EUSALP EU STRATEGY FOR THE ALPINE REGION

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Potentials and Barriers of Wind Energy

Case Study Lower Austria

Foto: Im Wind, Tauernwindpark

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80 million people, 7 countries, 48 regions, mountains and plains addressing together common challenges and opportunities

European Commission

Interreg Alpine Space AlpGov

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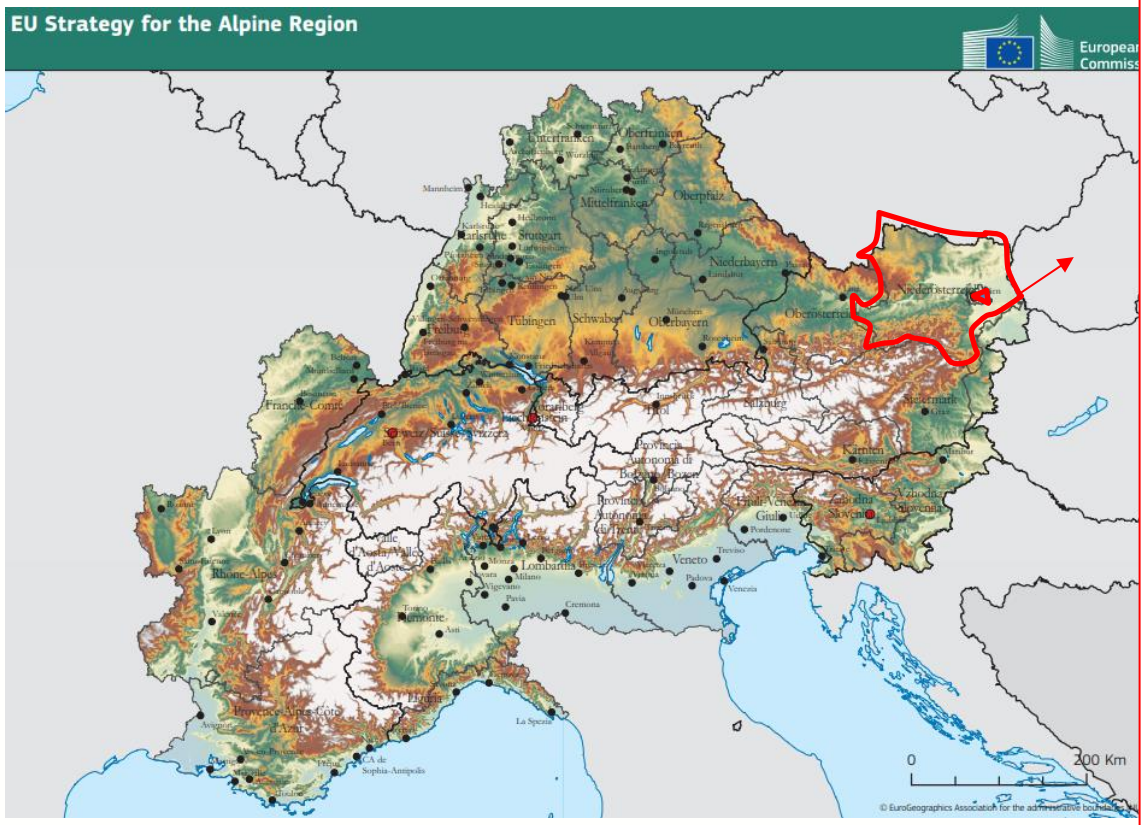
Figures Lower Austria



One of 9 federal regions of Austria

Area: 19.200 km2

Population: 1.66 mio.

573 municipalities
Capital: St.Pölten

GRP: 33,100 EUR p.capita

Highest elevation: Schneeberg (2,076 m)

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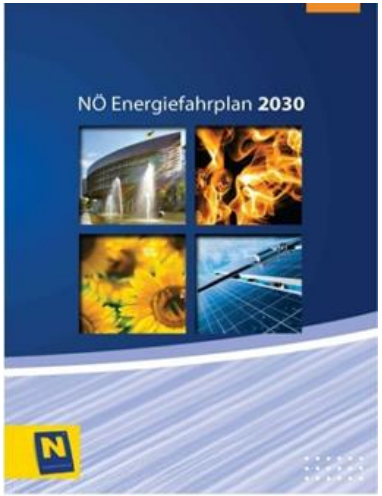
Energy and Climate Strategy – Lower Austria

