Bilfinger Efficiency GmbH

Increase energy efficiency with guaranteed savings

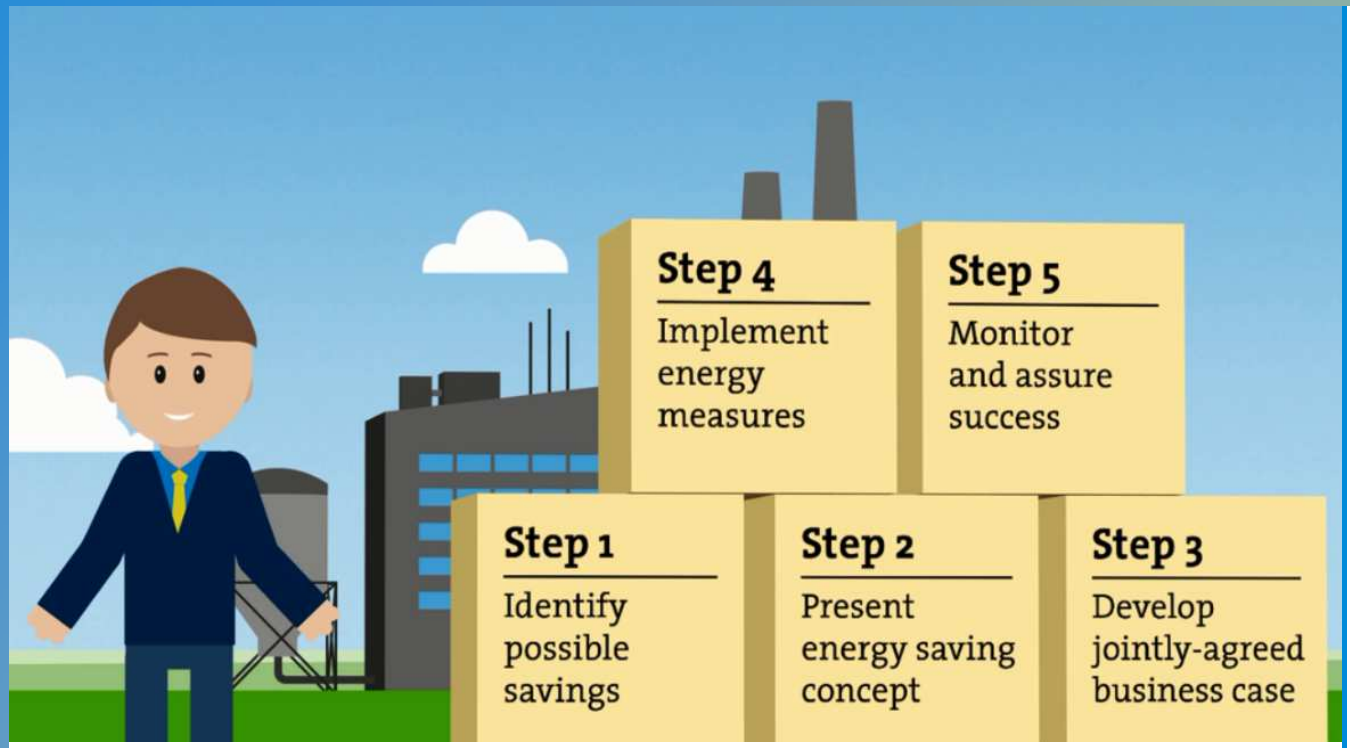
Business model and best practices for one of the world's largest dairy companies

Thomas Theiner | Industrial Efficiency Conference September 14, 2016

Agenda

- Smart Energy Services for FrieslandCampina
  - Objectives
  - Energy efficiency measures
- Project Insights
  - CO_2 savings
  - Average payback time
- Business model, approach and remuneration
- Conclusion

Lower energy consumption in five steps



Movie

1. Energy analysis
2. Energy concept
3. Planning and financing
4. Implement efficiency measures
5. Guaranteed success

Energy Optimization | Smart Energy Services

Objective No. 1:
Reduction of 40,000 tons of CO_2-emissions

Objective No. 2:
Energy savings of over 6% per site

Objective No. 3:
Reduction of energy consumption and production costs

The focus will be on:

- electricity and gas
- cold and hot water
- steam and compressed air
- Water and waste water treatment
- CO_2

