

# Steam-up

Roundtable omkring finansiering af energi effektivitet i Danmark  
16. November 2017, København



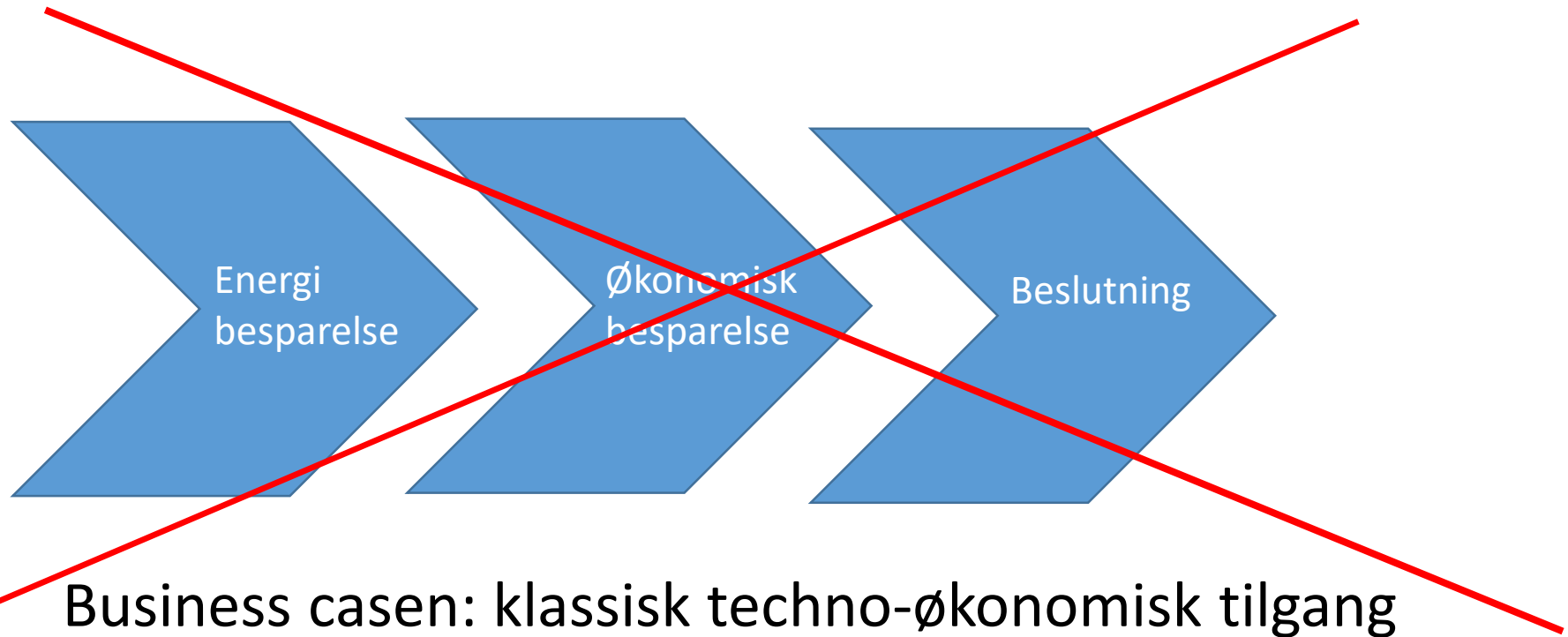
## Steam-up projekt info:

I Steam-up projektets partner lande udgør andelen af damp anvendelsen i gennemsnit 50 % af energiforbruget i industrien med et min. spare potentiale på 10-20 %