✓ **100%** of renewable **electricity** until **2015**

7,000 GWh from wind power until 2030

2,000 GWh from PV until 2030



Energy Road Map

Climate and Energy Program
more than 200 measures

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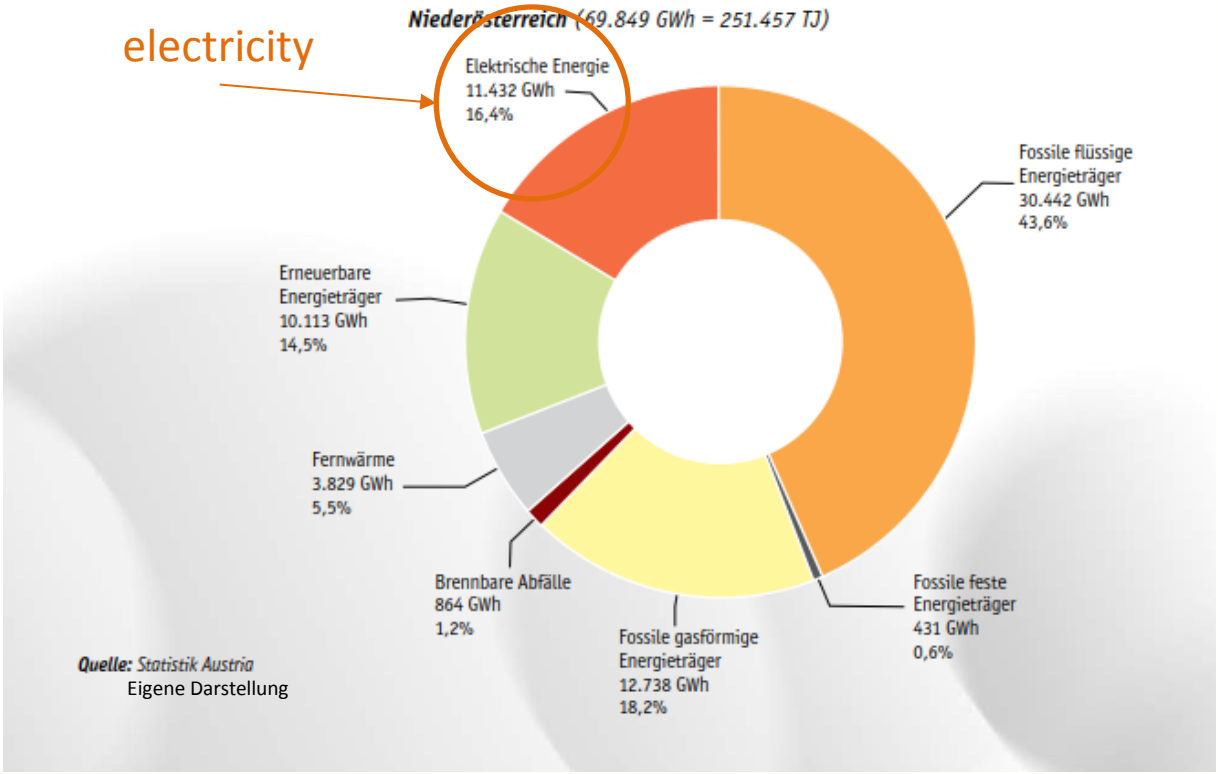
Lower Austria Final Energy Consumption 2016



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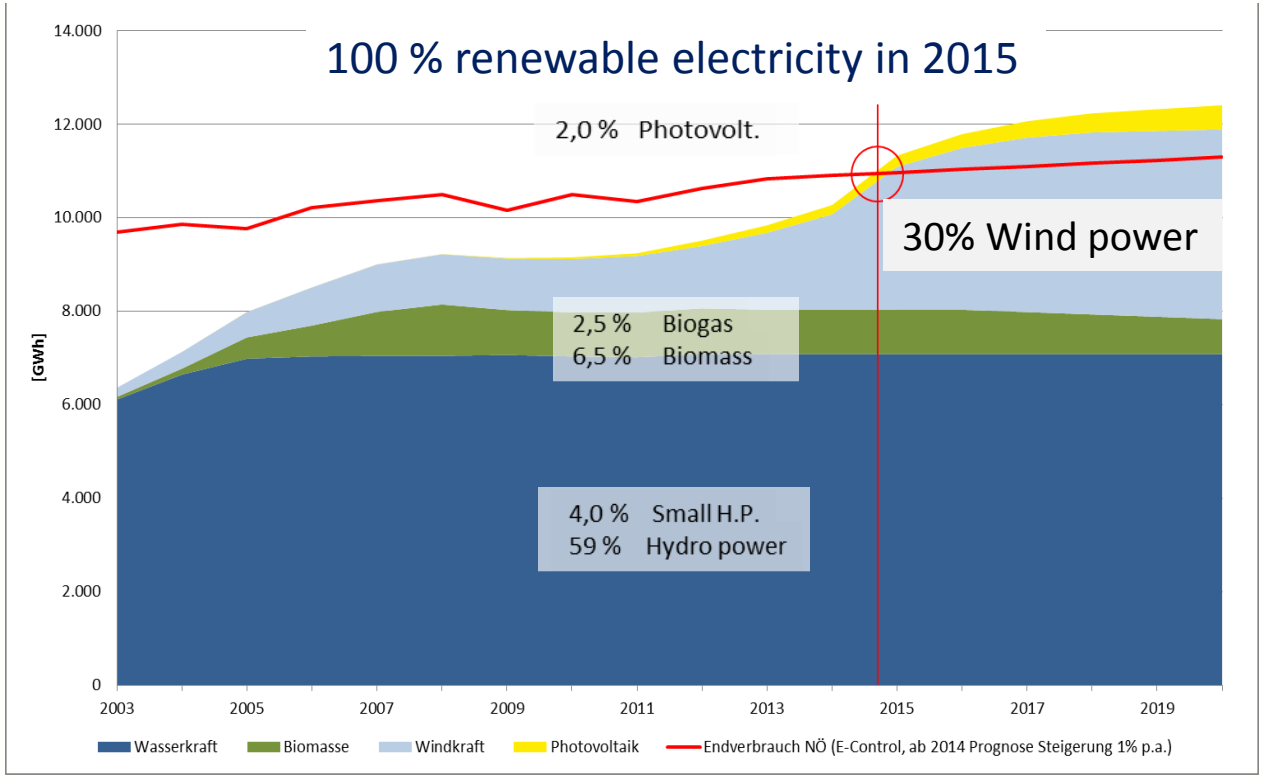
Lower Austria Electricity Roadmap



