

**Making '100% Renewable' acceptable –
Lessons from the Lake Constance-Alpine Rhine Energy Region**

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President, EUROSOLAR
General Chairman, World Council for Renewable Energy



Alpine Rhine Valley 1833
Blick auf Vaduz 1833, Johann Jakob Schmidt, Sammlung des Fürsten von und zu Liechtenstein, Vaduz/Wien



Fossil Region Alpenrheintal 2013
the demand side of energetic inefficiency



The supply side of urban energetic inefficiency:
Fossil and nuclear reactors waste energy and water



Water pollution and waste in fossil fuel mining, processing, transportation

- Coal mining
- Oil production
- Petroleum refining
- Tanker accidents
- Pipeline spills
- Natural gas supply
- Nuclear fuel cycle



Fossil fuel combustion – over 80% of final energy demand
Renewable: 16.7%. Nuclear: 2.7% (REN21 2011 Global Status Report)



Petroleum: 95% of global transport energy
90% of industrial production - including food

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Fossil fuel air pollution:
annual health costs in Europe: 100 billion Euro

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Dependency on non-renewable resources:
massive and mounting military risks and costs

Burning oil fields of Kuwait in 1990-91 Iran-Iraq war

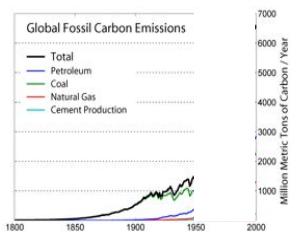
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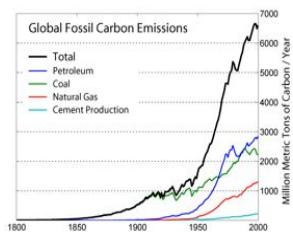
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Global fossil carbon emissions, 1800-1950
Quelle: Scipps, ORNL und IPCC.

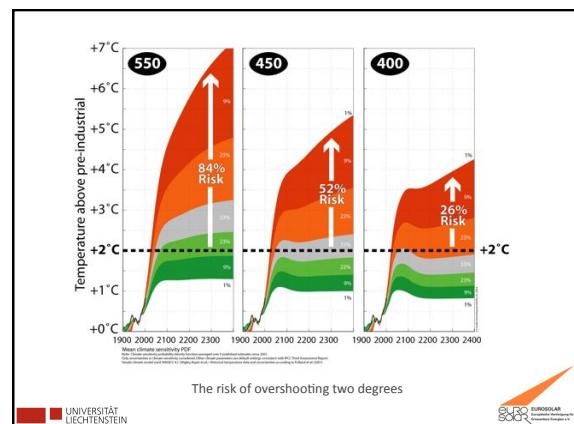
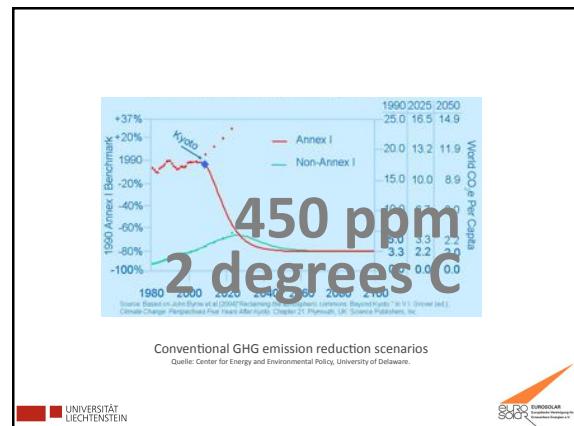
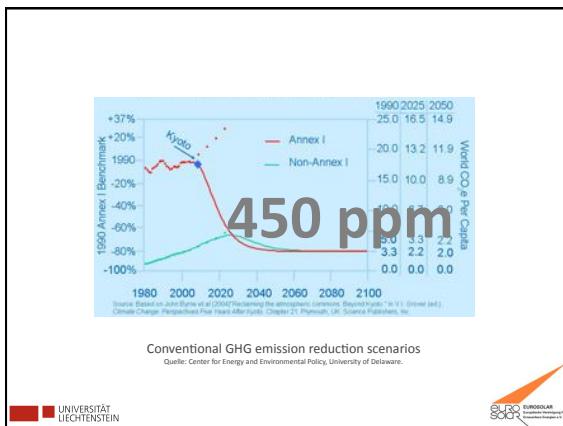
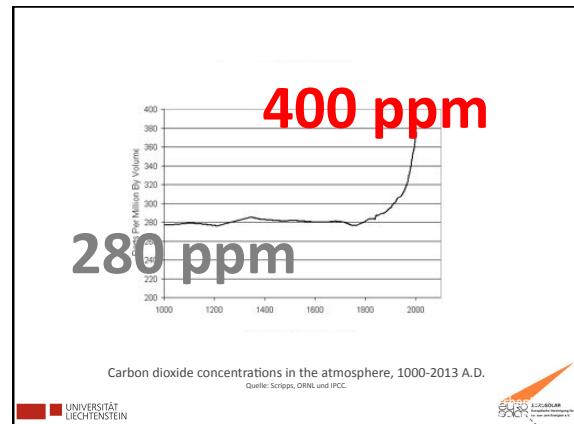
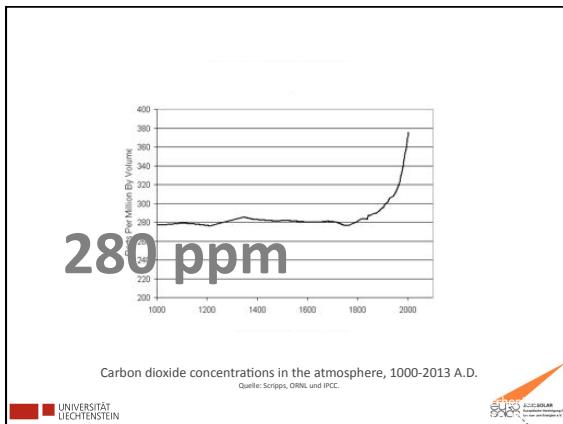
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Global fossil carbon emissions, 1800-2000
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**Drainage and denuding of
East Asian rain forest moors:**
ignored climate killer







