

Research Institute for Sustainable Energy (RISE)

*Assisting the development
of the Australian sustainable energy industry*

Energy **Positive** Shires

Developments in Germany

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presented by

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Definition: Energy Positive → producing more energy than consumed (renewable sources)

- 1) Germanys' Situation**
- 2) Roots → Agenda 21**
- 3) Vision → Energy positive**
- 4) Implementation → How we try to do it**
- 5) Summary and Conclusion**

Germany – what do you know?

Germany: What do you know / associate?



Castle New-Swan-Stone, Bavaria (Neuschwanstein)

Germany – what do you know?

Windpark

and

Biomass Power
Station

Northern
Germany



Germany → Basic Facts

Germany

Area 0.36 Mil. km²

Population 82 Mil.

Ratio inh./km²: 228

Australia

Area 7.7 Mil. km²

Population 21.0 Mil.

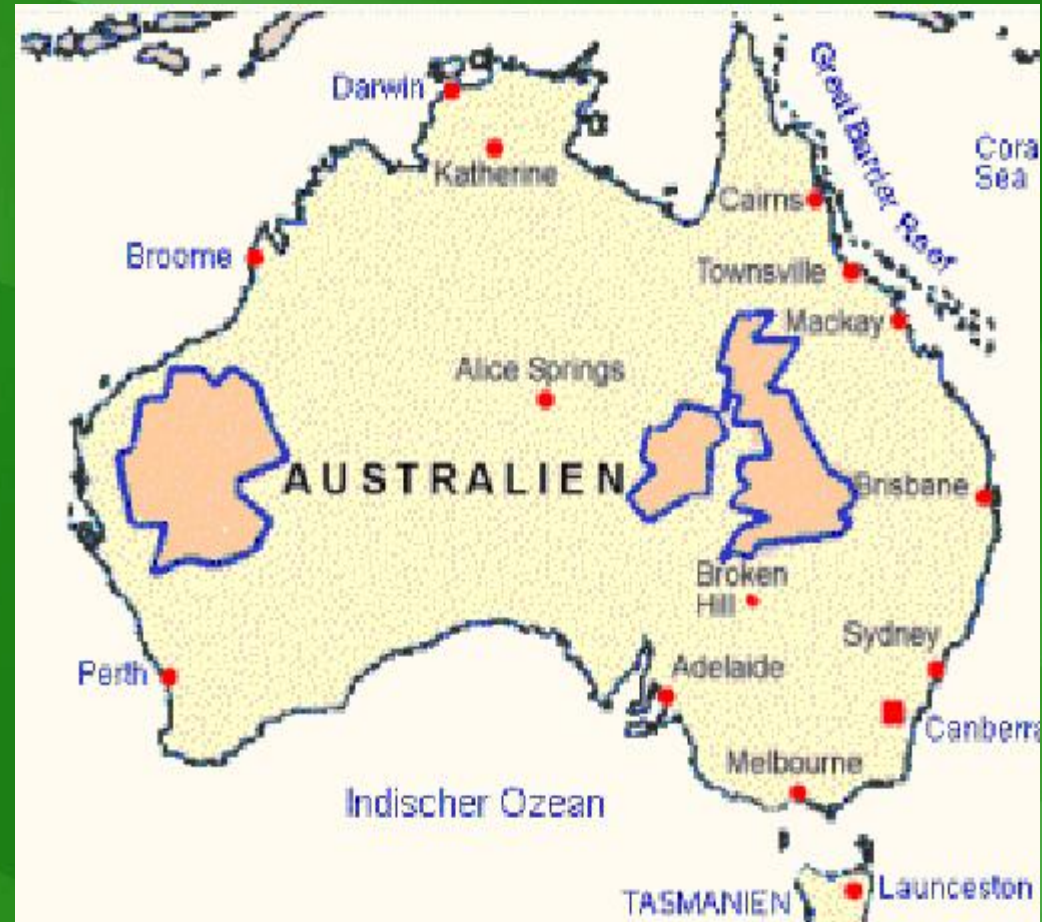
Ratio inh./km²: 2.7

Western Australia

Area 2.5 Mil. km²

Population 2 Mil.

