE CHIP ENERGY GmbH

1st Austrian High-Efficiency Solar Cells Production



- Production started Q4/2008
- Full Capacity as of Q4/2009
- 100 MW/year (~ 20 Mio. Cells)
 \triangle electricity consumption of 20.000 households
- 140 highly trained employees
- Investment: > € 65 Mio.



PV Supply Chain



Sand



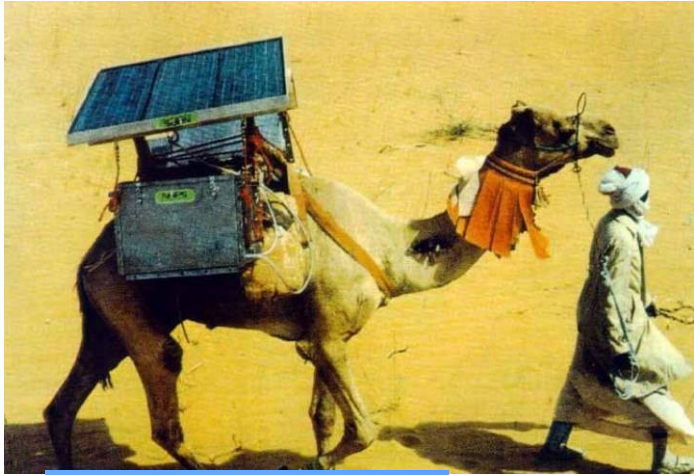
Silicium



Ingot



65% of production chain in Austria!