**Drainage and denuding of
East Asian rain forest moors:**
ignored climate killer

- Moor drainage releases each year 630 million tons CO₂e into the atmosphere







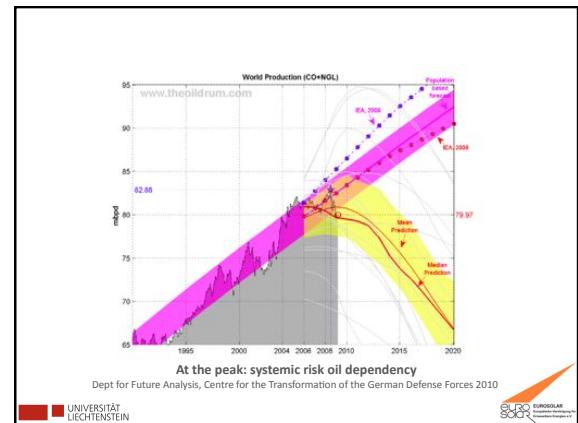
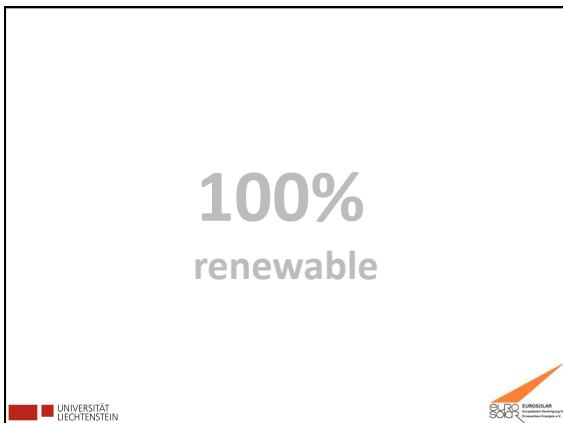
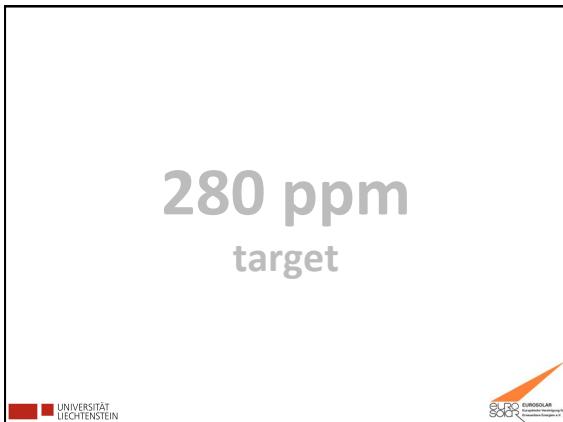
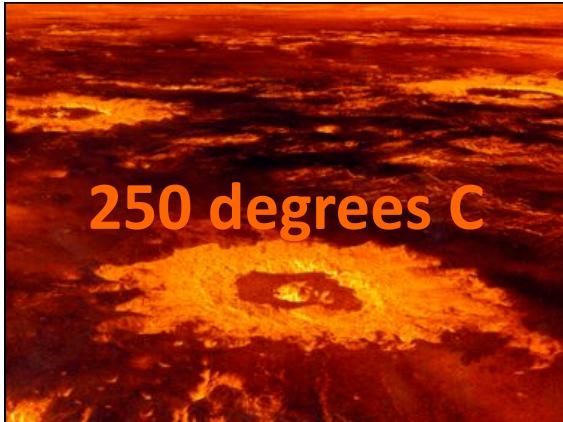
**Drainage and denuding of
East Asian rain forest moors:**
ignored climate killer

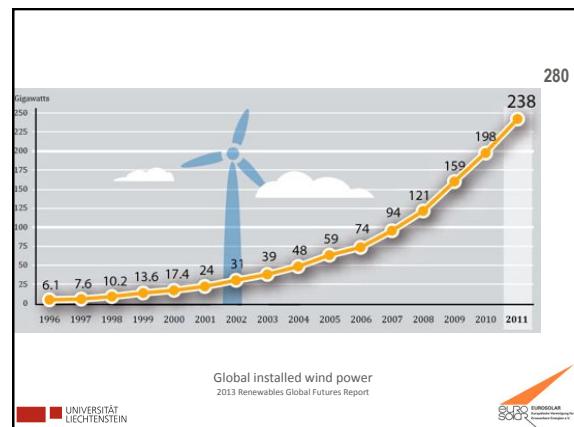
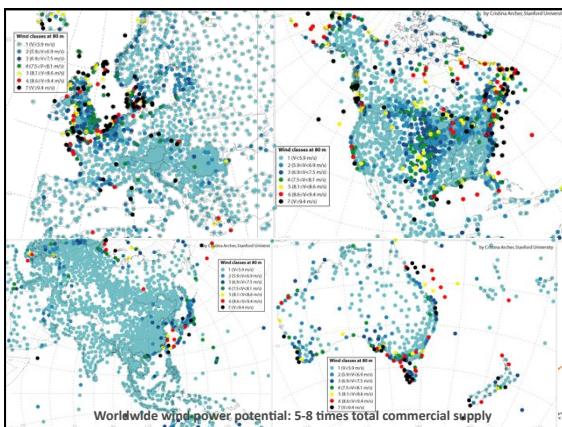
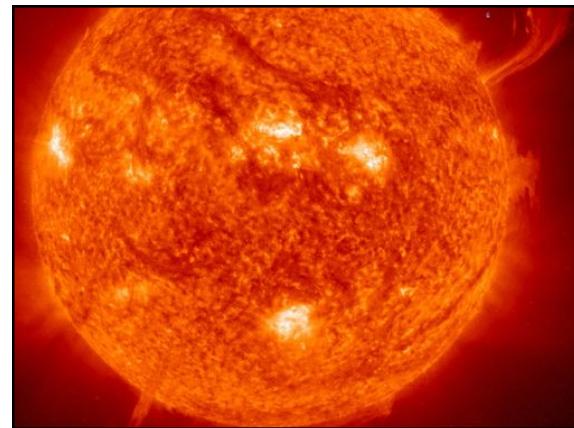
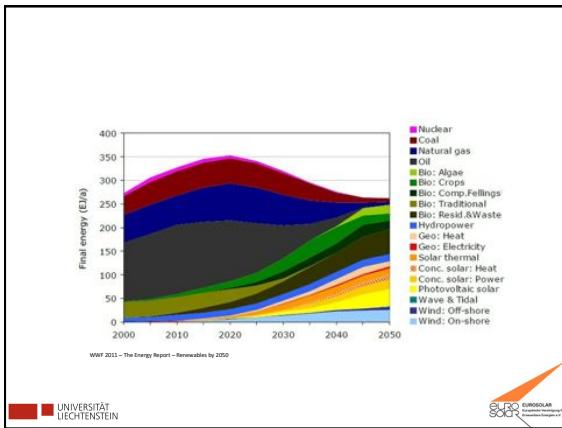
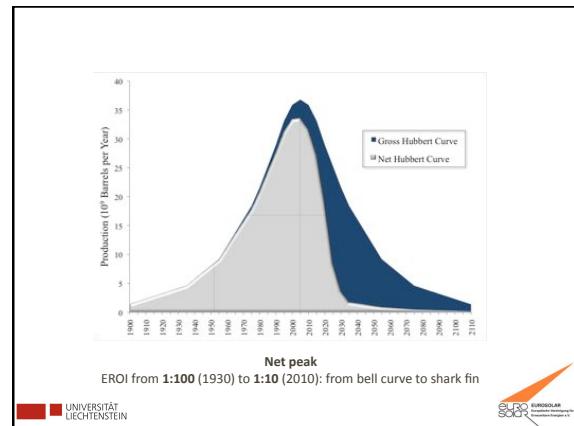
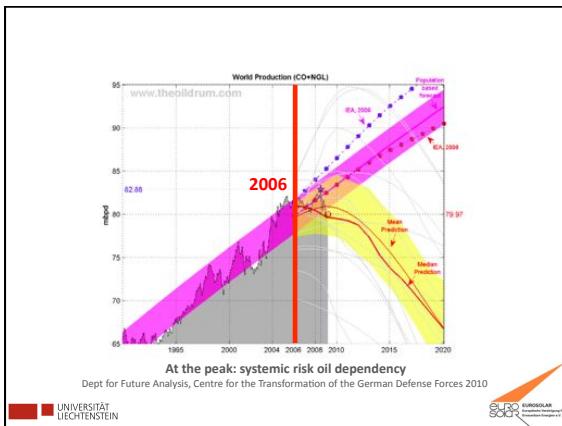
- Moor drainage releases each year 630 million tons CO₂e into the atmosphere
- This equals the savings aimed at in the entire Kyoto Protocol