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Electricity from Renewable Energy Sources in Lower Austria

91 Biogas plants

222 GWh/a electricity production
100 GWh/a heat utilization

34.000 PV-plants

292 MW electrical output
292 GWh/ a

5 Danube hydropower plants
500 small hydropower plants

More than 60% of electricity demand

693 Wind turbines

1,535 MW
3,300 GWh/a
30% of electricity demand

620 Local biomass heating plants
25 biomass cogeneration plants

2,170 GWh/a (heat)
727 GWh/a (electricity)

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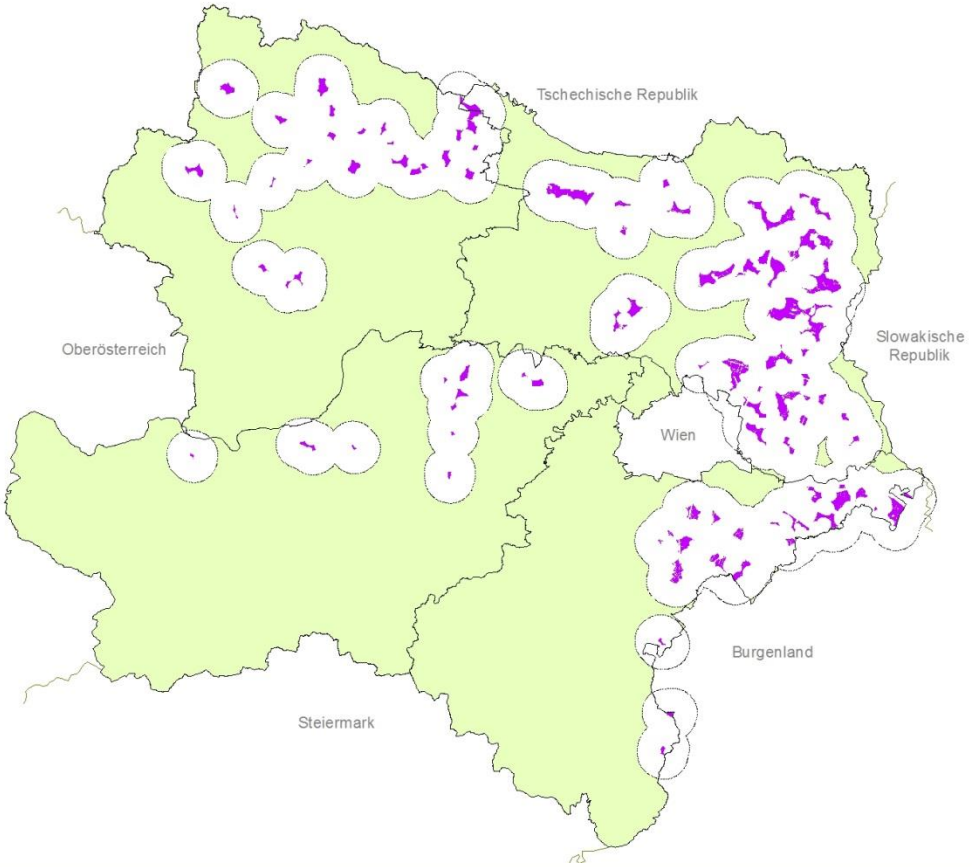
Regional Development of Wind Power in Lower Austria

Lower Austria developed a zoning plan for wind power to ensure:

- Enough distance to residential areas
- Nature protection
- Protection of landscape
- Tourisms
- Protection of the alpine space
- Connection to grid infrastructure
- Extension of existing wind parks

Identified Areas of Wind Farms

- **72 wind areas** (minimum size 40 hectares)
- **28,490 hectares total size**
- **1.5% of the total area of Lower Austria**



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The Strong Figures of Wind Power in Lower Austria

- **693 wind turbines** (2017)
- **1,535 megawatts total output**

- **Coverage 30% of the electricity consumption**
- **Energy for 940,000 households**