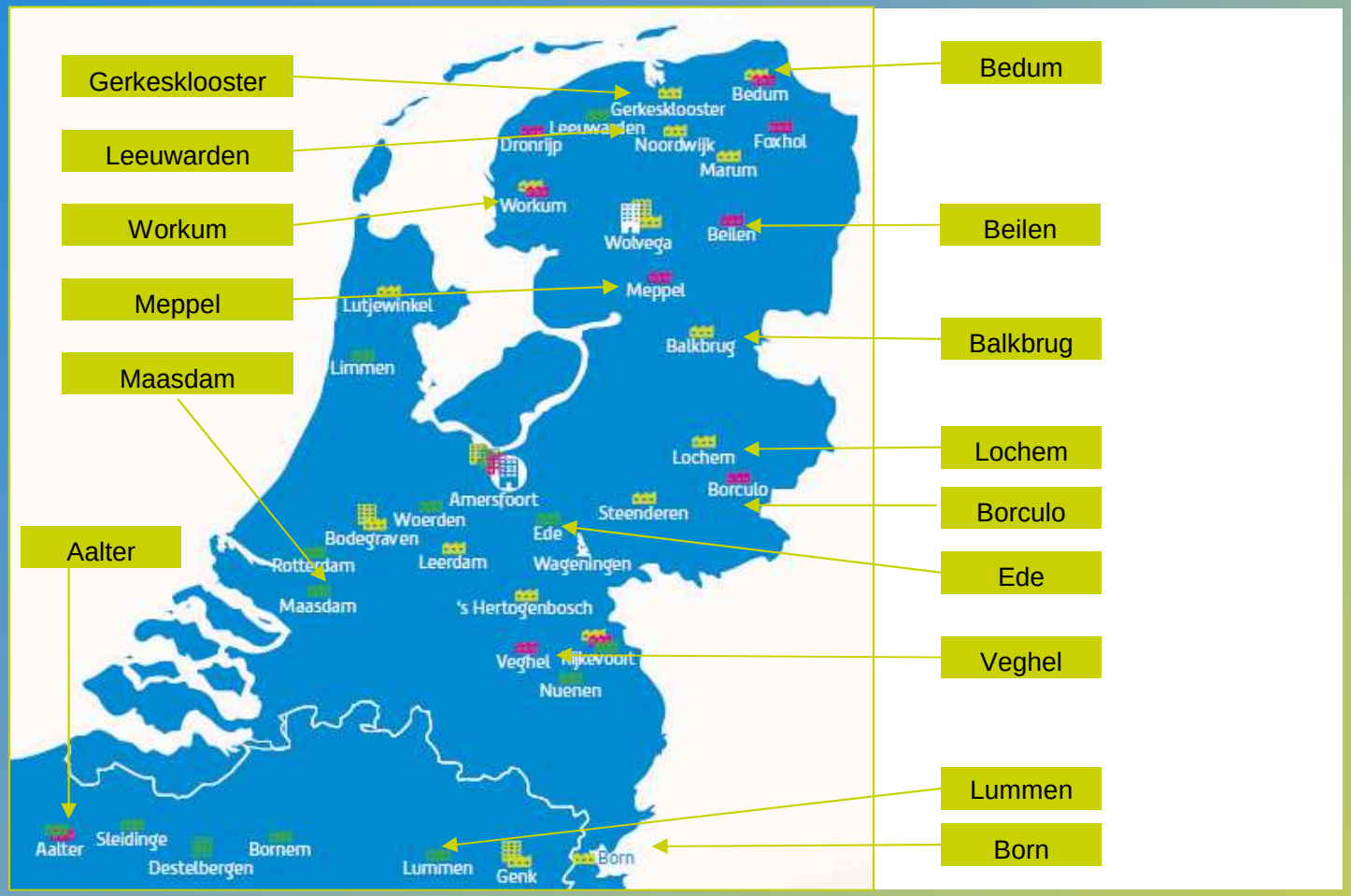
- Operating phase: 6 years (includes 3 years of guaranteed savings = assurance phase)

FrieslandCampina

- worldwide over 140 dairies
- offices in 32 countries
- about 22,000 employees
- Strategic partnership with Bilfinger since September 2015

With an annual revenue of 11.3 billion euro FrieslandCampina is one of the world‘s six largest dairy companies.