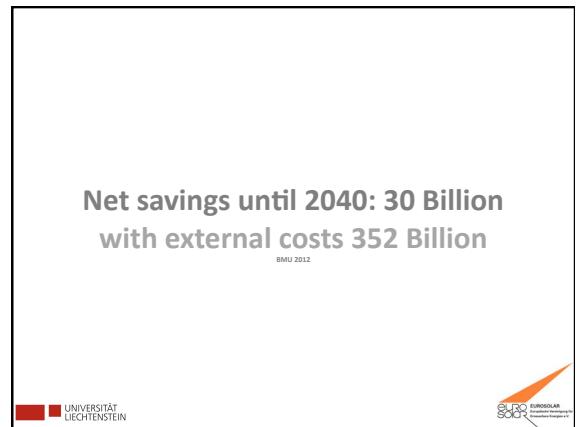
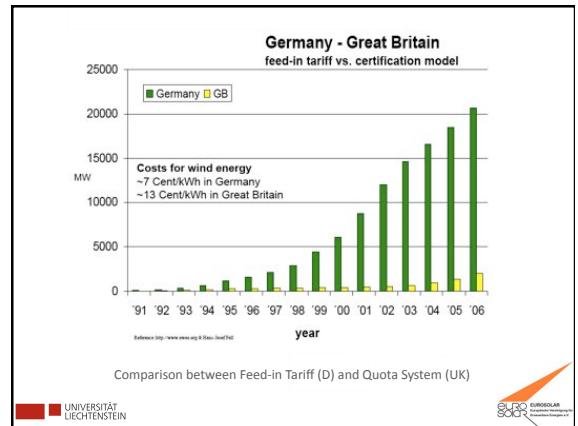
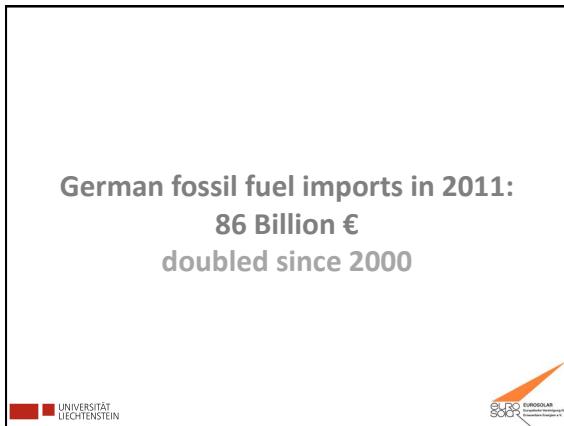
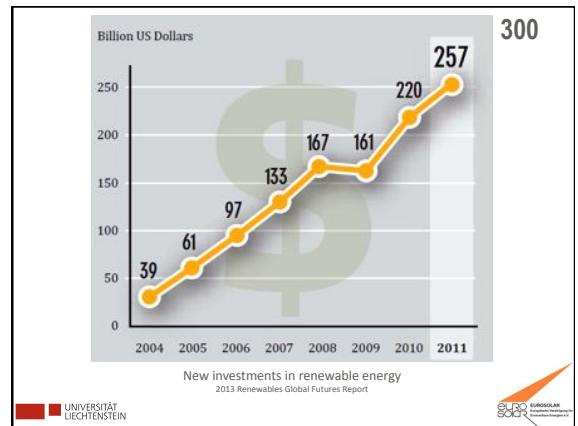
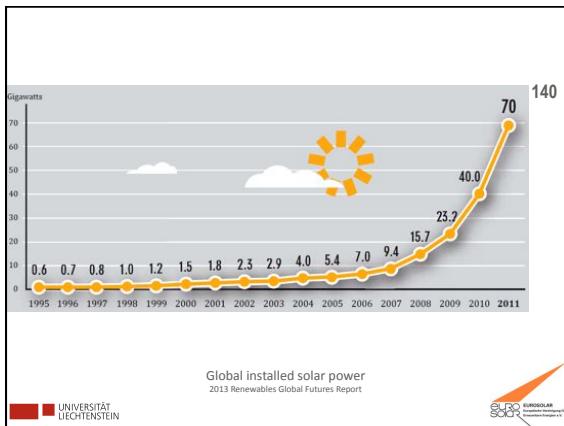


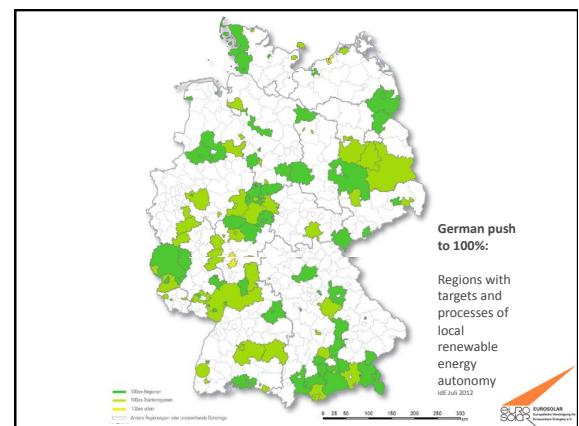
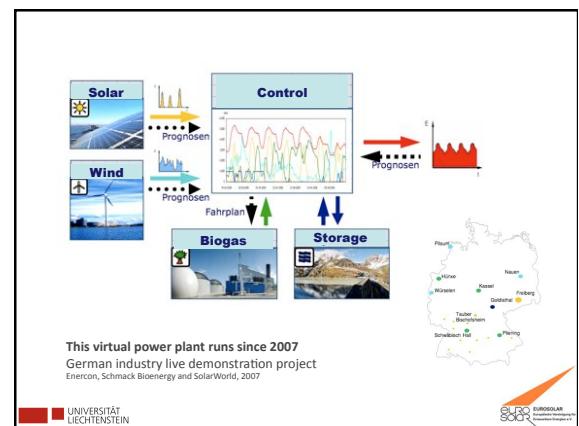
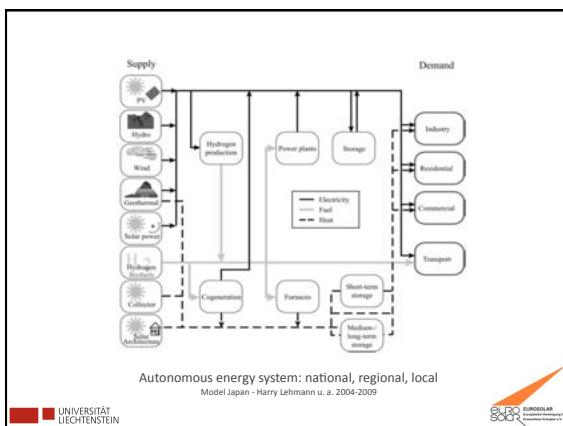
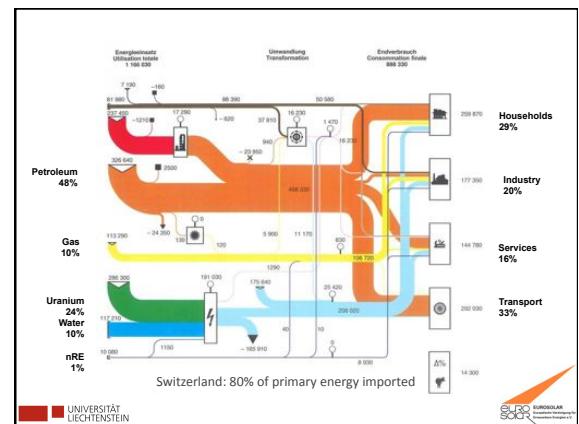
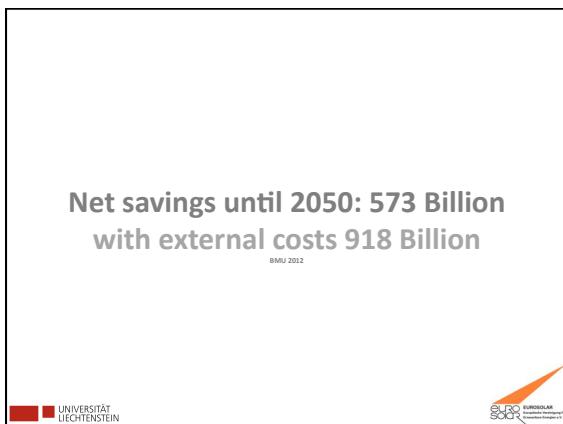