Ratio inh./km²: 0.8



Primary energy consumption 2005

Total: 14,300 PJ (equiv. 350 mio. t crude oil, toe) (1PJ = 10^{15} J)

Australia: ~ 5000 PJ in 2005

Source	% of Total	Import %	Own Reserves
Mineral Oil	36	96	very few
Natural Gases	22	83	few
Coal	24	8	medium
Atomic	13	100	very few
Renewables & others	4	> 5	average

1992: Declaration of Rio on “Environment and Development” for the 21th Century

(Excerpt)

Principle 1

Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.

Principle 10

Environmental issues are best handled with the participation of all concerned citizens, at the relevant level.....

Consequences:

Formation of local groups in the spirit of the Rio Declaration

→ **Agenda 21 Groups**

1997 → Foundation of the local Agenda 21 Group

with support of 2 city-councils
(Geretsried + Wolfratshausen)

4 Working Teams: Energy, Health, Nature, Traffic

32 founders (volunteers)

Today: 16 Working Teams, each team has 1st + 2nd speaker
approx. 200 volunteers,
coordinated by steering group (elected speaker)

Topics: ecology, economy, social development, local dialog

2004→ out of the Agenda 21 working teams

- energy
 - sustainable buildings
 - manage & conserve nature
 - regional development

→ **vision of energy positive shire**

- 2 shires together
- based on examples of other shires

Basic data of our shires:

Names: Bad Toelz – Wolfratshausen, Miesbach

Location: southern Bavaria, at border to Austria

Area: 1974 km² (~ 50% forest, ~35% agriculture)

Inhabitants: 215500 → 109 Inhabitants / km²

Energy consumption of shires in 2004

Both shires total: 6000 GWh (electricity, heat, fuels)

Electricity	Heat	Traffic	Total
184 Mio. A\$	235 Mio. A\$	334 Mio. A\$	753 Mio. A\$

Would it be possible to keep part of this revenues within the shires?

Could this be a local business incentive?

Energy consumption in 2004

Both shires total: 6000 GWh (electricity, heat, fuels)

Electricity	Heat	Traffic	Total
184 Mio. A\$	235 Mio. A\$	334 Mio. A\$	753 Mio. A\$

Potential of reduction with actual techniques?

20 Mio. A\$	165 Mio. A\$	30 Mio. A\$	215 Mio. A\$
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Potential for local energy production (sources)

Solar	Biomass	Geothermal	Total A\$	Total GWh/a
33 Mio. A\$	60 Mio. A\$	285 Mio. A\$	378 Mio. A\$	2400

Consumption vs. Potential

Assumptions for Feasibility Study:

Development of Consumption

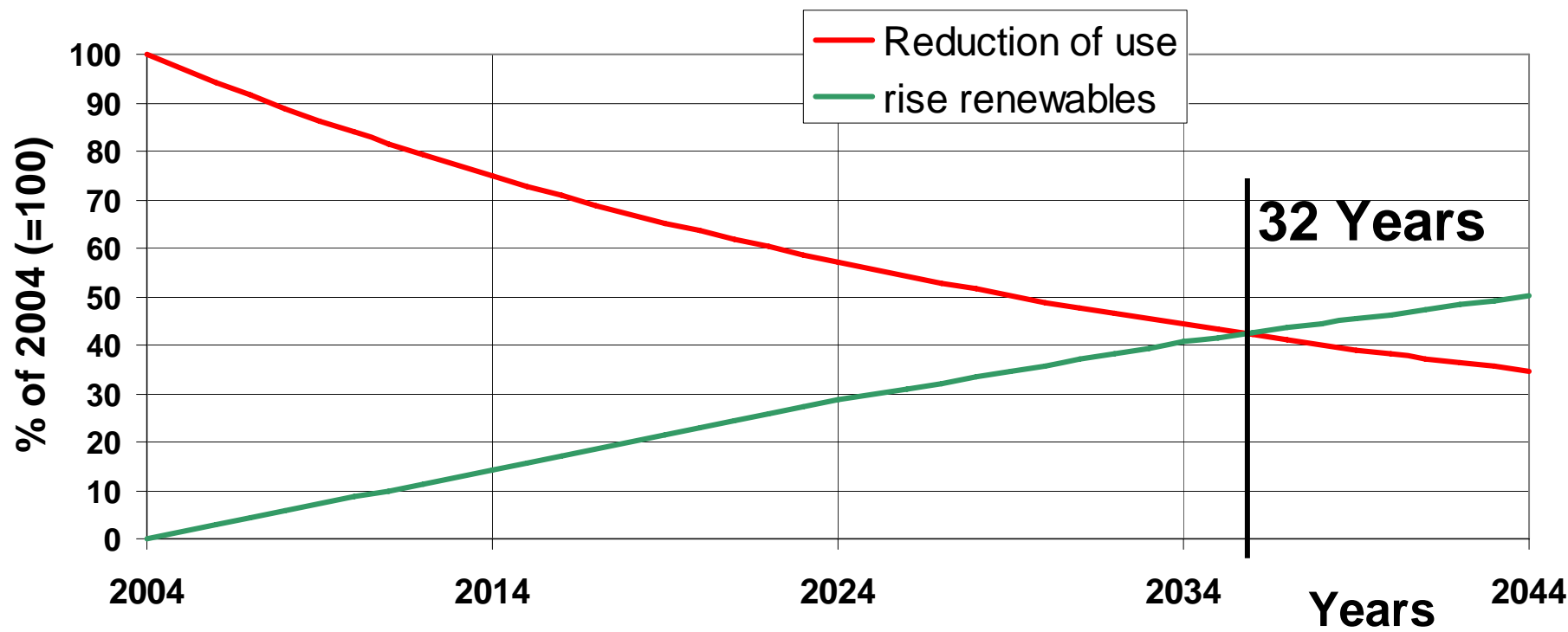
- Electricity: 2% efficiency gain per year
- Heat: 5% efficiency gain per year
- Traffic: 2% efficiency gain per year

Development of Potential

- Solar: linear implementation within 20 years
- Biomass: linear implementation within 30 years
- Geothermal: linear implementation within 40 years

Consumption vs. Potential → Results

Feasibility of Energy Turnaround



Would it be possible to keep part of this revenues within the shires?

Yes! Even energy positive is feasible

Could this be a local business incentive?

Yes! Approx. 50 Mio. per year for local businesses possible

Political leverage!

Securing jobs and keeping money within shires

How to do → Unanimous Declaration of both Shire Councils



Resolution on the energy turnaround

We want the energy turnaround in the shires of Bad Tölz-Wolfratshausen and Miesbach. We aim at supplying our shires up to 2035 completely with renewable energy.

We want to achieve this by:

- reduction of the energy consumption
- application of innovative and efficient technologies
- sustainable use of all local resources

We count on the creativity and the varied competences of the people, especially those from agriculture, forestry, handicraft, trades, industry, service industries, public organisations and churches. We need the support of all responsible conscious citizens in our shires.

Going this way, we conserve our local resources and support our regional economies with the aim of sustainable safeguarding our quality of life.

Creating a foundation:

Name: Energiewende Oberland

Founders: > 100 (citizens, cities,
companies)

Min. Capital: 50000 Euro

Donations: > 60000 Euro

Grants: > 30000 Euro



Structure of the foundation:

Executive committee (5 members)

CEO: Ms. M. Raschke

Foundation board (16 Members)

President: Mr. KH. Rauh

Working Teams:

Elected speakers

Members of board

- geothermal energy
- renewable resources
- solar energy
- energy conservation
- mobility

(all volunteers)

Tasks of the foundation:

- Support / initiate adequate projects
- Advise / counsel local government bodies
- Advise / counsel citizens
- Help educate pupils on the vision
- Transport the vision
 - presentations at local fairs
 - Exhibitions
 - talks to local organisations and businesses
 - etc.
- Acquire donations, grants, other founders