FrieslandCampina
Sites currently in scope

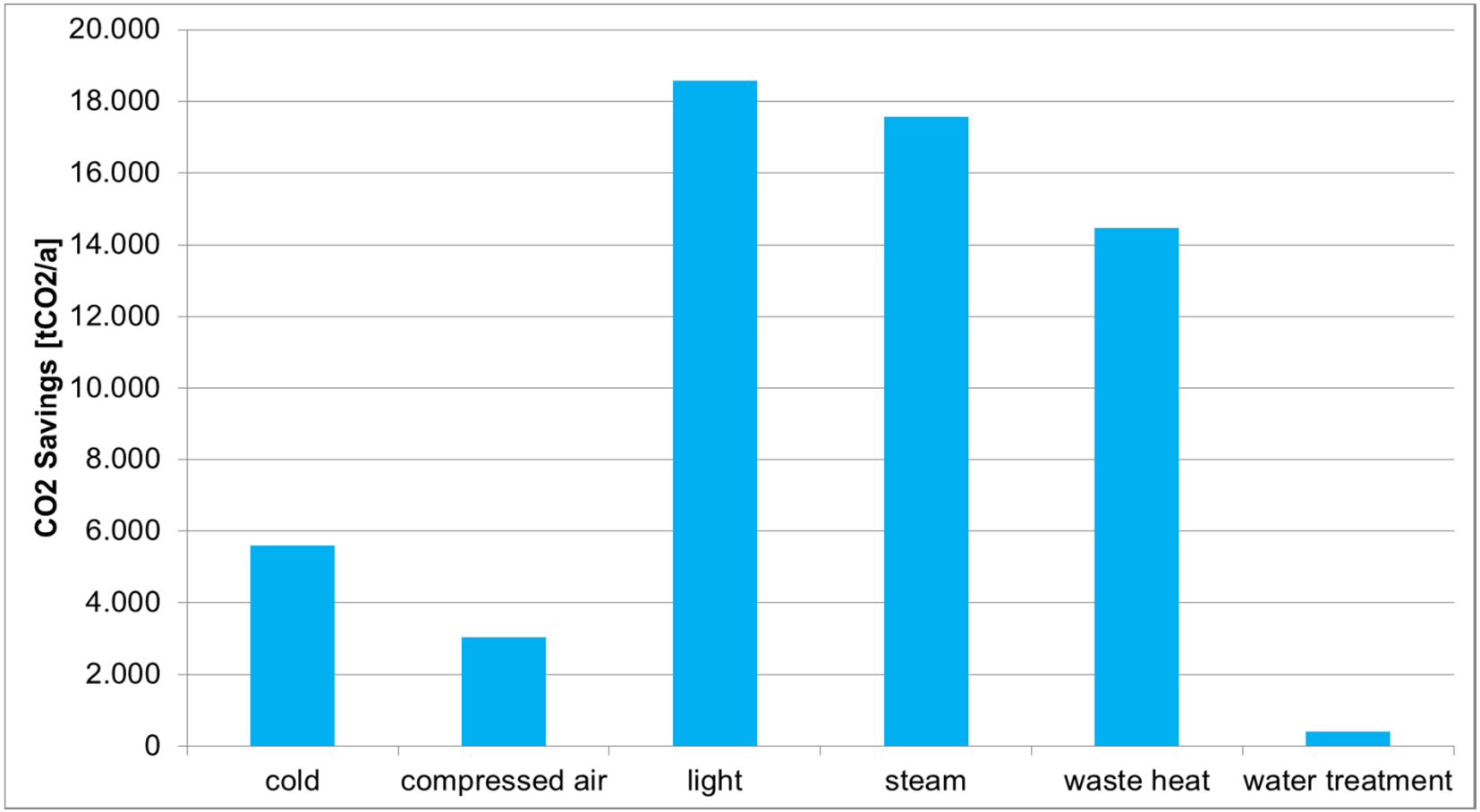


Typical Energy Efficiency measures within ENCORE

Energy Efficiency Measures:

- Implementation of waste heat recovery systems
- Insulation works
- Avoiding of steam leakage / reducing of steam pressure
- Avoiding of air leakages / reducing air pressure
- Optimization of waste water systems
- Variable speed drives
- Implementation of LED-lighting systems
- Optimization of cooling systems and air handling units