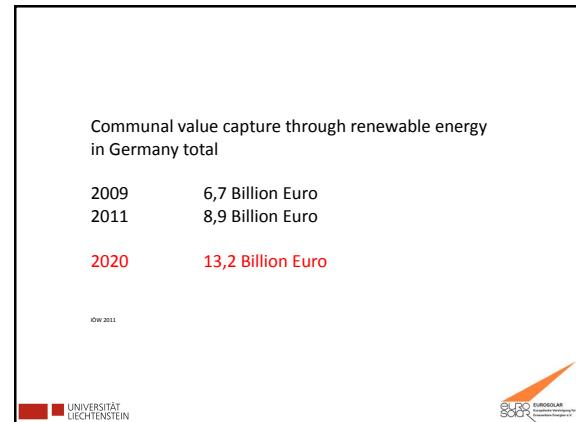
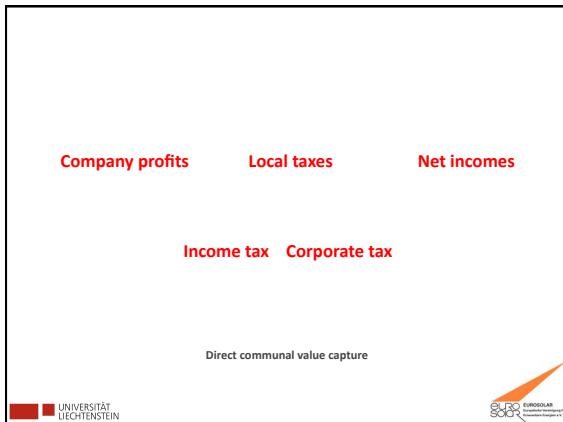
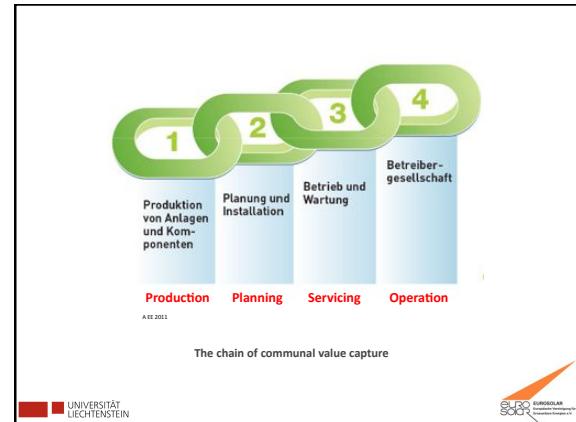


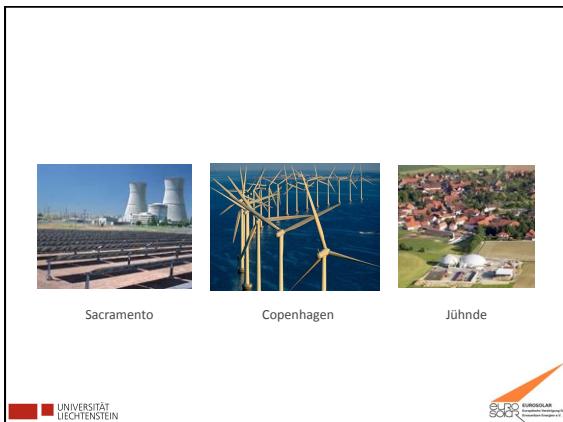












from
energy consumer
to
energy provider

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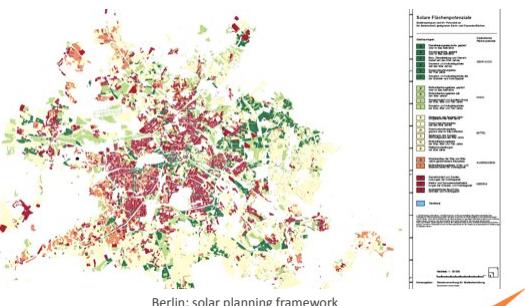
Germany's renewable capital precinct



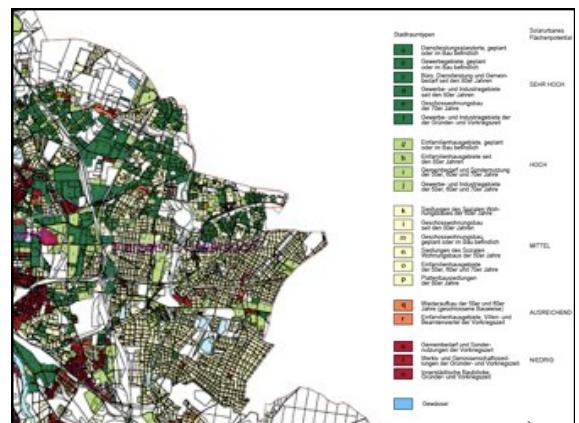
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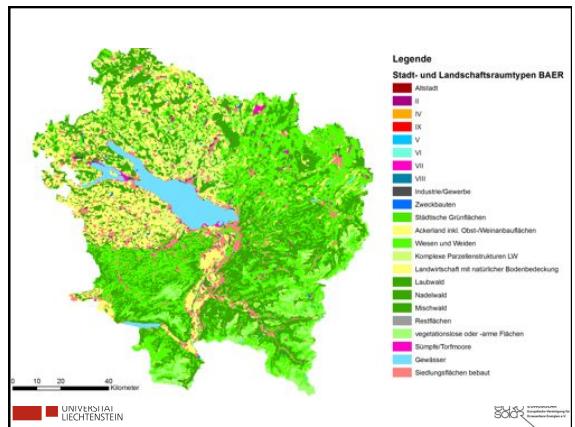
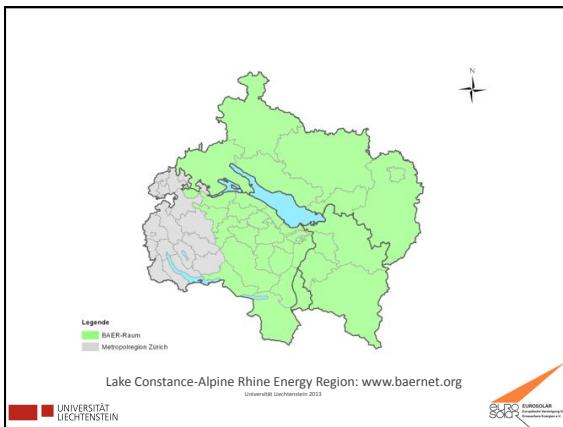
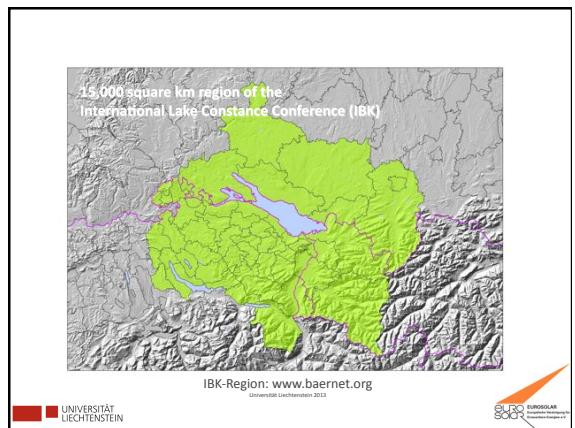
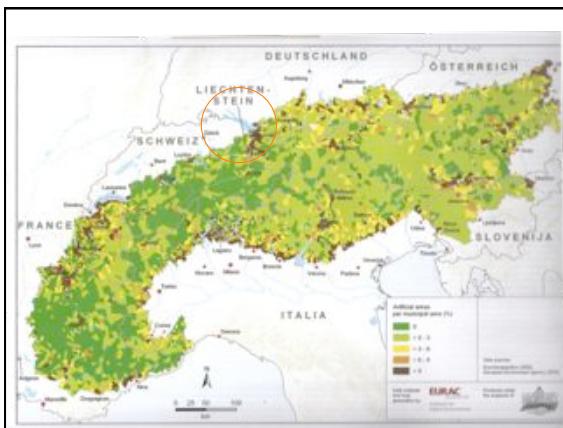
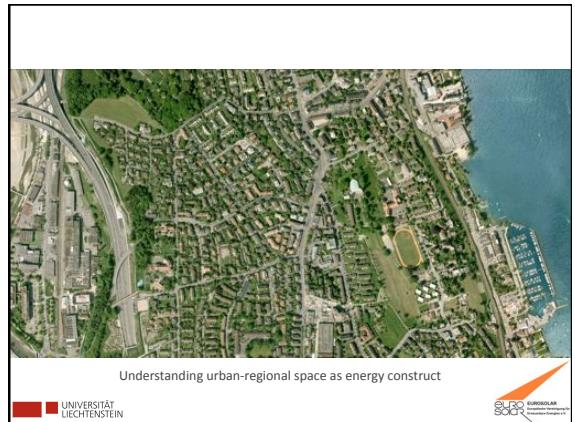
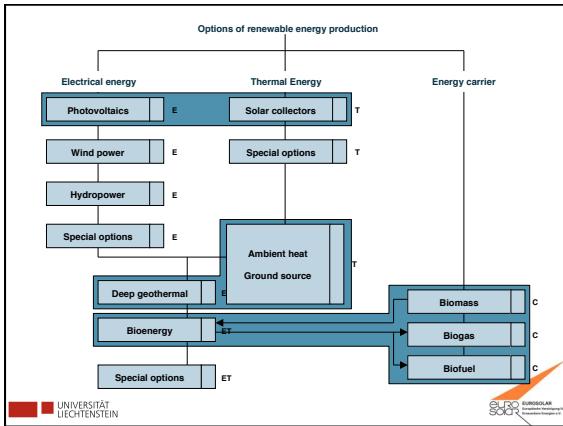