- **Reduction of 2 million tonnes of CO2**
- **Employment for 2,000 people**

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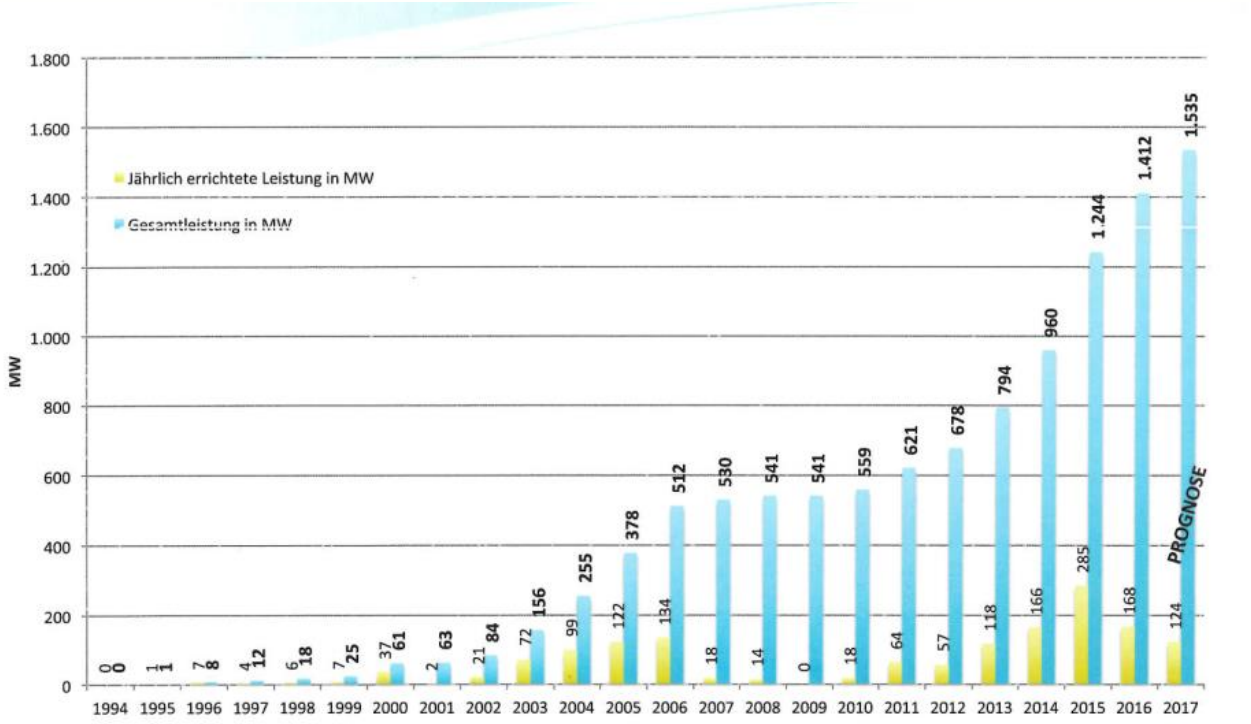
Development Wind Power in Lower Austria (MW)



Quelle: IG Windkraft, Dezember 2016

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The Strong Figures of Wind Power in Lower Austria

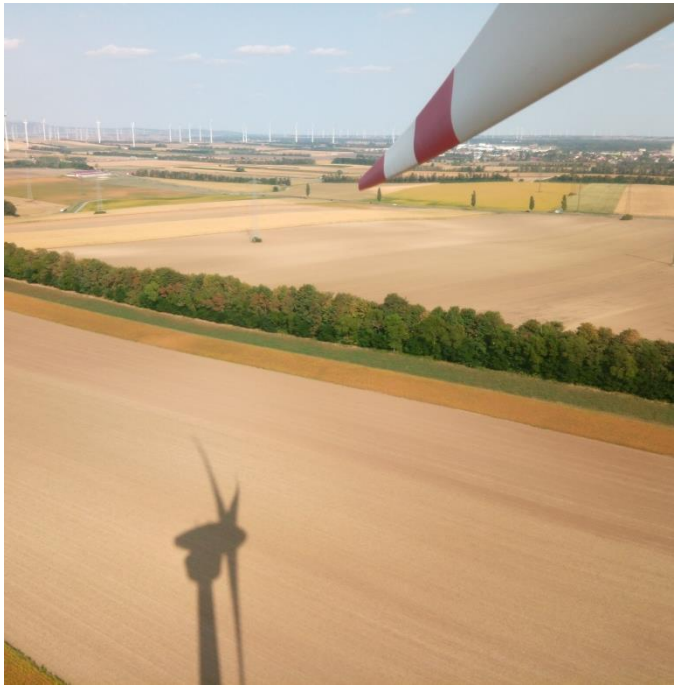
(Source: IG Windkraft, own calculations)

- **Employment**
  - 2,000 (approx. 2 per wind turbine)
- **Investment**
  - Over last 5 Years more than 1.2 billion EUR
  - Approx. 1.5 Mio EUR per MW
- **Added value**
  - Approx. 30% of investment costs
  - 78 Mio EUR per year due to operation (approx. 50,000 EUR per MW)

