Conceptual Design of an Energy & Water Efficient Brewery

DACE meeting
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Overview

1. Brewing a Better Future
2. Energy and water consumption targets for 2020
4. Best Available Techniques: approach
5. Summary of Improvements
6. Summary
Sustainability

Brewing a Better Future
What does this mean for HEINEKEN?

- Part of our **DNA**; embedded in our Company values
- **Historical** commitment
- Considering **long-term** impact of our actions, not just short-term growth
- A tremendous opportunity to “**do good while doing good business**”
Sustainability

Why is it critical to our future?

- With success and leadership comes responsibility
- We must win as one sustainable HEINEKEN together with all our stakeholders and per their expectations and dialogue
  - Employees, Consumers, Customers and Retailers, Governments, NGOs, Shareholders and Investors, Media
- Positively impact the role of beer in society
- Our future ability to continue to produce beer and cider for our consumers depends on it
Sustainability

Our journey is called

Our long-term ambition is

We have built our programme around three strategic imperatives

We have grouped our 23 programmes into 6 core initiatives

Brewing a Better Future

To be the World's Greenest Brewer

Improve
Continuously improve the environmental impact of our brands and business

Empower
Empower our people and the communities in which we operate

Impact
Positively impact the role of beer in society

Green Brewer | Green Commerce | Engaging Employees | HEINEKEN Cares | Responsible Consumption | Partnerships for Progress

Governance, Senior management incentives, Reporting & transparency, Supplier code, Communication & engagement

Measured by the SAM Dow Jones Sustainability Indexes
Green Brewer

Improving our environmental impact

By 2020:
- Reduce CO2 emissions from fossil fuels in our breweries by 40%
- Reduce water consumption in our breweries by 25%
- Aim for water neutrality of breweries in water-stressed areas
- Develop and implement concept of CO2 neutral brewery
- Energy saving in non-brewing production sites and offices
The total value chain and our footprint
Energy and water consumption targets for 2020

**WATER**

- Target: 25% improvement 2008-2020

**TOTAL ENERGY (Thermal + Electricity)**

- Target: 30% improvement 2008-2020
Conceptual design of an E&W Efficient brewery

Best Available Techniques
Machine & Equipment Choices
With or without recipe changes

Daily E&W management
Operate within design parameters
Sustainability mind-set change

Hardware
Organization/Management
Energy & Water Efficient Brewery
Improve

- Consumption per hl
- Good practices
- Awareness & attention
- E&W efficient brewery
- number

Consumption per hl
Starting points and approach

1. Ideation, list of Best Available Techniques (BATs)

2. Quantification in terms of impact on KPI’s & operational cost savings

3. Quantification of cost impact

4. ROI & summary
Best Available Techniques

Literature:
• Etc..

(Supplier) BATs
• Efficient lighting
• Energy re-use in the brew-house
• Efficient motors (efficiency classes)
• Measurement & Control
• Etc…
## Approach to screen BATs

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Capex impact:
Balance between additional and reduced investments

+ Add-ons
+ Efficient equipment by changing methodology

- Lower utility demands = smaller utility plants
- Efficient equipment by changing methodology
## Overall overview – example

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<tbody>
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<td>-0.12</td>
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Conclusions

- Technological & technical improvement potential
- Good balance of costs

Diagram:

- Hardware
- Organization/Management
- Energy & Water Efficient Brewery