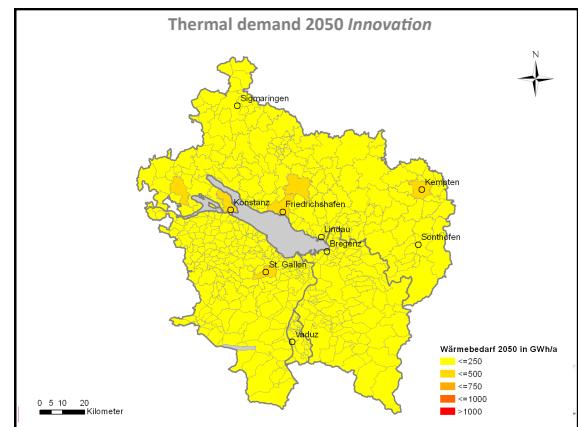
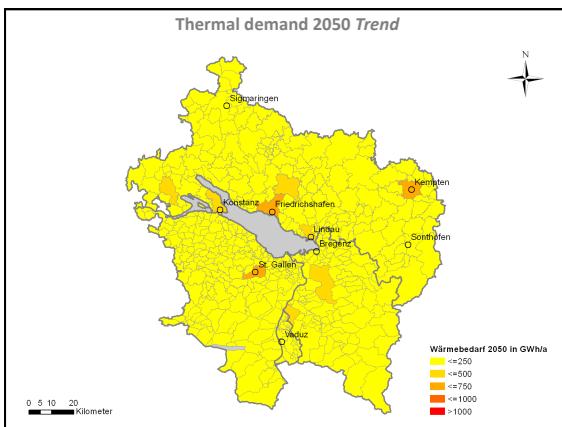
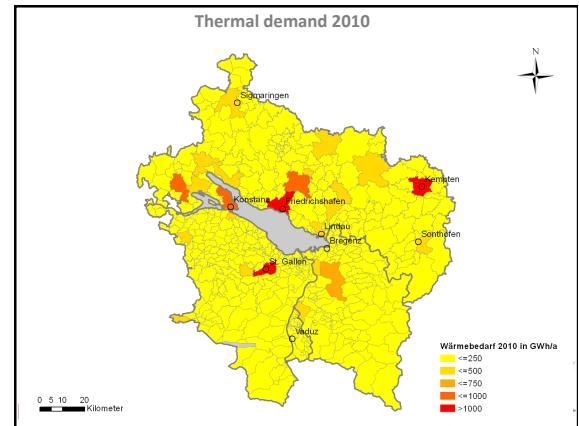
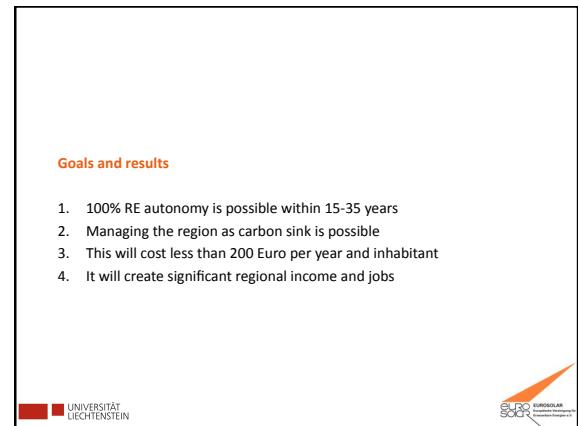
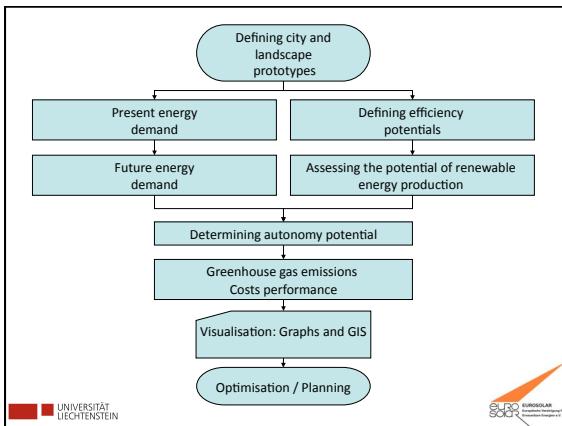
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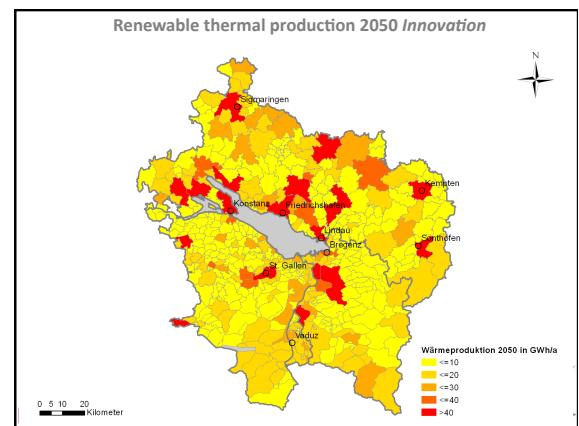
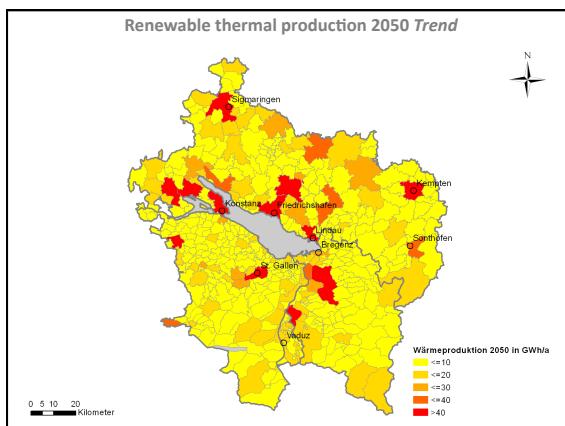
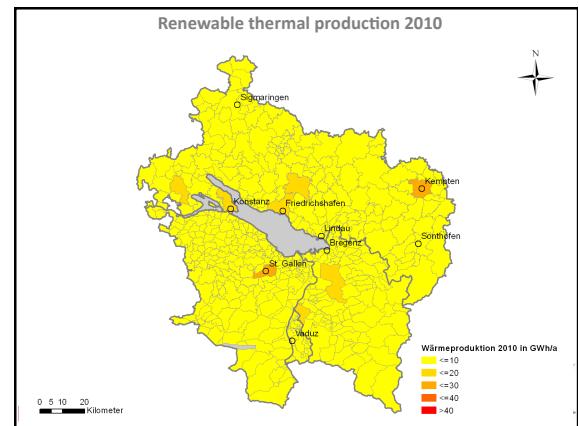
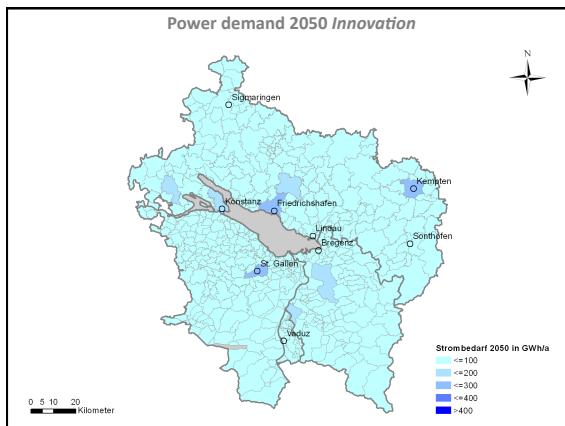
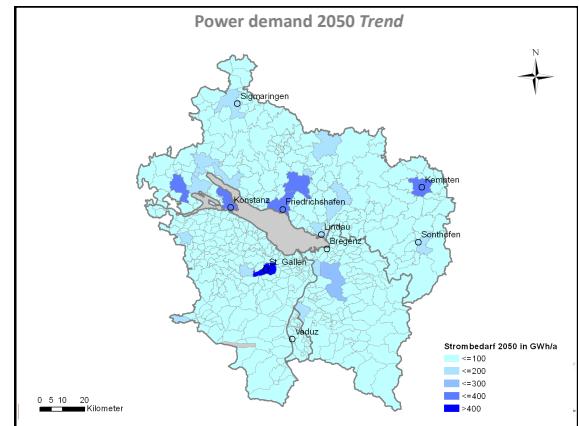
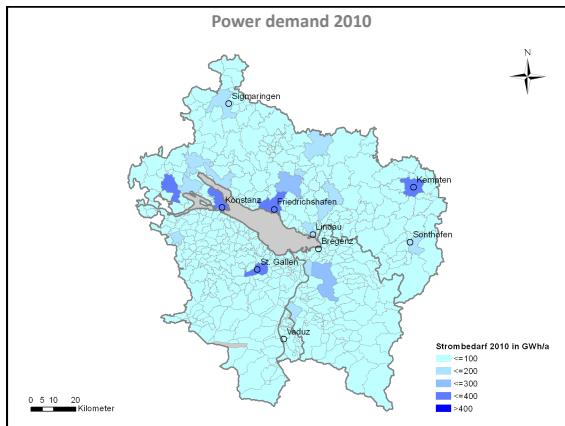