Modular system

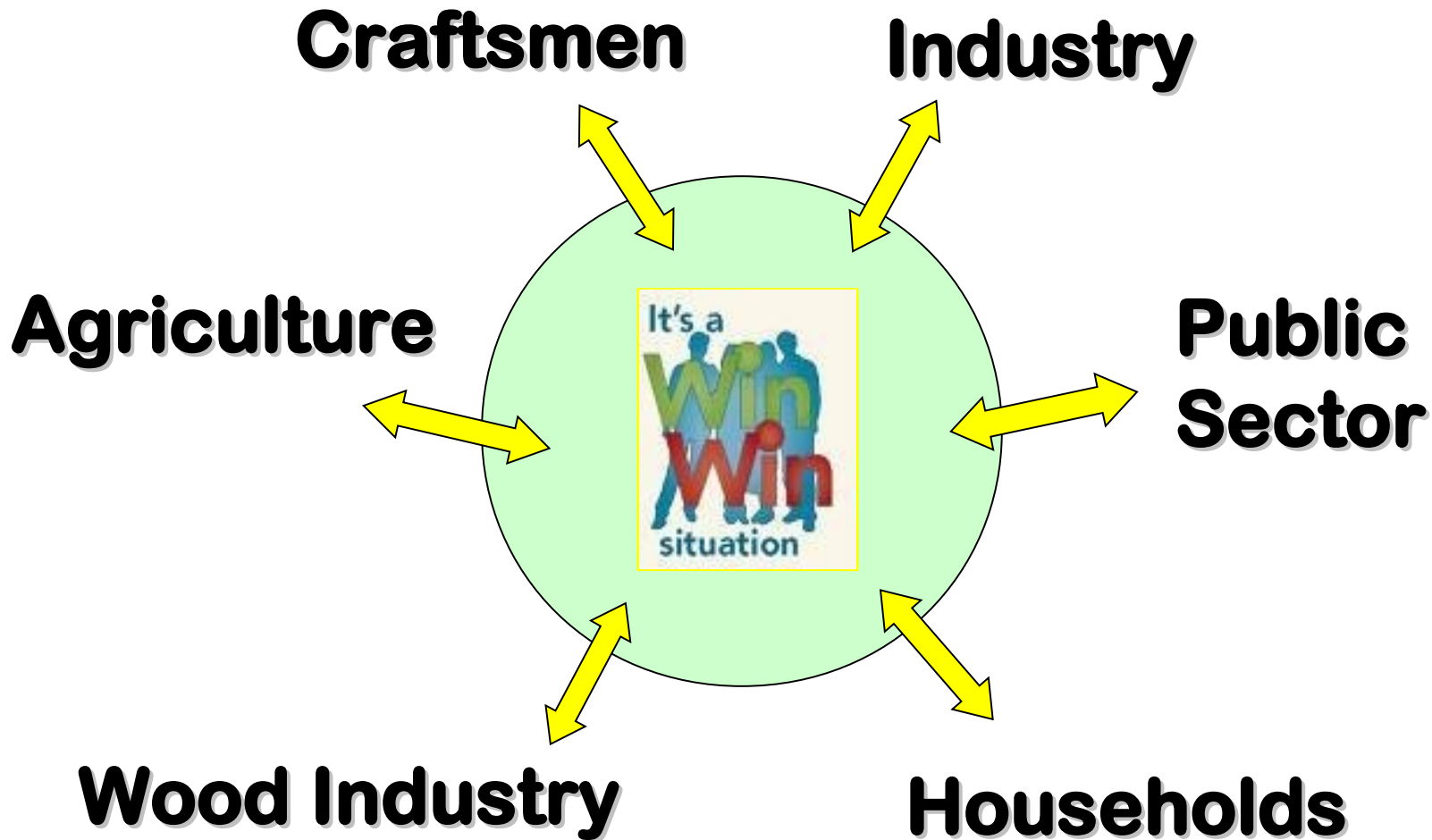


Solar cell

Wafers



Regional sustainable energy supply win – win for all



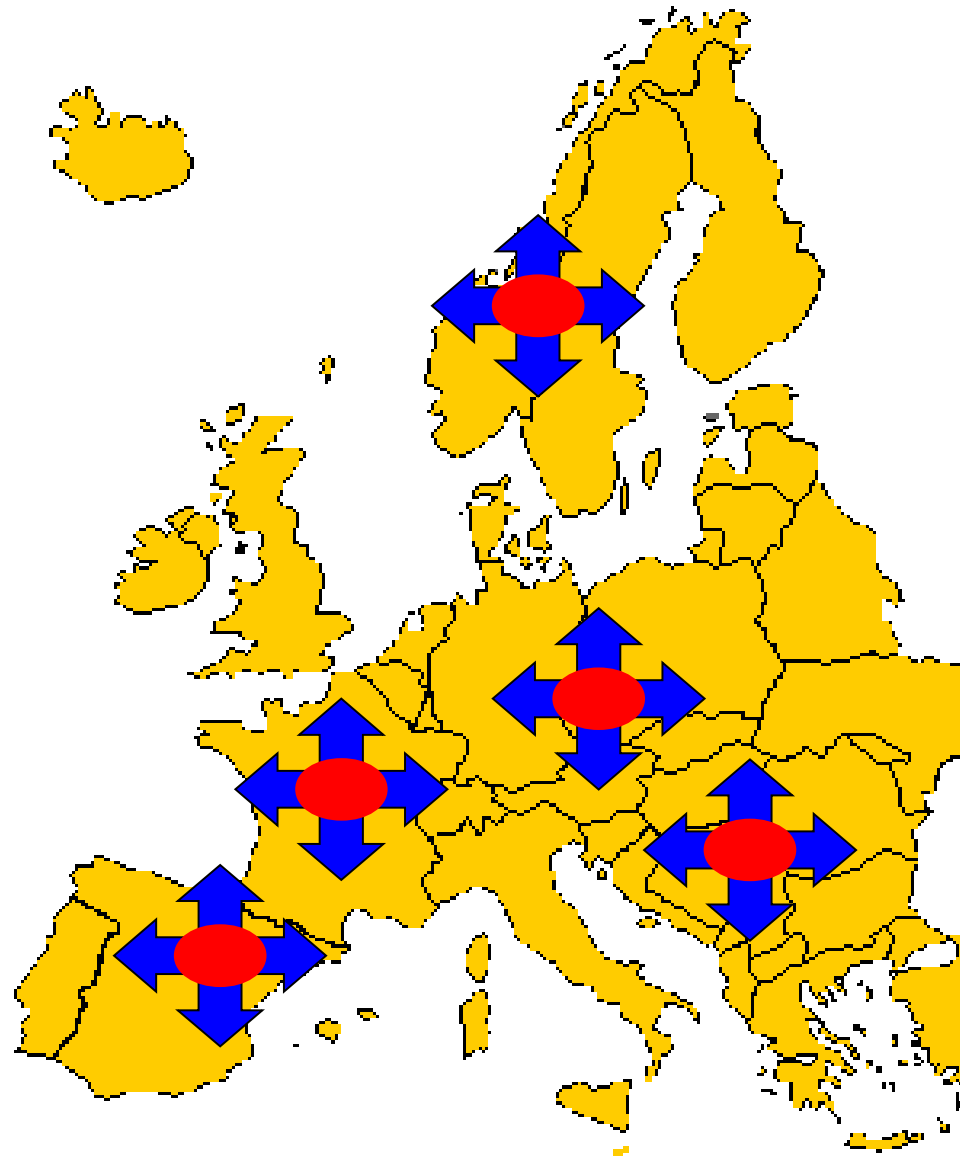
Self Sustainable Local Energy Supply

Conceptual Points

- **small decentralized power plants**
- **optimum size**
- **flexible units**
- **intelligent networks**
- **simple logistic**
- **low overall losses**
- **easily expandable**

Centralised (monopolised) Energy Supply (-concepts)

DEPENDENCY!