Barriers and challenges

- Impacts
  - Bird and bat protection
  - Overall appearance of landscape
  - Noise, shadow, ice

- Economically to operate
- Fluctuating power generation



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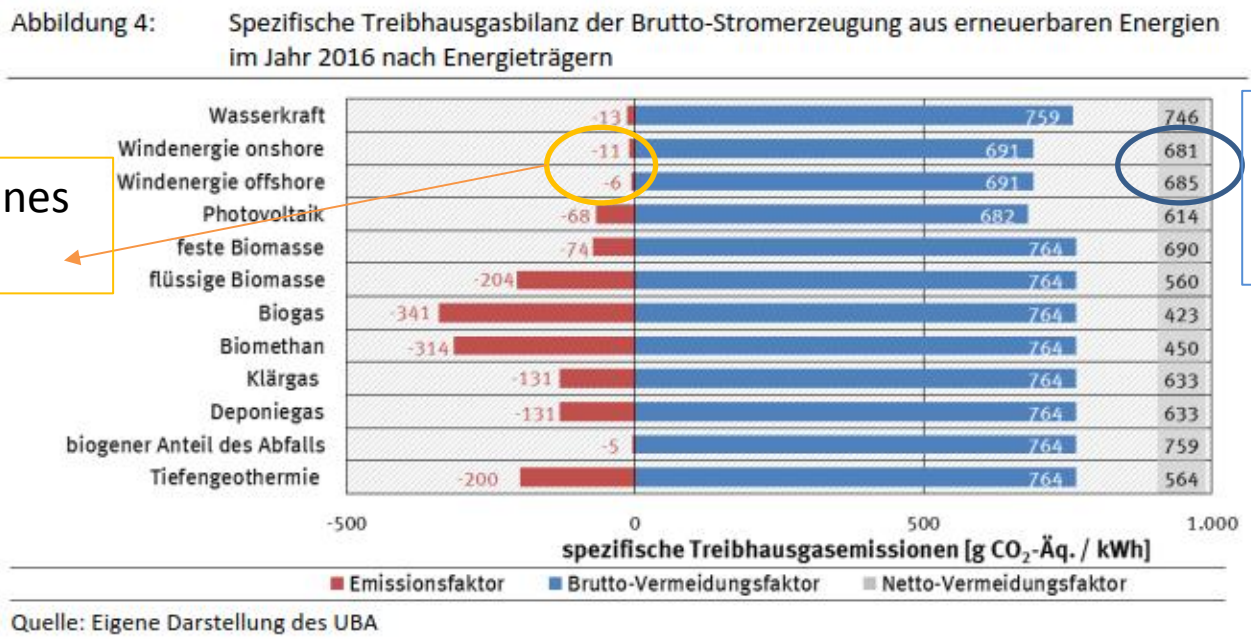
- **Minimize impacts: approval**
  - Local authority (local spatial planning)
  - Regional authorities (electricity legislation; nature protection or environmental impact assessment from 20 MW on)

- **Funding scheme (Ökostromgesetz)**
  - Feed in tariffs; 13 years
  - 8,2 cent / kWh
  - Obligation to contract

CO2 Emission Reduction



wind turbines emissions

g CO2 equ. /kWh savings compare to fossil fuel mix

(Source: Climate Change 23/2017; Emissionsbilanz erneuerbarer Energieträger; Umweltbundesamt; Dessau, 2017)