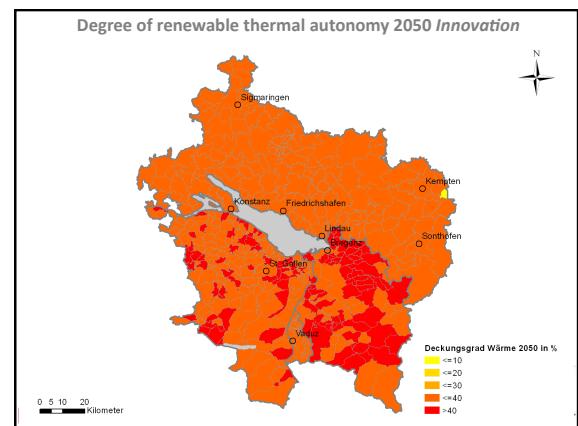
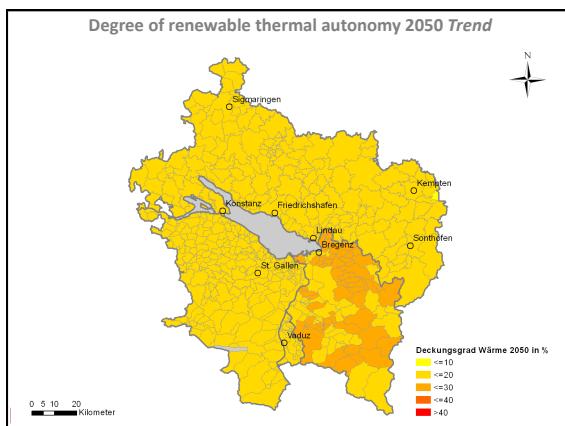
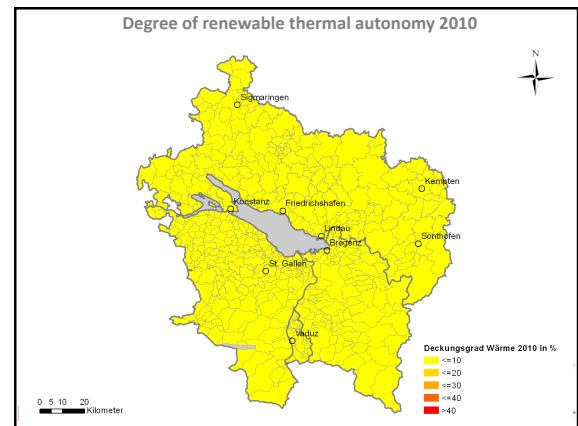
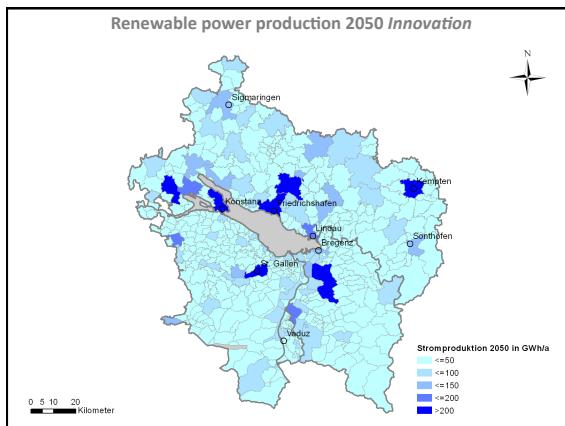
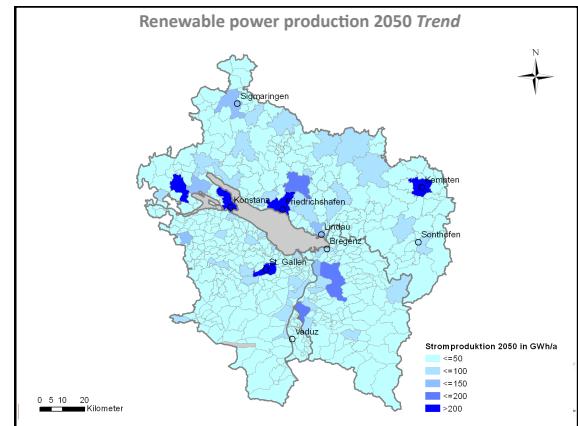
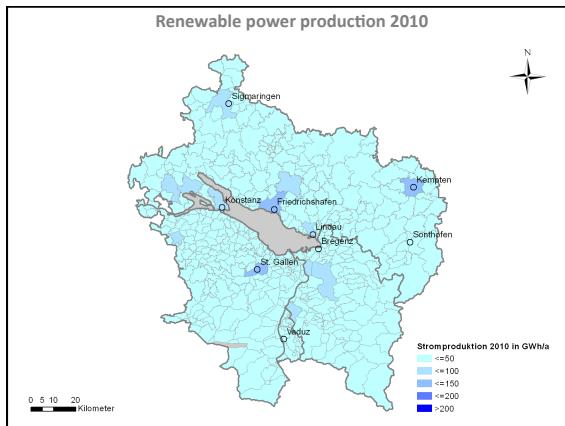
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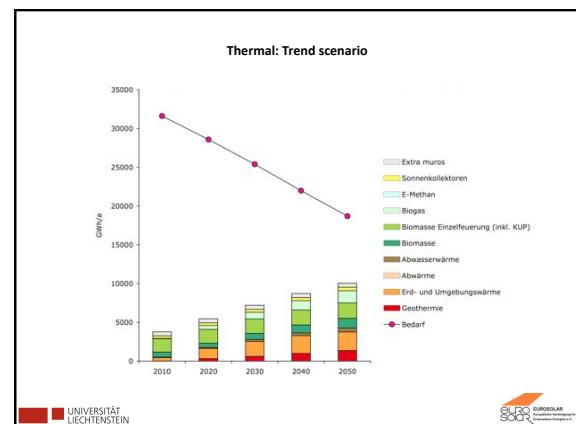
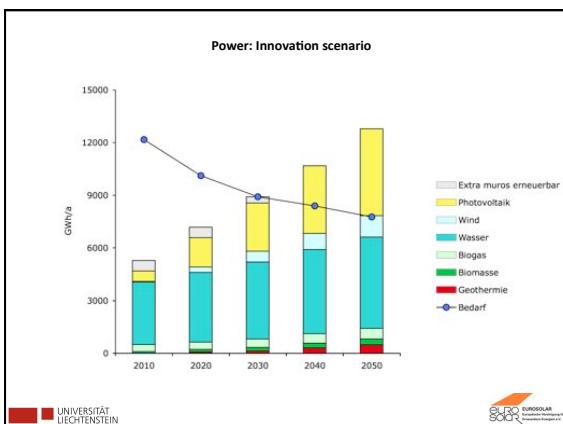
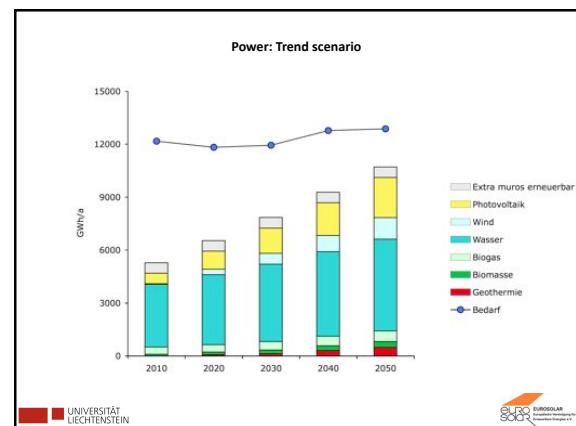
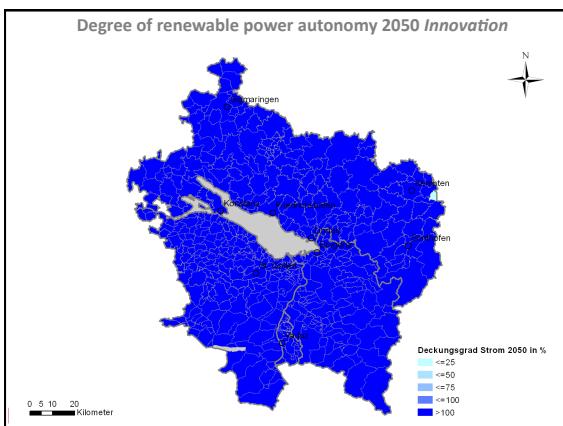
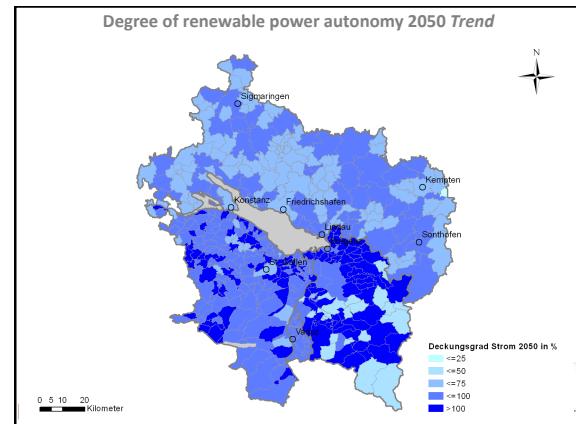
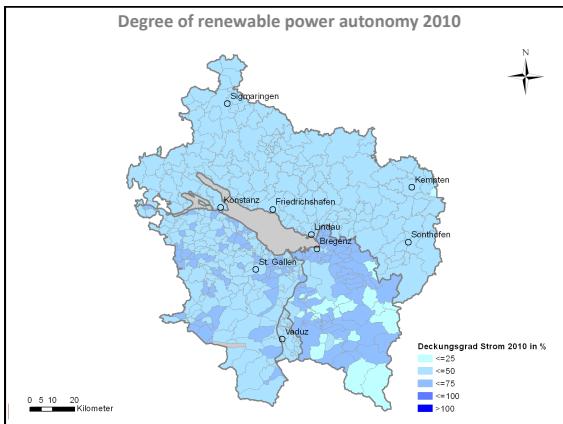