CO_2 savings of identified measures

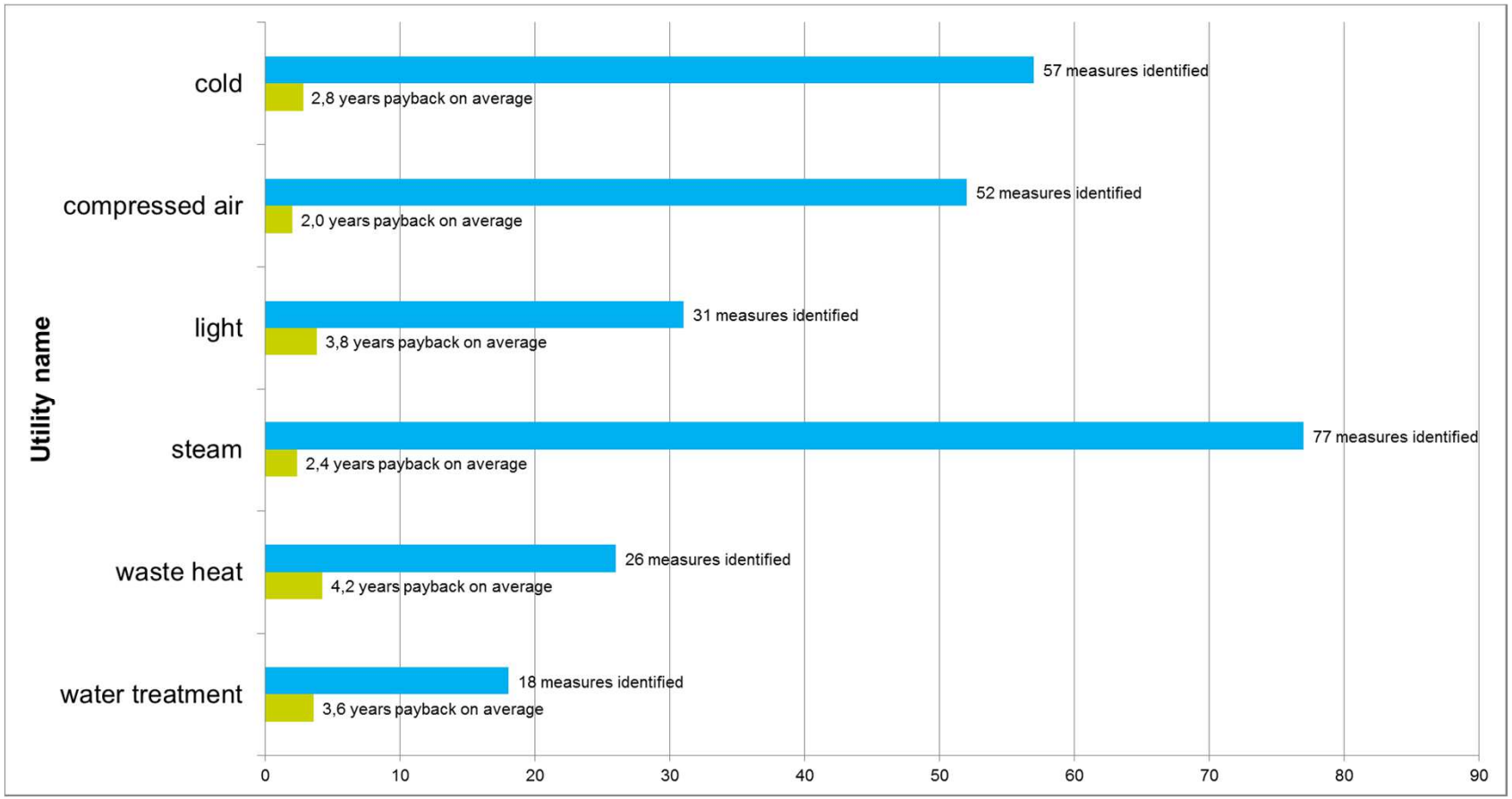


Source: Bilfinger Efficiency

Key findings:

- Efficiency measures in light, steam and waste heat projects contribute with the highest overall CO2 savings in the program
- CO2 savings from waste water projects are negligible, but these projects can deliver significant costs savings