Old Energy System

CENTRALISED

DEPENDENCY



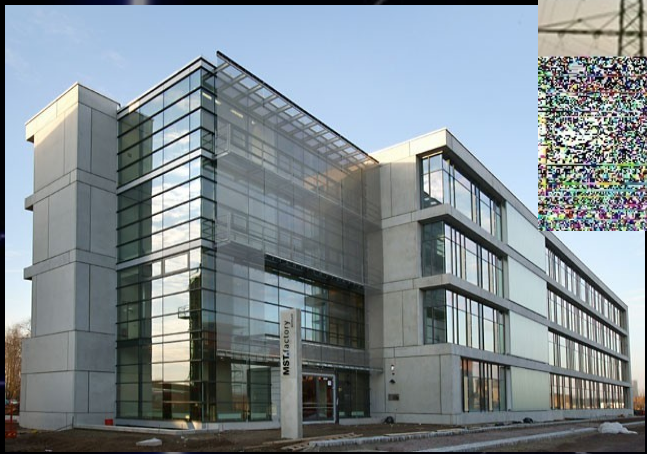
Office Buildings



Power Plant



Residential Areas



Transmission = Energy Loss



Few Large Powerplants



Industry

New Energy Mix

CONTROLL CENTER



upon demand

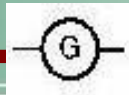


Intelligent Network

smaller plants

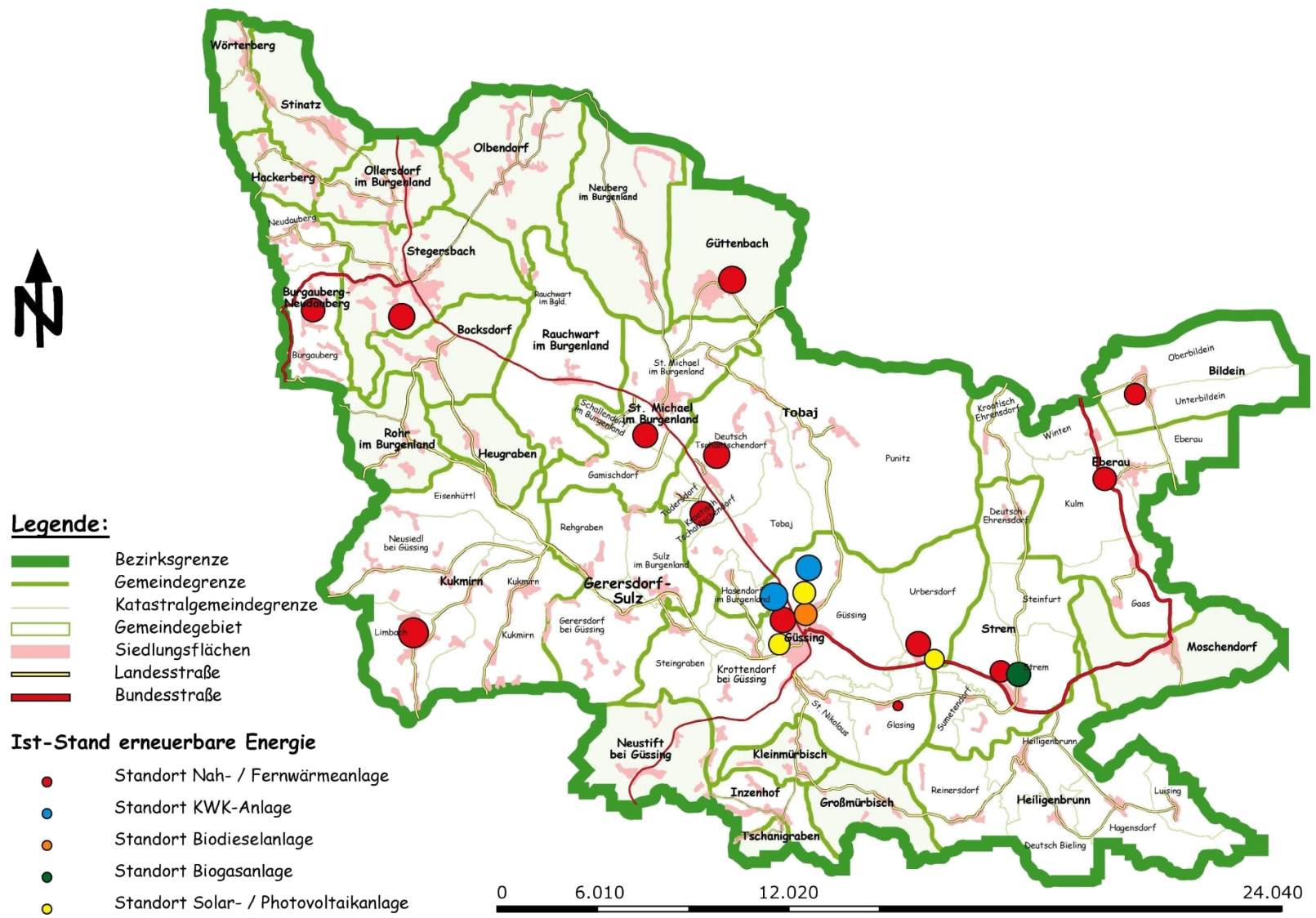


Energy Storage



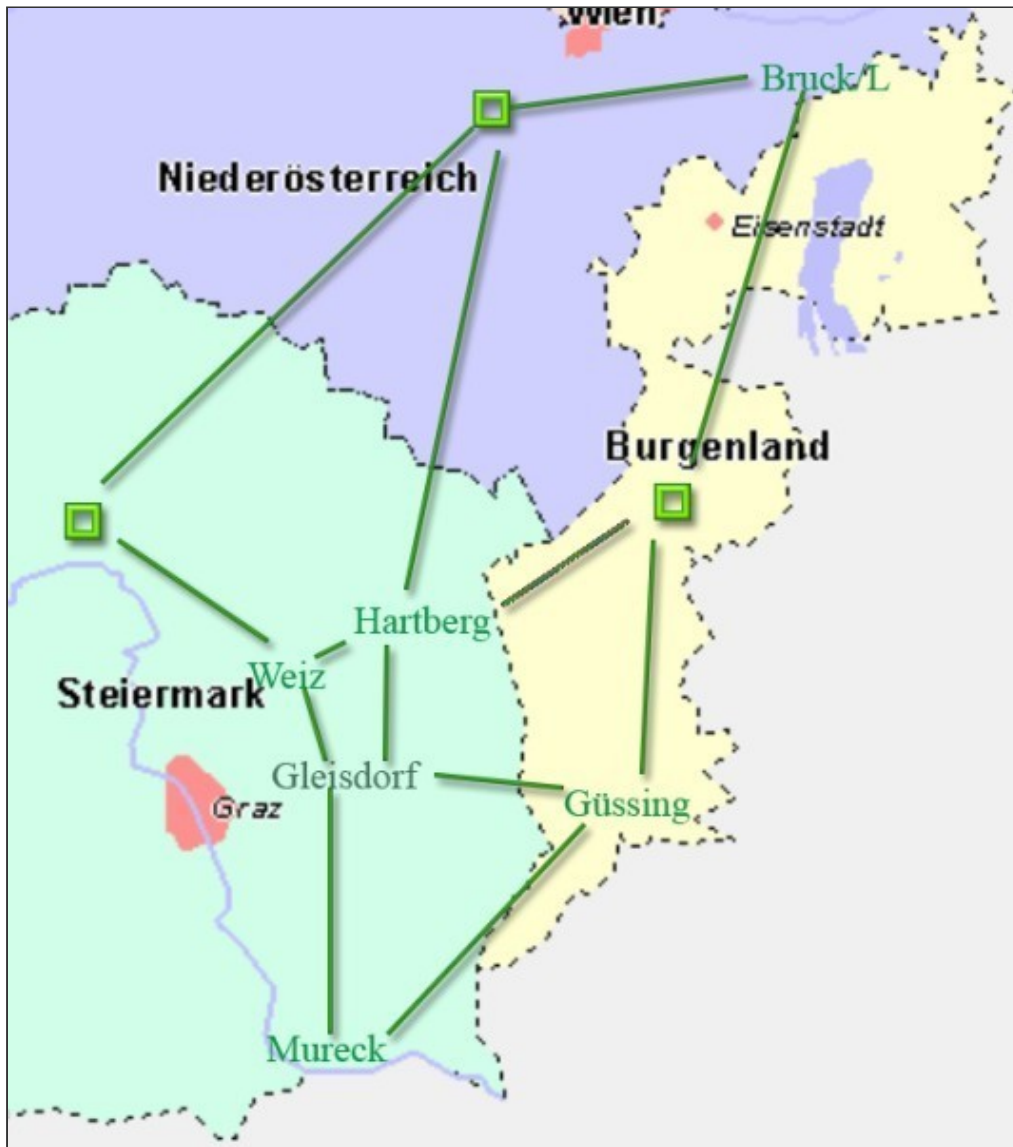
Energy Independent County

Distribution of Power Plants



Energy Partnerships

Networking of Communities

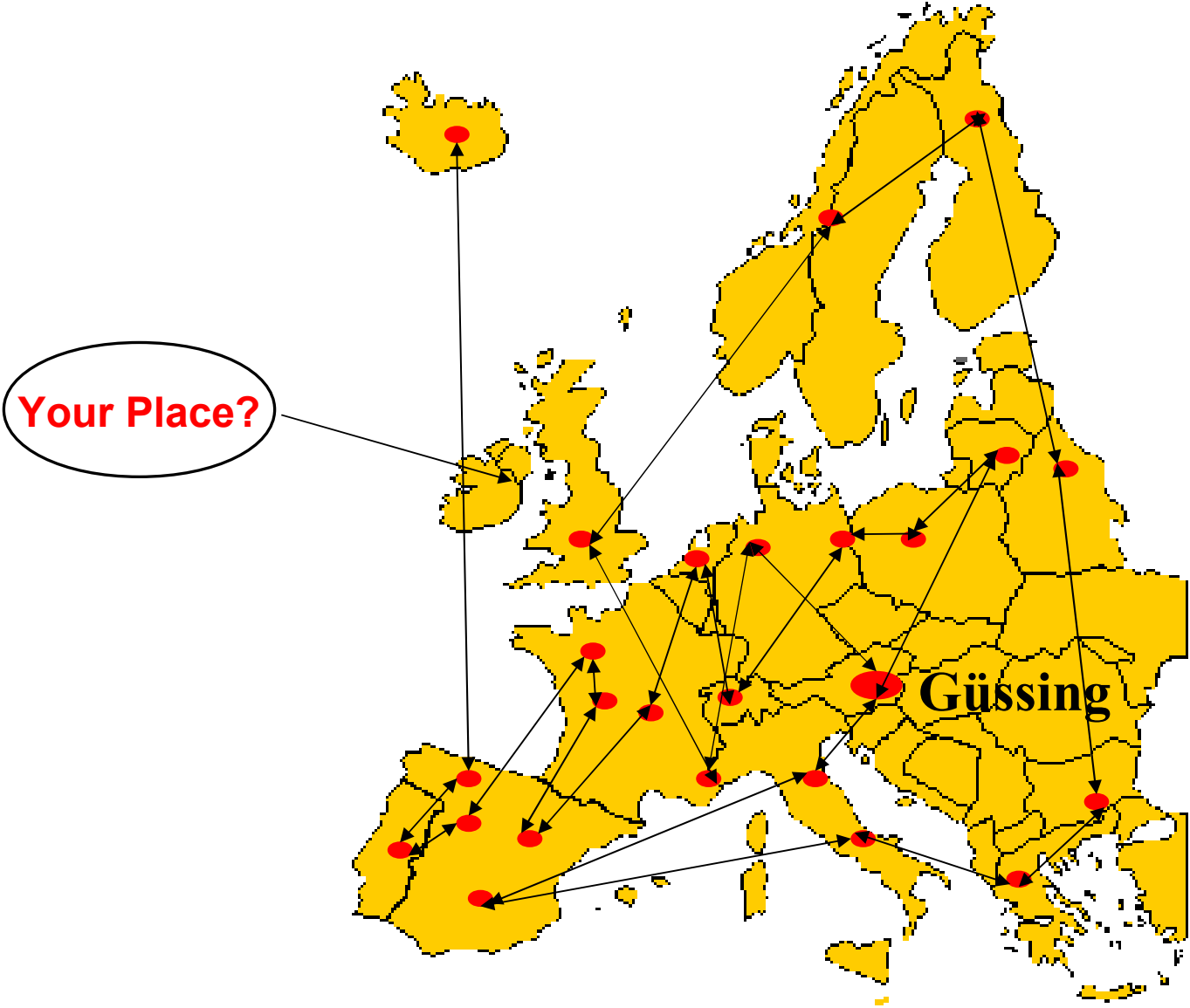


**Renewable Energy
Development Plan
means
Integral Concept !**