Citizen Participation

60% of the wind turbines are privately owned

More than 10,000 people in Lower Austria invested in wind energy

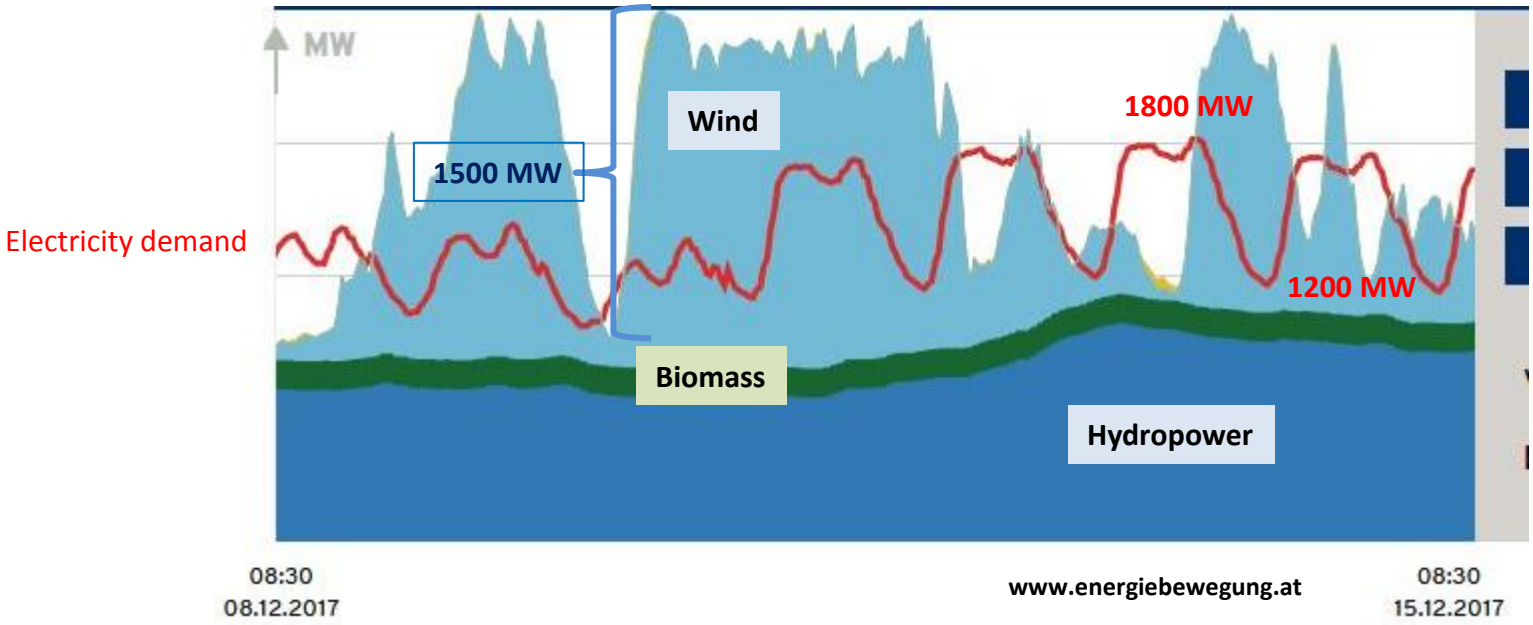
Survey acceptance wind power:

Agreement:	in Lower Austria	87%
	in Austria	77%

Renewable electricity supply and demand

Wind energy has a fluctuating generation;

a combination with hydro storage in Alpine regions may be useful



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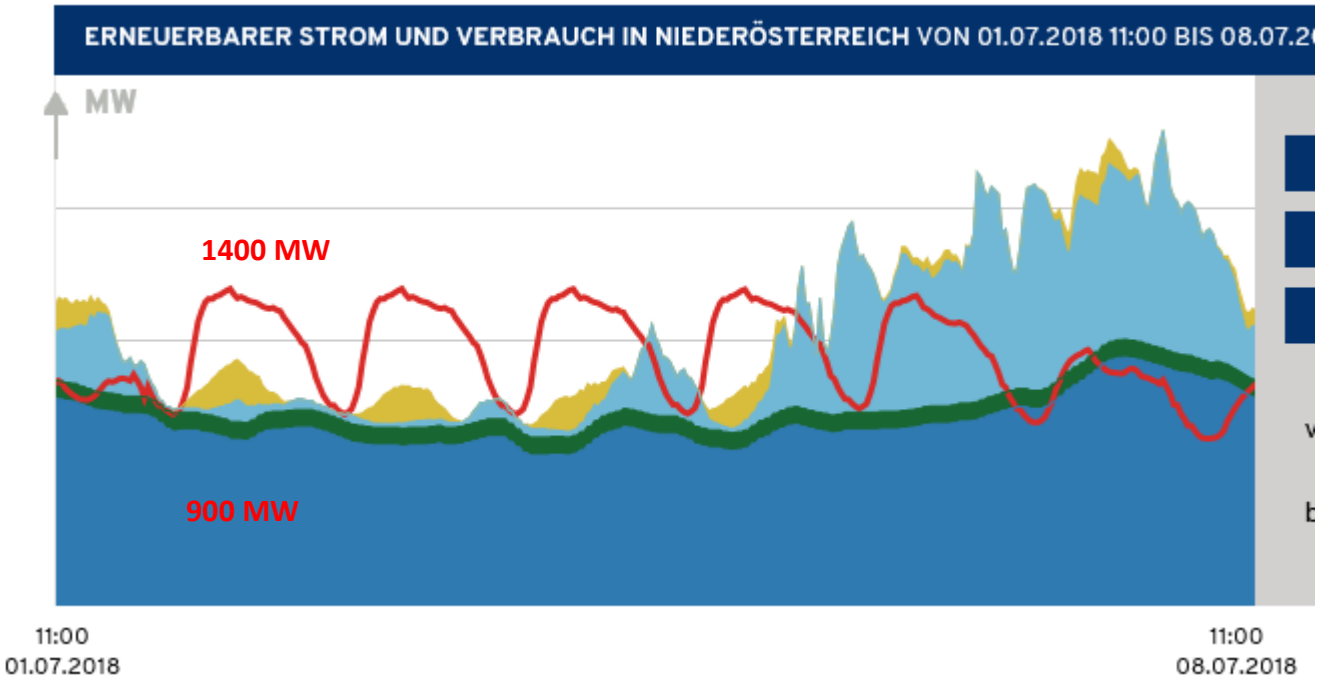
Renewable electricity supply and demand



