Big Blue

Energy Efficiency in Denmark and Germany
Henning Frisk, Senior Market Developer SE Big Blue
Mark Junge, CEO Limon

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FROM SE BIG BLUE TO LIMÓN

• Who are we?
• Experiences from Denmark and Germany
• Why did SE invest in Limón?
• Challenges and market perspectives in Germany
WE ARE PART OF THE SE GROUP

• One of the biggest energy and telecommunication companies in Denmark.

• Based in southern part of Denmark, but we cover the whole country

• A modern cooperative society, with 266,000 owners within households and businesses.

• Approx. 1,200 employees at locations all over Denmark.

• Net turnover of approx. 4.5 billion DKK with equity of approx. 9 billion DKK.
SE BIG BLUE IS...

• The leading industrial energy efficiency company in Denmark.

• Supporting businesses with resource strategies to reduce risk, increase earnings and comply to legislation

• Based on more than 25 years of experience within energy efficiency projects – processes and technical

• The customer in focus

• Based in Denmark but supporting international businesses globally
THE DANISH SCHEME

CUSTOMER

GRID COMPANY (OBLIGATION)

CONSULTANCY AND MEASUREMENT

PAYMENT FOR DOCUMENTATION

SUBSIDIES FOR ENERGY SAVINGS

RIGATION TO REPORT ENERGY SAVINGS

DOCUMENTATION FOR ENERGY SAVINGS
EVALUATION OF THE DANISH SCHEME

Source: Danish Energy Association
OUR EXPERIENCE

PROCESS BEFORE COMPONENTS
Focus on the industrial processes and the company as a whole – not on single hardware components

INDEPENDENT CONSULTANCY
SE Big Blue is not imposed to use specific components – we only recommend the optimal components for the customer

ENERGY SAVING CULTURE
Energy savings walk hand in hand with a good energy saving culture
“We can clearly measure the impact on our energy bills. The lower unit cost increases our competitiveness”
WHY INVEST IN LIMÓN?

- Synergies – industrial experiences and key accounts
- Product portfolio – i.e. EMS, Energy Management Software (é-visor),
- Source for exchange of knowledge and resources
- Part of our internationalization process
German Legislation

Mature Industrial Environment

Experiences from Denmark

Business opportunities in Germany
## Limón is

<table>
<thead>
<tr>
<th>4 locations</th>
<th>50 employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 500 Efficiency projects</td>
<td>&gt; 50 Software implementations</td>
</tr>
<tr>
<td>&gt; 50 Energy management systems</td>
<td></td>
</tr>
</tbody>
</table>

### References (Selection)

- Novartis
- Faurecia
- Vaillant
- Weidmüller
- Maria Soell
- B. Berker
- Vogt
- Daimler
- WEGU
- Hoppe
- Technoform
- EnBW
- Horn & Bauer
Limón’s comprehensive view of customers

Energy monitoring software

ISO 50001, 16247–1 audit

Comprehensive consulting

Energy efficiency (analysis, concept, planning, simulation)

Smart control

Workshops, seminars
German market for energy efficiency

- Many competitors
- No quality standards
- Political uncertainty
- Growth still to come

Political uncertainty
Growth still to come
No quality standards
Many competitors
NAPE (National Action Plan for Energy Efficiency)

- 500 energy efficiency networks
- Obligation for energy audits
- Tender System
Limón’s strengths

Company success

Sectoral expertise:
✓ Metal
✓ Plastics
✓ Food
✓ Pharmaceuticals
✓ Chemicals
✓ Automotive

Comprehensive:
✓ Project experience
✓ Methodical competence
✓ Energy know-how
✓ Process skills
✓ Measuring

Combination of:
✓ Consulting
✓ Software
✓ Simulation
✓ Control systems
✓ Research & development capacities

Strong team of engineers and developers
Research and development capacity
Model factory

Compressed air substitution
Evaluation of alternative drive systems

Injection molding
Development of new heating systems for injection molding machines

Pro Klim
Optimization of ventilation concepts and control systems

Blown film lines
Development of new heating and cooling systems for blown film lines

Trigeneration
Development of efficient concepts for trigeneration units
**Case Automotive**

**KPI**

- **Savings:** 14,50 GWh
- **Payback Time:** 2,2 Jahre
- **Further potential:** 12,20 GWh

**Measures**

- CHP
- Process optimization
- Compressed air
- Cooling
- Energy monitoring

<table>
<thead>
<tr>
<th>Total consumption</th>
<th>Measures</th>
<th>Consumption after measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>202,00 GWh</td>
<td>14,50 GWh</td>
<td>187,50 GWh</td>
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</table>

**Total consumption**

- 202,00 GWh
- Identified Savings: 14,50 GWh
- Consumption after intervention: 187,50 GWh
Case plastics

<table>
<thead>
<tr>
<th>Optimisation Area</th>
<th>Energy Costs in € per year</th>
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</thead>
<tbody>
<tr>
<td>Before</td>
<td>200,000</td>
</tr>
<tr>
<td>CHP Plant</td>
<td>400,000</td>
</tr>
<tr>
<td>CHP optimised extruder</td>
<td>600,000</td>
</tr>
<tr>
<td>Parameter optimisation</td>
<td>800,000</td>
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<tr>
<td>Injection optimisation</td>
<td>1,000,000</td>
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<tr>
<td>Drying of granulate</td>
<td>1,200,000</td>
</tr>
<tr>
<td>Electrical drives instead of compressed air</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Chillers optimisation</td>
<td>400,000</td>
</tr>
<tr>
<td>Ventilation optimisation</td>
<td>200,000</td>
</tr>
<tr>
<td>Lighting optimisation</td>
<td>100,000</td>
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<tr>
<td>Heating optimisation</td>
<td>50,000</td>
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<tr>
<td>Power feed in</td>
<td>20,000</td>
</tr>
<tr>
<td>Optimal solution</td>
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</tbody>
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Challenges and market perspective

Combination of danish & german know-how

New business models

Market leader
CONTACTS

Henning Frisk  
Senior Market Developer  
SE Big Blue  
+45 2361 2294  
hfri@se.dk

Dr.-Ing. Mark Junge  
CEO  
Limón GmbH  
+49 561 220 704 – 35  
junge@limon-gmbh.de