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Kiel and Bodø

as sustainable and smart cities

PRESENTED BY CLASS BG-12B



Structure



Economics



Mobility



Energy



Waste



Life and Environment



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Economy

PRESENTED BY PAUL, ONUR, JOHN, JACOB AND TOM

A solid green horizontal bar at the bottom of the slide.



Structure

1. Kiel and Bodø in comparison
2. What means economic sustainability?
3. Smart City Gaarden
4. Catapillar
5. Løvold Solution
6. Color Line

Economics

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Kiel and Bodø in comparison

KIEL

Inhabitants: 246.000

GDP per capita: 48.000

BODØ AND NORDLAND

Inhabitants: 240000

Inhabitants: 56000

GDP per capita: 46.600

Economics

Mobility

Energy

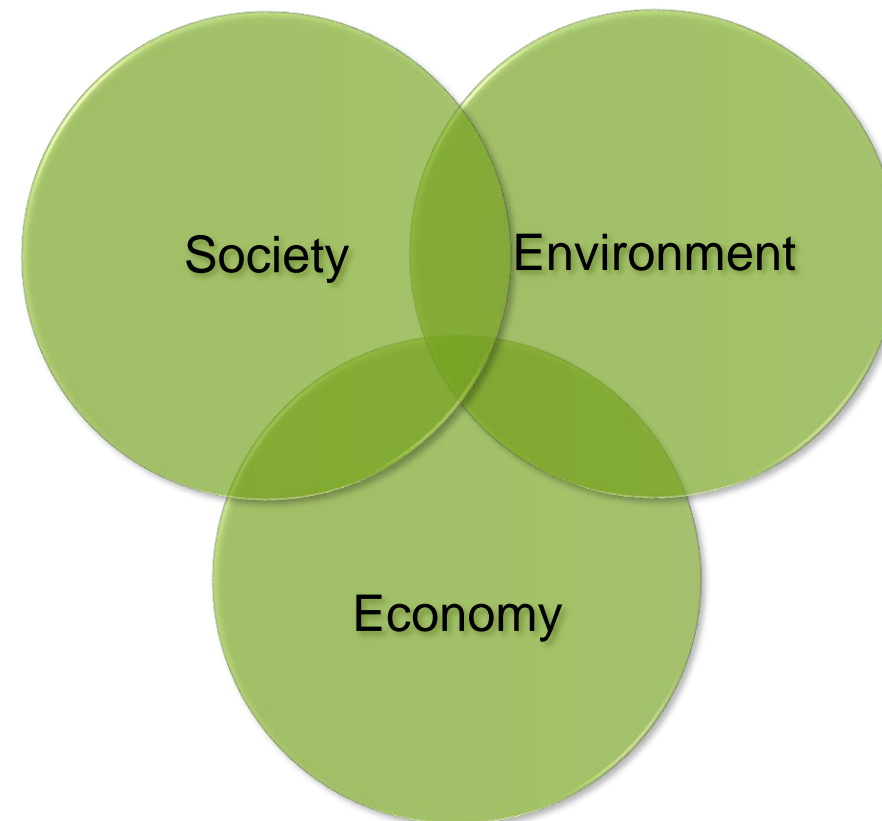
Waste

Life & Environment



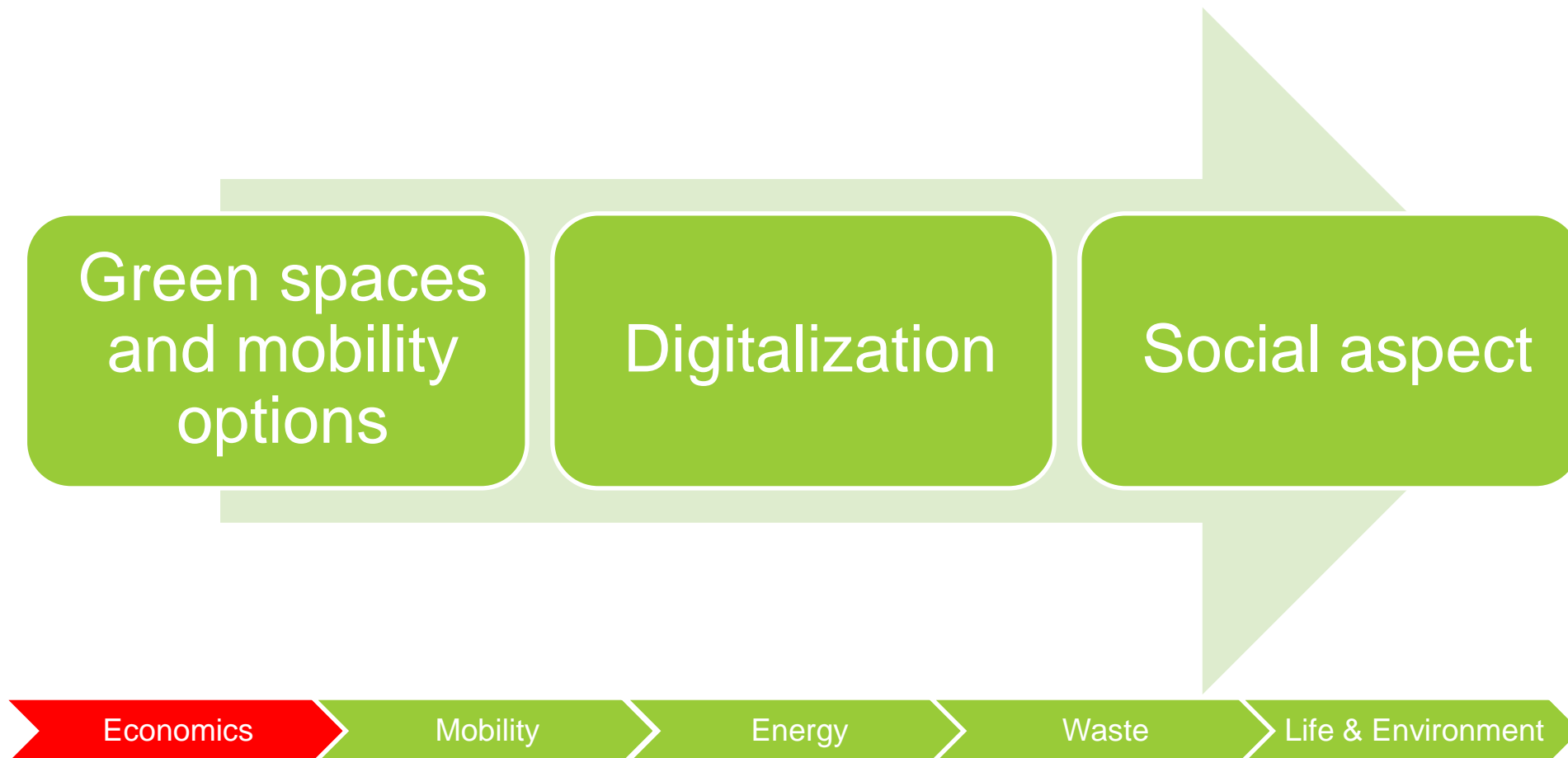
What means economic sustainability?

- Quality of life and equal opportunities
- Increase the natural resources
- Not only increase profit
- Long-term strategies





Smart City Gaarden





Caterpillar

- Basic needs of people should be sustainable
- Economic growth because of development
- Sustainable progress=development of better systems



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Operating goals

- New ecological buildings
