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Migrating Germany’s third largest energy company

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Migrating Germany’s third largest energy company

Content

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› Starting points

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› Tools & strategies

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Who is the EnBW AG?

› Key markets and regions

1 EnAlpin = EnAlpin AG
ED = Energiedienst AG
KRS = Kraftwerk Ryburg-Schwörstadt AG
EVN = Energieversorgung Niederösterreich Aktiengesellschaft

Key markets/regions

› remain strong position in Baden-Württemberg*

› Increase of market shares in Germany* e.g. in regions with existing shareholdings such as Düsseldorf (SWD) and Dresden (GESO/ENSO)

› Further development of position in selective attractive European regions especially in Central and Eastern Europe

* Due to anti-trust legislation in Germany EnBW is unlikely to gain further market shares in Baden-Württemberg, but has a favourable position in the rest of Germany
Who is the EnBW AG?

› Facts about EnBW

<table>
<thead>
<tr>
<th>Generation mix* - key data EnBW 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run-of-river/storage hydropower stations 23%</td>
</tr>
<tr>
<td>Conventional power stations 42%</td>
</tr>
<tr>
<td>Nuclear power stations (incl. EDF contracts) 35%</td>
</tr>
<tr>
<td>Other renewable energies &gt;1%</td>
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</tbody>
</table>

*Capacity of 14,366 MW

Electricity – key data EnBW 2005*

› Sales volume: 106,7 TWh
› External sales: EUR 8,150m
› Generation: 73,6 TWh
› Grid:
  › Very high voltage: 3,609 km
  › High voltage: 9,802 km
  › Medium voltage: 43,931 km
  › Low voltage: 95,131 km

Gas – Key data EnBW 2005**

› Sales volume: 88,6 TWh
› External sales: EUR 2,102m

* sales from electricity trading are reported net of cost of materials for the first time (net disclosure)
Starting points

› SICAD AKOSIC VL
   › based on SICAD/open on UNIX
   › alpha-data is stored in so called “descriptors” attached to each graphic-element
   › generalization tools / plans

› SICAD UT 3.2
   › based on SICAD/open on UNIX
   › separate alpha-data-model
   › forerunner of ArcFM UT
Starting points

› Microstation
  › CAD-system
  › external database with alpha-data

› sisNET
  › based on Microstation
  › GIS for electricity and gas
  › well adapted for the requirements of EnBW

› AutoCAD
  › CAD-System
  › Electricity for small areas
  › Data-view in the information-system of EnBW
Starting points

Data

• Alpha-data
  • separate alpha-data only application
  • mostly middle-voltage

• Vector-data
  • varying on source system
  • from simple graphic to complex GIS-objects

• Raster-data
  • about 50000 scanned operation plans
  • about 3 TB aerial views
  • stored in SICAD-internal file-format and tif-files
Target system & Aims

Target System ArcFM™ UT

› Integrated multi-utility solution
  › electricity, gas, water, sewage, telco

› Ready-to-use, fully customizable solution with extremely short implementation duration

› Extensive functionality covering network documentation, outage management, maintenance, customer information and planning

› Efficient support of the initial collection, update, analysis and presentation of spatial and technical information

› Based on strong data models and databases, transaction protected

› Uniform handling of common objects across utility branches

› Interoperability with ERP and other business and technical systems
Target system & Aims

Aims

› consort data to the target data model

› integrated data
  › unique alpha-object with multiple graphic representations

› lossless migration
  › “not migratable” data is stored in special feature-classes

› calculated topology (“geometric network”)

ArcF

UT-α

SICA

FM

D

sisNet

α

G1 G2 G3
Tools & Strategies

› Feature Manipulation Engine (FME)
  › module based tool
  › reader an writer concept
  › flexible, efficient

› SQL
  › SDE based on Oracle
  › "set_current_version" method to access multi-versioned-data
  › fast standard tool
Tools & Strategies

› Integration
  › find identical alpha-objects
  › join them to one unique object

› Quality assurance
  › cascading test-runs finished by “dress rehearsal”
  › statistics
  › spot tests
Conclusion

› Main traps

› dependencies inhomogeneous to other subproject source-data

› precise analyze of source data

› clear defined milestones

› strong statistics

› well coordinated main project-plan

› stable CR process

› stable CR process
Conclusion

› Expected runtime
  › migrating data with FME
  › integration
  › building geometric network
  › → very large range, depending on source-data

› Expected data volume
  › alpha-data
  › vector/alpha-data
  › raster-data
Questions

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