Average payback time of different utilities

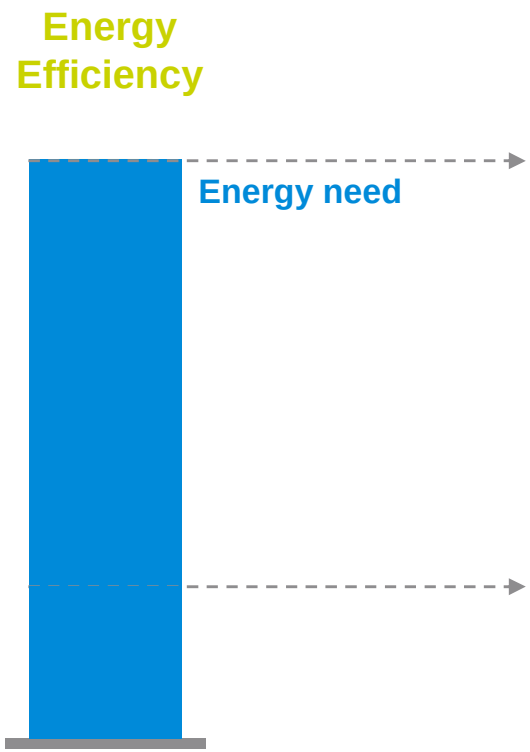


Source: Bilfinger Efficiency

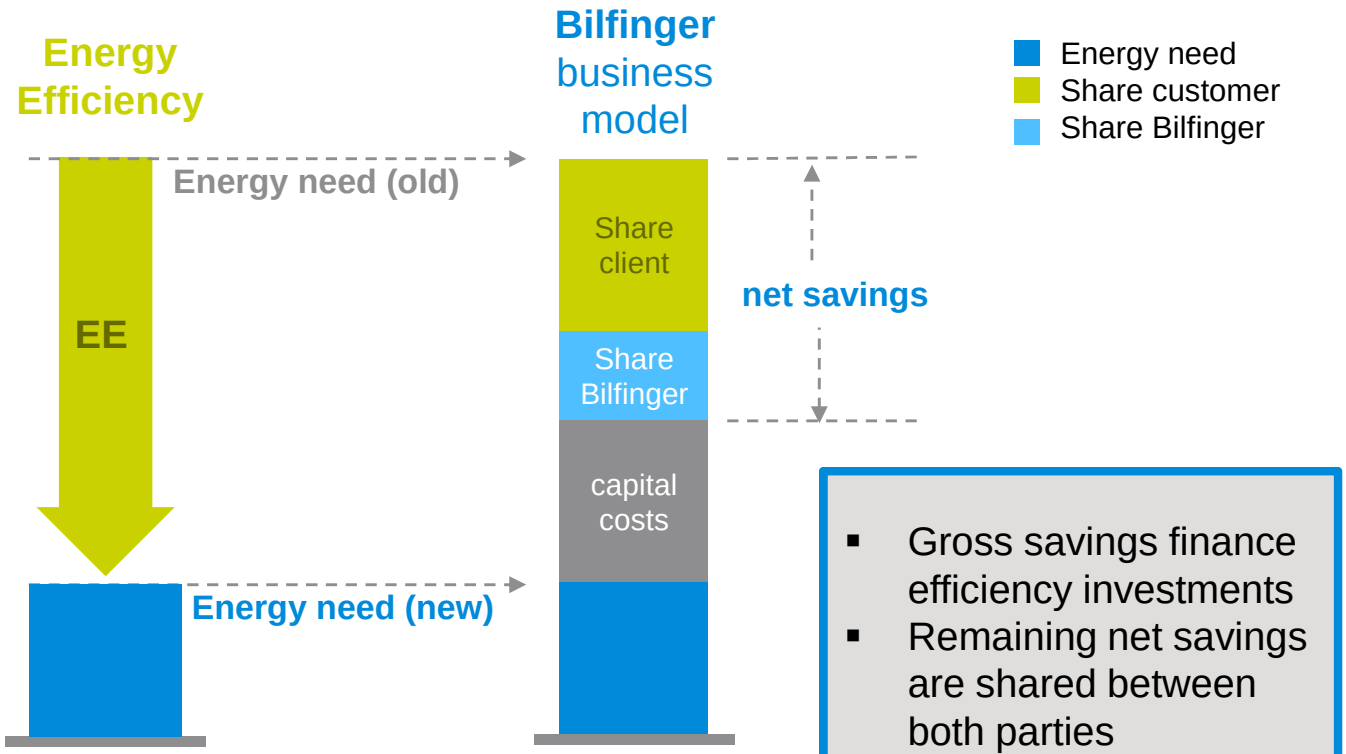
Key findings:

- Differences in average amortization periods per utility
- Light and waste heat projects tend to longer amortization periods, but contribute with highest CO_2 savings to the project
- Number of identified measures per utility proves that findings are representative

Remuneration model: shared success



Remuneration model: shared success



- Gross savings finance efficiency investments
- Remaining net savings are shared between both parties

Conclusion

Our business approach includes

- GUARANTEED SAVINGS
- NO INVESTMENT COSTS
- OPEN BOOK POLICY
- IMPROVEMENT OF SUSTAINABILITY

We make smart energy services work!

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