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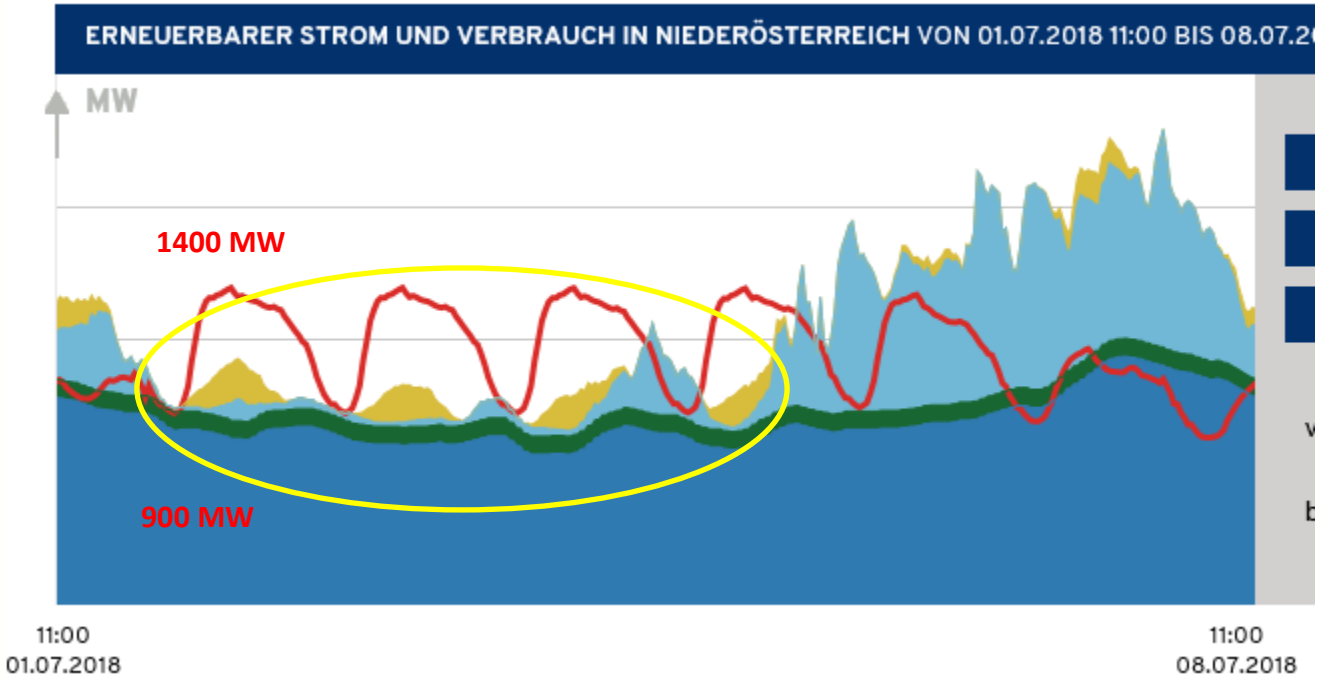
Renewable electricity supply and demand

Wind and PV to add



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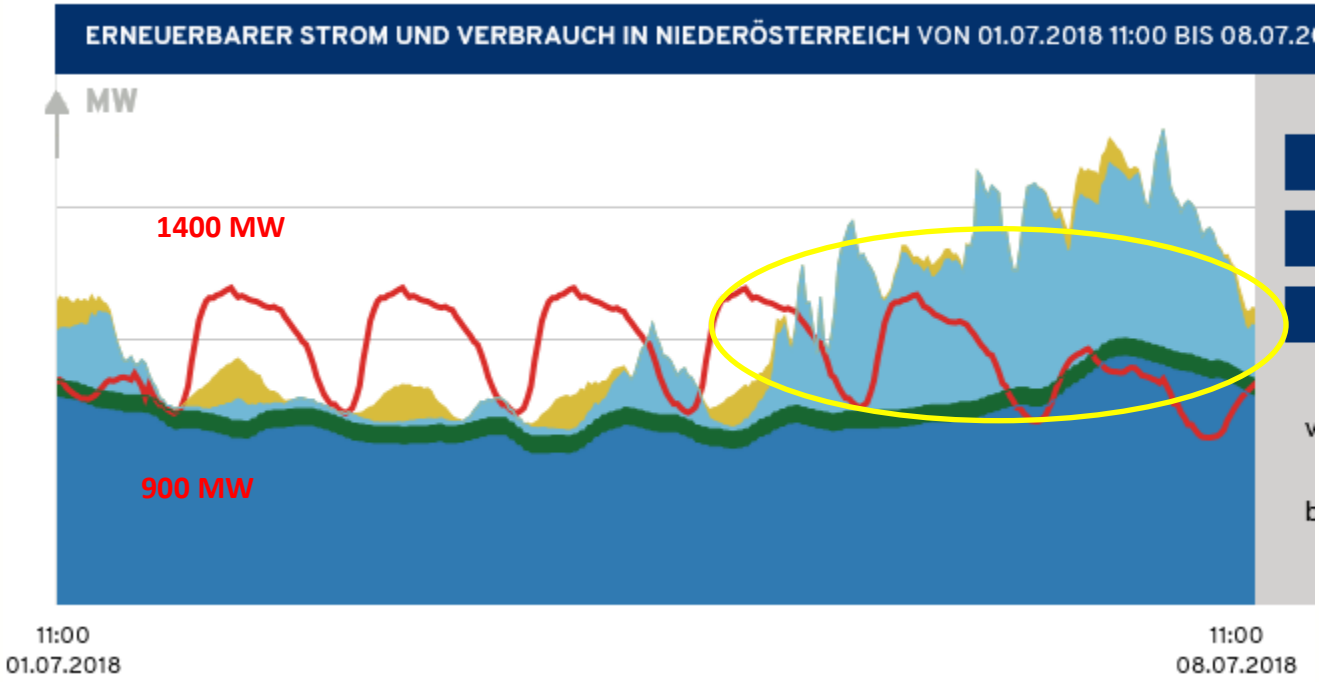
Renewable Electricity Supply and Demand