- Steam Up aims specifically at the efficiency potential in steam systems. The project is designed to bridge the significant gap between promising audit results on the one hand, and implementation of cost-effective and easy to implement measures on the other.
  - Past efforts to assess this potential have failed, but the main obstacles are clearly identified:
  - No obvious business case
  - Insufficient technical expertise on energy efficiency through-out the chain
  - No supporting organizational structure
  - Steam Up will address these barriers by:
  - Building a business case on the basis of 75 in-depth steam audits that cover state of the art steam technology and expertise, include non-energy benefits and reduce the organizational costs by providing integrated solutions for implementation and reporting;
  - A capacity building program that includes training and coaching-on-the-job of over 500 energy auditors, ESCOs, internal energy managers and energy management training providers;
  - Change the behavior of decision makers in the enterprises towards incorporating energy efficiency in the management structure.
-

*Er investering i et effektivt  
dampsystem lig med  
investering i en effektiv  
virksomhed – ?*

# Business case: klassiske tilgang



Business casen: klassisk techno-økonomisk tilgang

Catherine Cooremans, IEA DSM Universitet, Leonardo Academy, 12.5.2016

# Har vi dialogen om energi spareprojekterne med de rigtige?

- **Energiansvarlig/Tekniske direktør**
- Andre vigtige interessenter for damp og dampbesparelse:
  - Direktøren
  - Økonomi direktøren
  - QESH Manager – Kvalitet Miljø Sikkerhed Sundhed
  - Vedligeholdelses chef

# En bred dialog, kræver at vi kan perspektiverer damp anvendelsen for interessenterne

- Direktøren
  - Hvad sker der hvis dampsystemet er ude af drift
- Økonomi direktøren
  - Hvilke omkostninger er der ved dampsystemet
- QESH Manager – Kvalitet Miljø Sikkerhed Sundhed
  - Hvad betyder dampkvaliteten for produktionskvaliteten
  - Hvilken risiko er forbundet med brug af damp intern/extern
  - Hvad betyder dampanvendelsen for arbejdsmiljøet
- Vedligeholdelses chef
  - Vedligeholdelse kedelhus Vand (behandling) dampsystem.....

# Værdiskabende spørgsmål ?

## Operational level:

- What expectations does your customers have to you?
- What expectations does management have to you?
- What should you do to provide good service to your customers?

## Tactical level:

- Describe the Department's main workflow/process
- Describe the Department's 3 biggest strengths/weaknesses
- Describe the Department's 3 main competitors
- How do you get the company's products/services to your customers?
- Describe your own criteria for success
- Describe the Department's 3 main goals
- Describe the main workflow/process
- Describe the 3 main strengths/weaknesses
- How could you improve workflow/process?
- What opportunities/threats do you see in your market?
- What expectations do you have for us?

## Strategic level:

Describe how you experience your situation in the market?

What expectations does your customers have to you?

Please describe your company's 3 biggest challenges?

What does your customer see as the biggest challenge?

Describe your 3 main strengths/weaknesses

What do you see as the biggest opportunity?

What do you see as the biggest threat?

How to differentiate products/services?

What makes the nearest competitors successful?

What do to in order to become successful?

How would you be able to differentiate products/services?

What can help to promote products/services?

What are the expectations of your customers?

What do you see as the biggest challenge?

## Mission:

- What is the company's mission?
- What is the company's *raison d'être*?
- What is the company's main objective?

## The vision:

- What is the company's vision?
- What is the company's long-term goals?
- Where would you like to be in 5 years?

## Strategy:

- What is the company's strategy?
- How will you achieve the company's long-term goals?
- What is the company's long term plan?
- Value basis: Attempts to describe the company's values?
- What values are important to your business?
- What would your company like to be known for?