- Reduction by 50%
- 20% renewable energy
- Sustainable leadership principles
- Avoidance of waste=safety, efficiency, productivity
- Promote companies, communities, environment= higher life quality



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Løvold[®] Solution

- Production and distribution
- Green policy/production
- Sustainability = company growth
- Protecting their source of income
- Creating value for the company and society
- Projects for the future



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Color Line



- Biggest norwegian shipping company
Yearly
 - 4 million passengers
 - 900.000 cars
 - 180.000 trailers

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Environmental friendly sea transport



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Reaching our international climate goals

More transport from road to sea

50% increased good transport until 2050

In work together with the shipping association of Norway

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Climate friendly investments

200 million norwegian kroner into enviremental measures

Cooperation with the energy company Bellona

Reduced CO2 emissions yearly

Color Line itself is currently in a very good spot



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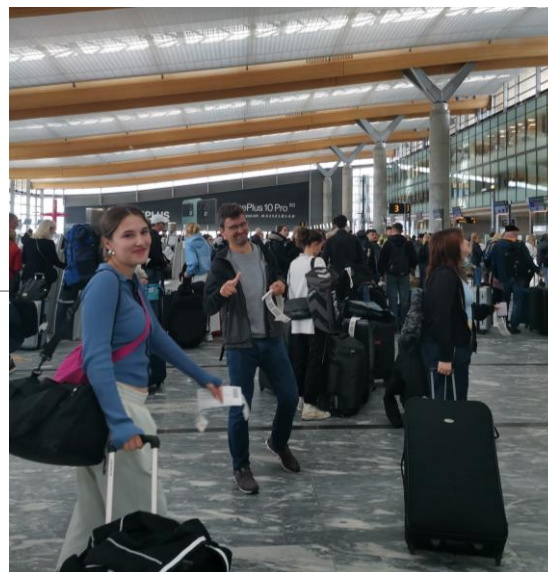
Life & Environment