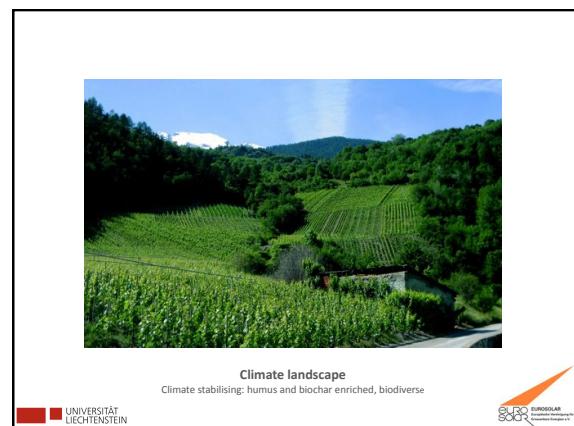
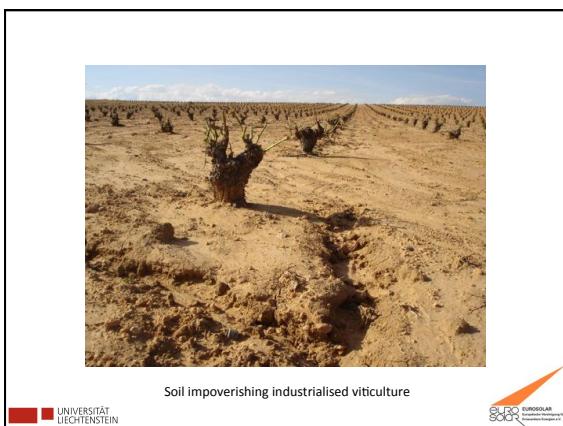
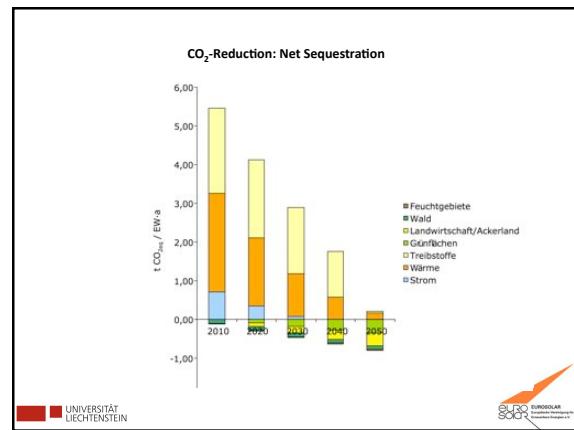
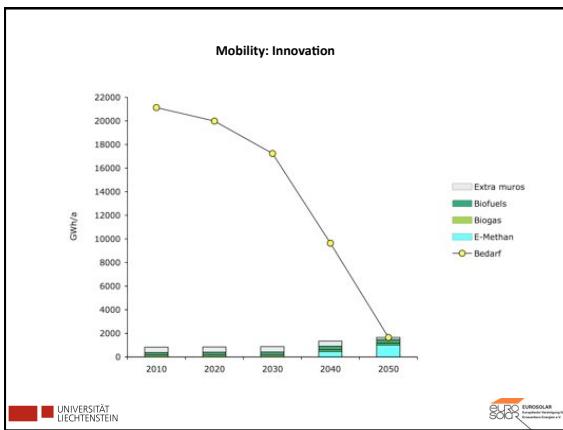
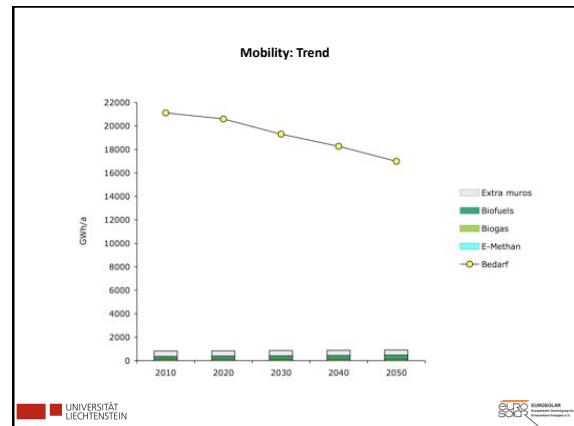
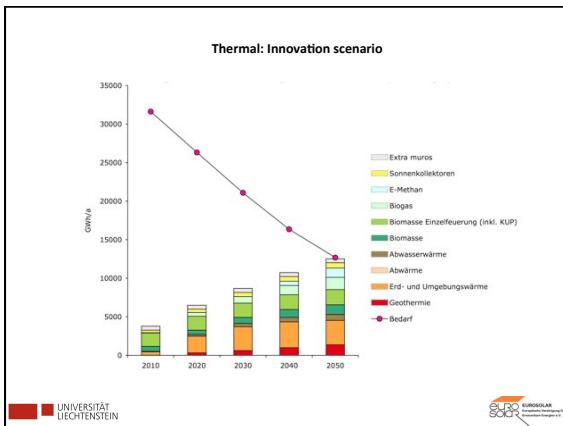