# Anvender vi de rigtige nøgletal ?

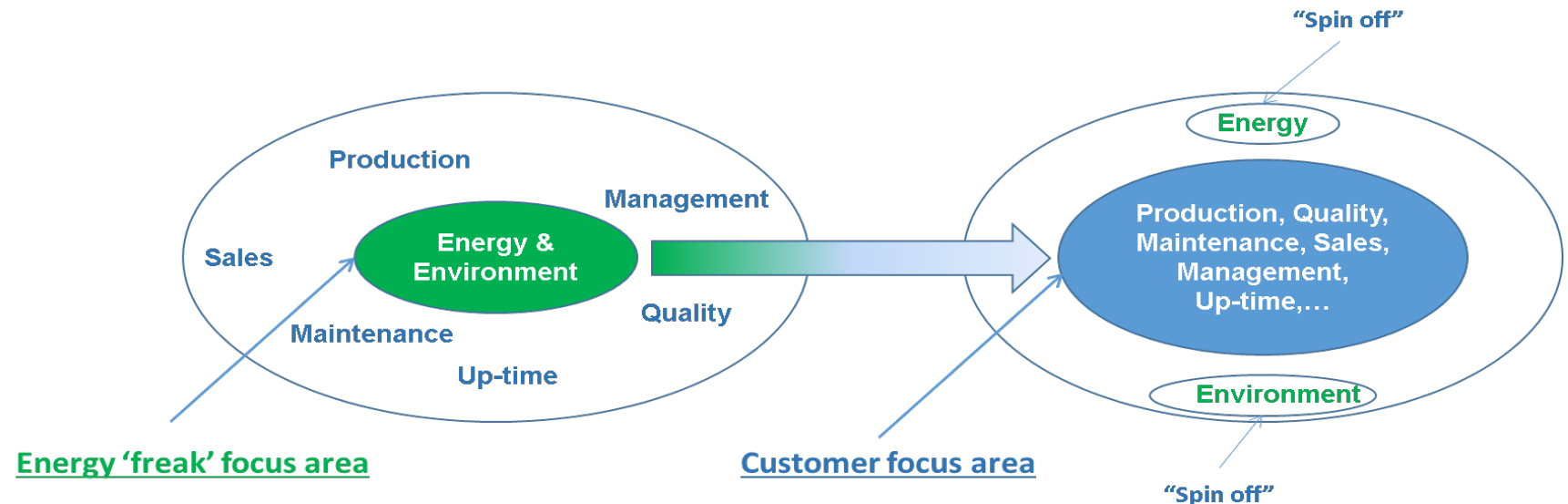
- ✓ Meget ofte baseret på simpel tilbagebetalingstid baseret på energibesparelsen.
- ✓ Ulempe: Ingen diskontering af tidsmæssige værdi af penge og andre benefits.

No	Opportunities	Simple Payback (year)	NPV	IRR
1	Steam system efficiency projects	1,33	\$149.521,64	57%
2	Packaging unit efficiency projects	2,00	\$26.926,99	36%
3	Cooling system efficiency projects	1,40	\$84.833,34	64%
4	Administration building efficiency projects	2,00	\$255.870,35	49%
5	Lighting system efficiency projects	2,00	\$119.021,42	42%
6	Compressed air system efficiency projects	1,45	\$149.324,59	64%



# Hvordan ser en god business case ud ?

- ✓ Indeholder alle omkostninger
- ✓ (ikke kun investeringer og energi relaterede omkostninger),
- ✓ Men også værdien af "alle" indtægter
- ✓ alle reelle eller påståede finansielle eller immaterielle benefits som følge af en energieffektivitet aktivitet