Tasks of the foundation / current projects:

- **Energieschule Oberbayern (Education on energy)**
 - 45000 Euro-Grant, together with Ziel21, Greencity



Tasks of the foundation / current projects:

- **Buergersolarkraftwerke (citizen owned PV-power plants)**
 - assisting 2 projects with 30 kWp each

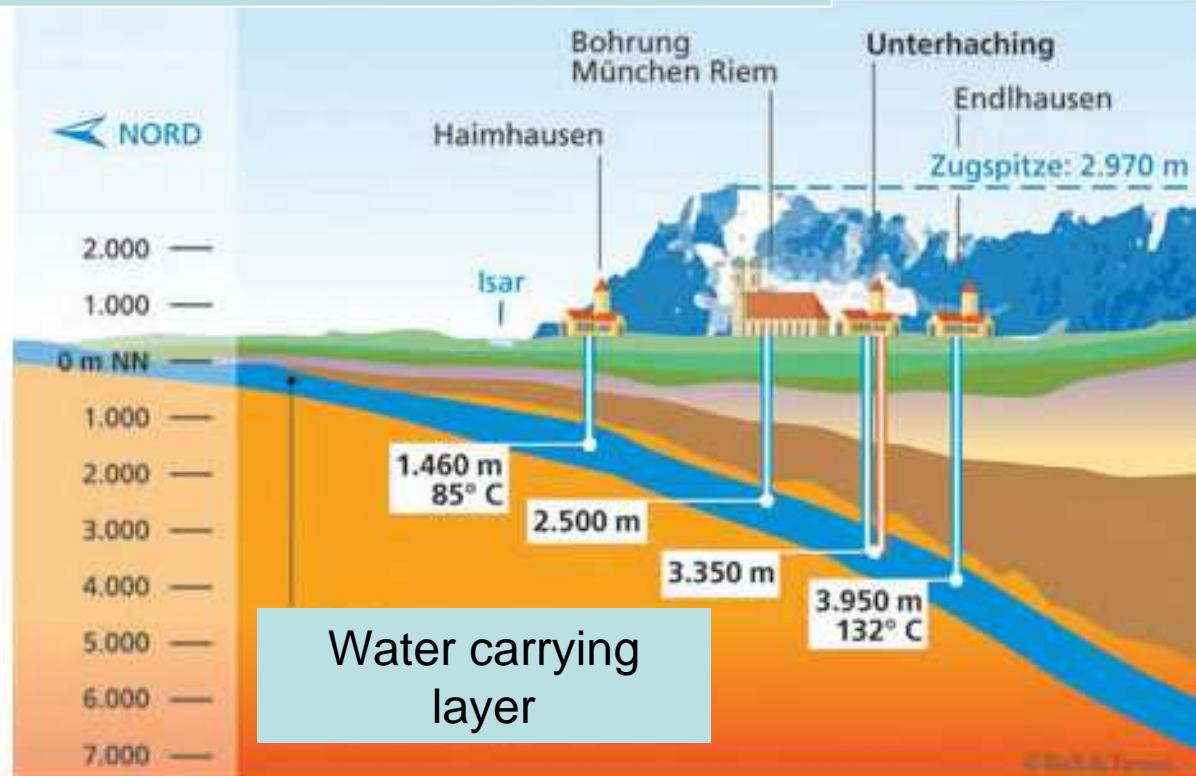


Tasks of the foundation / current projects:

Tiefengeothermie Geretsried (geothermal power plant)

- consulting the city of Geretsried, project carried out by ENEX (company from Iceland)

Geothermal north / south cut of region



Tasks of the foundation / current projects:

- **Bioenergiehof Oberland (bio energy retailing)**
 - shareholder in planned company retailing local energy products (pellets, wood chips, split logs)



What is “energy positive”

Why these developments in Germany

Local groups, their roots and aims

Local setting for “energy positive”

→ energy turnaround is feasible

**Think local,
think small !!!**

Thank You!!

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