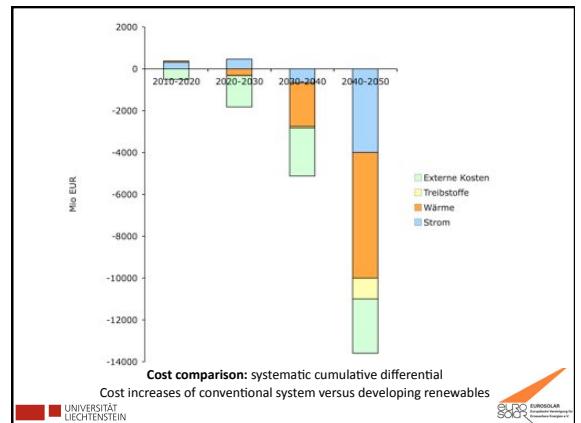
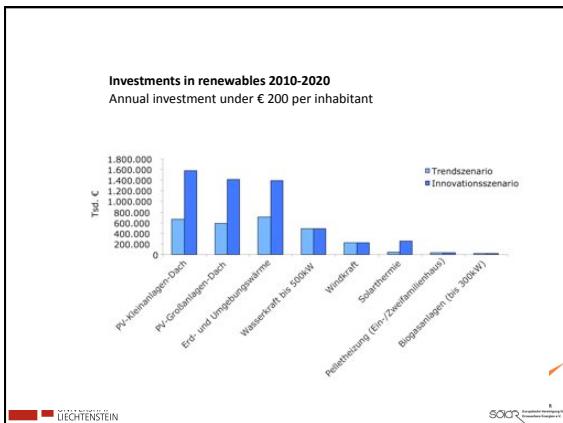
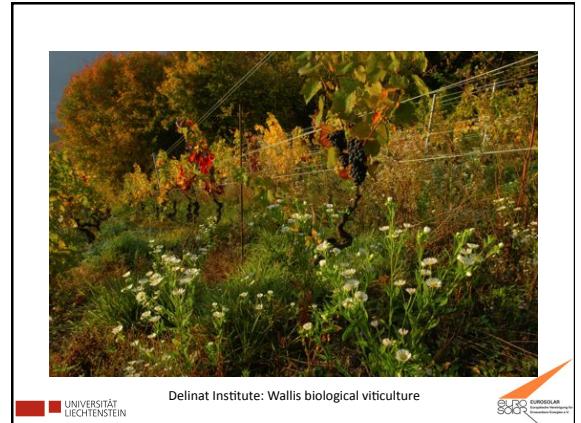
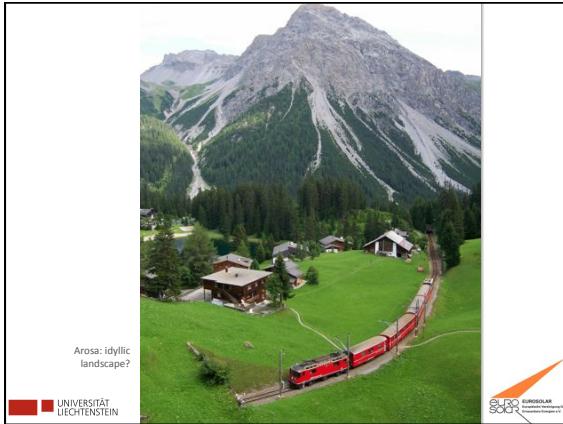


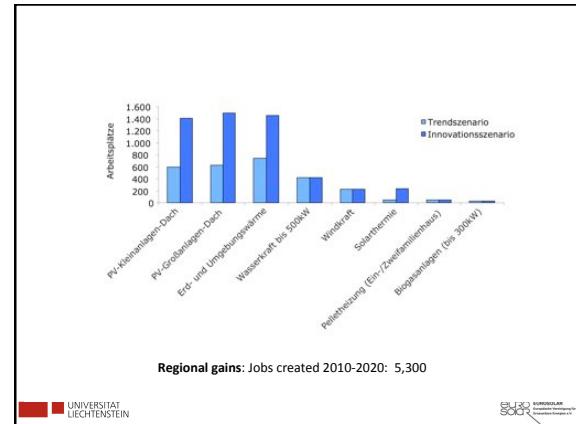
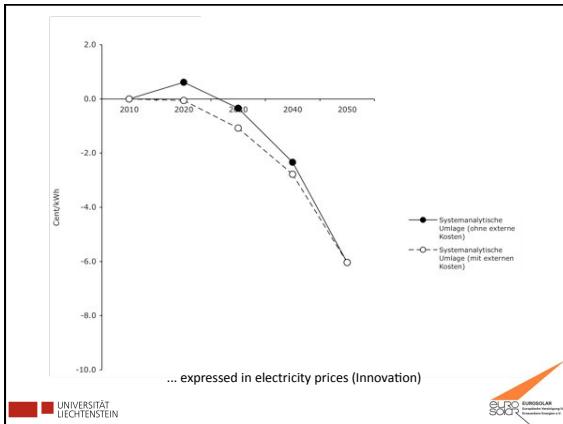












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