**Time is running out,
therefore,
we have to act fast!**

Decentralised Energy Supply

100-s of Güssings in Europe



What can WE do for YOU?

(our 15+ years of field experience)

- **Sustainable Region Energy Concepts**
- **Sustainable Industry Cluster Concepts**
- **Sustainable Energy Schooling Concepts**
- **Feasibility Studies (Power Plants, Financing, ...)**
- **PV Power Plants Planning & Investments**
- **Technology R & D**
- **Neutral Moderation and Support – Workshops, etc.**

The Message

- 1) Most important, we have to save, save and again
- save energy**
- 2) Remaining real energy demand is to be covered
from renewable sustainable local resources**

**Whoever still can not understand
that the above is the only possible way to go
- well -
then there's no help.**

Güssing Renewable Energy Village

This was the story
of a small,
unflinching
renewable energy
village, surrounded
by legions of fossil
energy sources
trying to take over
the little village.

But
the village has a
magic potion
- ENERGMIX -
made of renewable
energy sources!



**DI DEAN MARCELJA, COO
SUSTAINABLE ENERGY CONCEPTS LTD.**

**SCHMIEDSTRASSE 1
AT 8042 GRAZ**

**TECHNOLOGIEZENTRUM
EUROPASTRASSE 1
AT 7540 GÜSSING**

**T: +43 5980 9100
E: DEAN@SE-CONCEPTS.EU
W: WWW.SE-CONCEPTS.EU**