power to gas may be recommendable or



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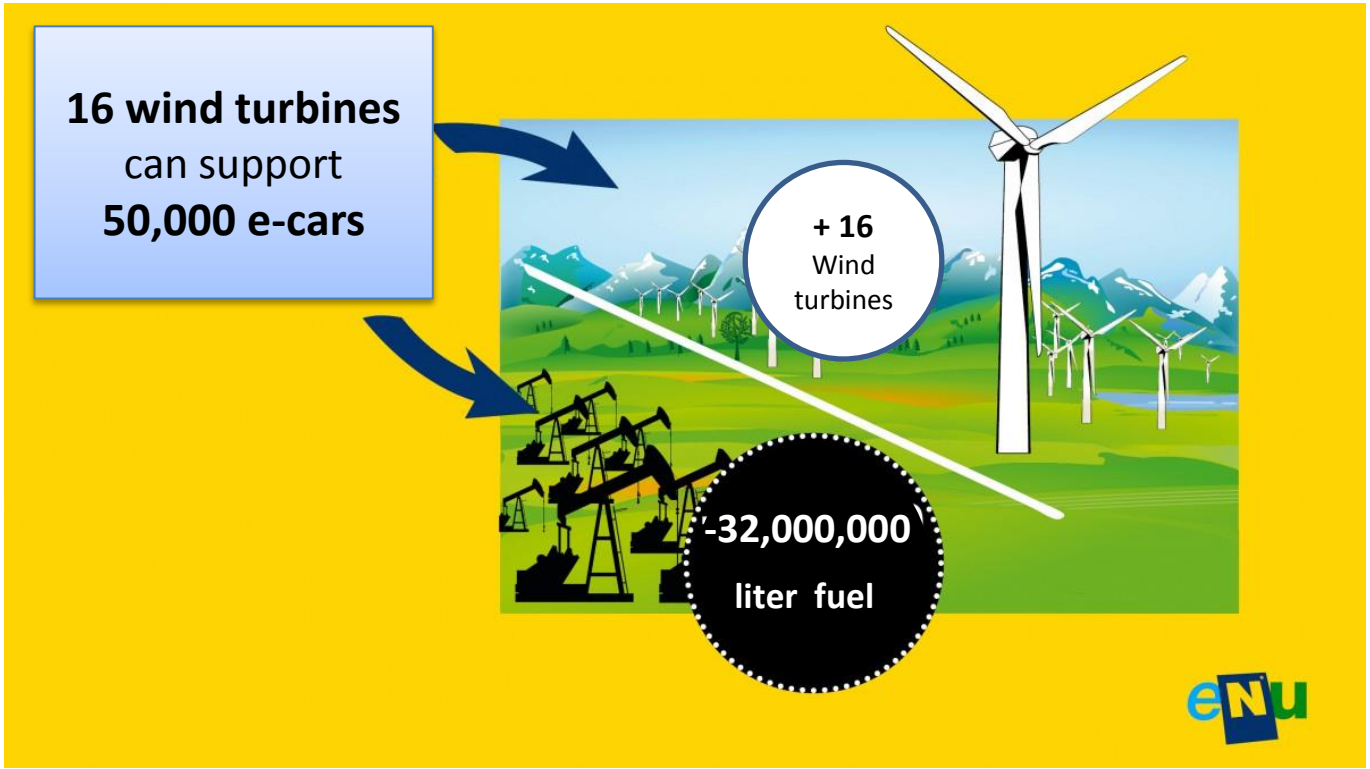
Power to E-Mobility



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Recommendations for EUSALP

Successful implementation is depending on:

- Subsidy scheme
- Awareness rising; spatial planning on regional level
- Participation of the local community and municipalities

Recommendations for EUSALP

The use of wind power is also possible in the Alps!

Wind power can be operated economically

Wind power has a low environmental impact

Due to availability, costs and technology one of the most promising renewables

Without renewables no decarbonisation

Foto: Im Wind, Tauernwindpark

Thank you for your attention!

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