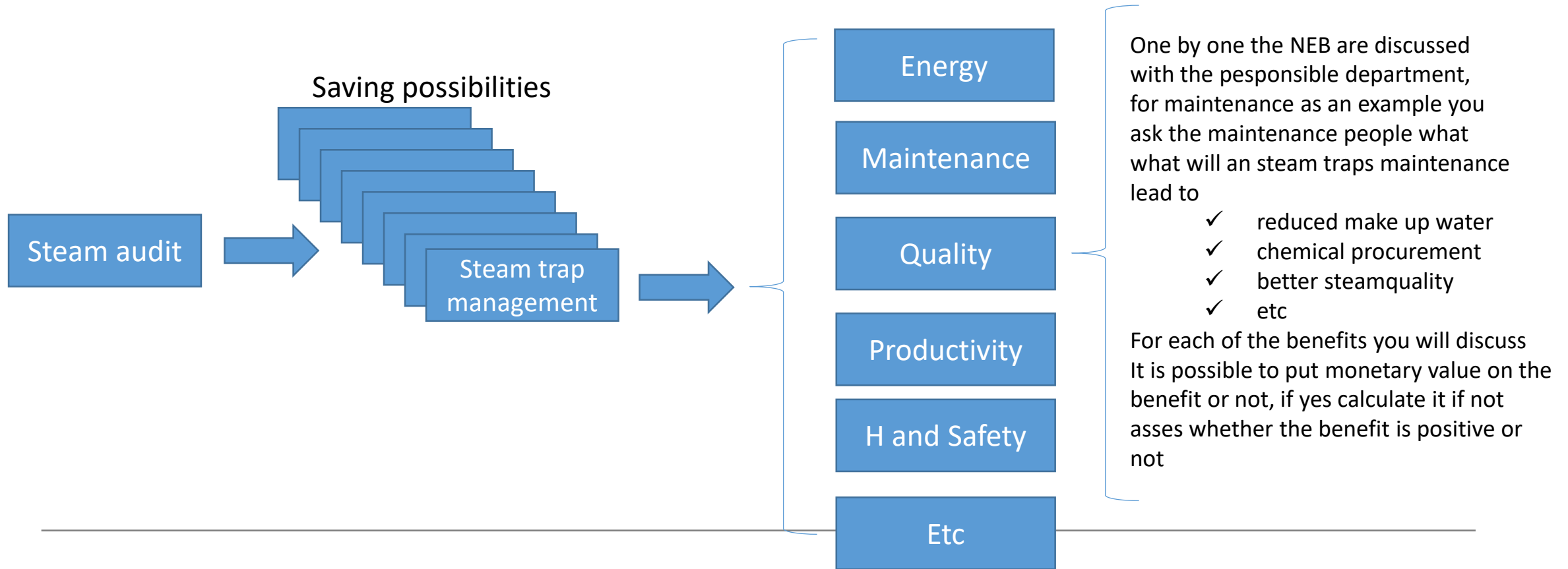
# Non-Energy Benefits

## Non-energy benefits from efficiency improvements

Waste	Emissions	Operation and maintenance
Use of waste fuels, heat, gas Reduced product waste	Reduced dust emissions Reduced CO, CO <sub>2</sub> , NO <sub>x</sub> , SO <sub>x</sub> emissions	Reduced need for engineering controls Lowered cooling requirements
Reduced waste water Reduced hazardous waste		Increased facility reliability Reduced wear and tear on equipment/machinery
Materials reduction		Reductions in labor requirements
Production	Working environment	Other
Increased product output/yields	Reduced need for personal protective equipment	Decreased liability
Improved equipment performance Shorter process cycle times	Improved lighting Reduced noise levels	Improved public image Delaying or Reducing capital expenditures
Improved product quality/purity Increased reliability in production	Improved temperature control Improved air quality	Additional space Improved worker morale

# Non-Energy Benefits

## *Kortlægning*



# Case:

## Production of liquid gasses

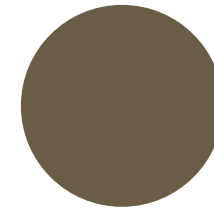
Savings due to lower cooling water temperature :  
153.000 kWh/year or 12.000 US dollar  
Payback 3.6 years

However, "what did the company achieve besides saving energy ?"

Reduced:

- Use of chemicals 50.000 US dollar/year
- Corrosion inhibitorer 12.000 US dollar/year
- Reduced corrosion 20.000 US dollar/year
- Reduced labour cost not calculated
- Reduced down time not calculated
- Reduced enviromental influence not calculated
- Better working enviroment not calculated

• **Pay back less than half a year**



*Tak fordi i lyttede*

*Erik Gudbjerg*

*Yourenergy*

**[gudbjerg@yourenergy.dk](mailto:gudbjerg@yourenergy.dk)**

**+45 4064 7903**

**[www.steam-up.eu](http://www.steam-up.eu)**

STEAM UP