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Mobility

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JOSEPHINE





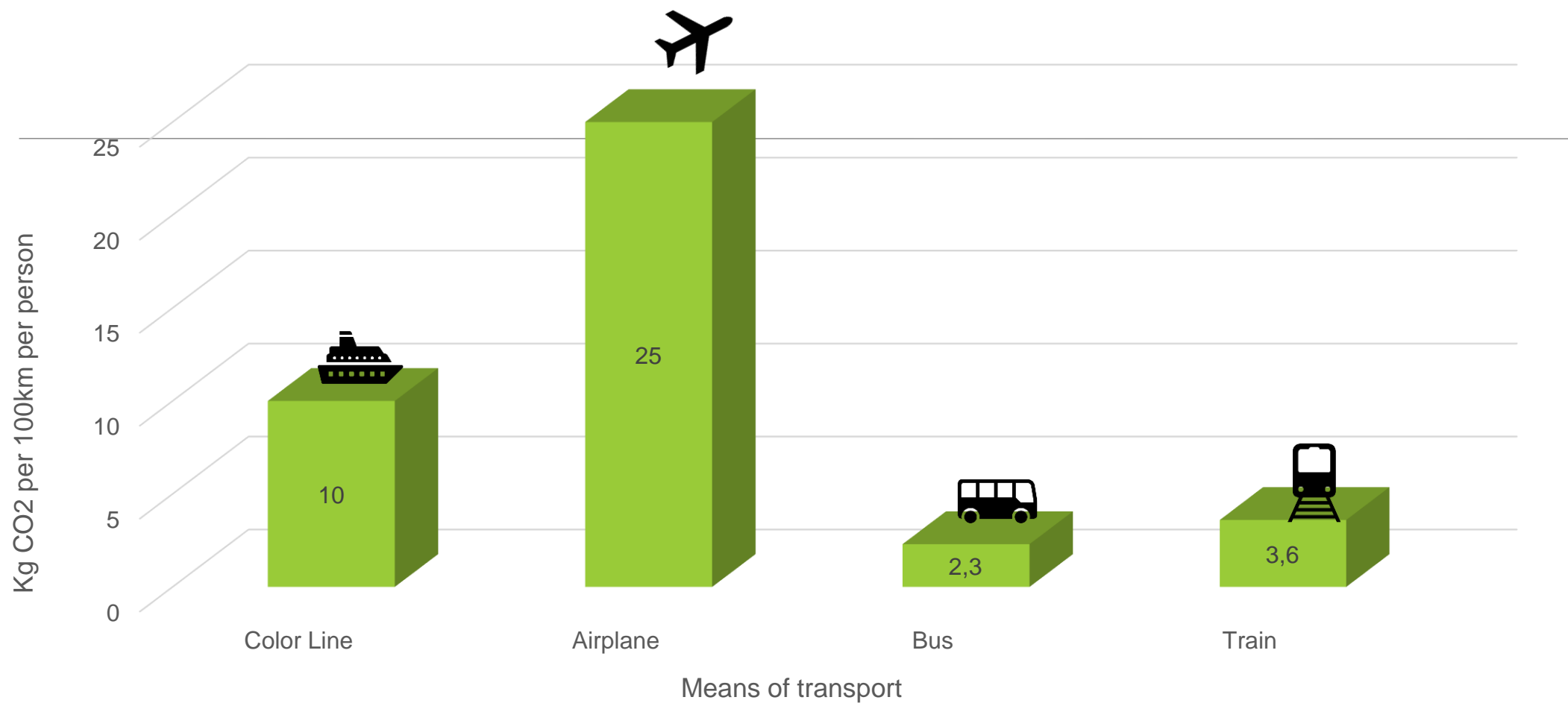
Structure

- Emissions of the trip
- Problems of cars in the city center
- Onlinepoll
- Current measures
- Future visions





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Our trip



Legend:

— — — : way there

— — — : way back

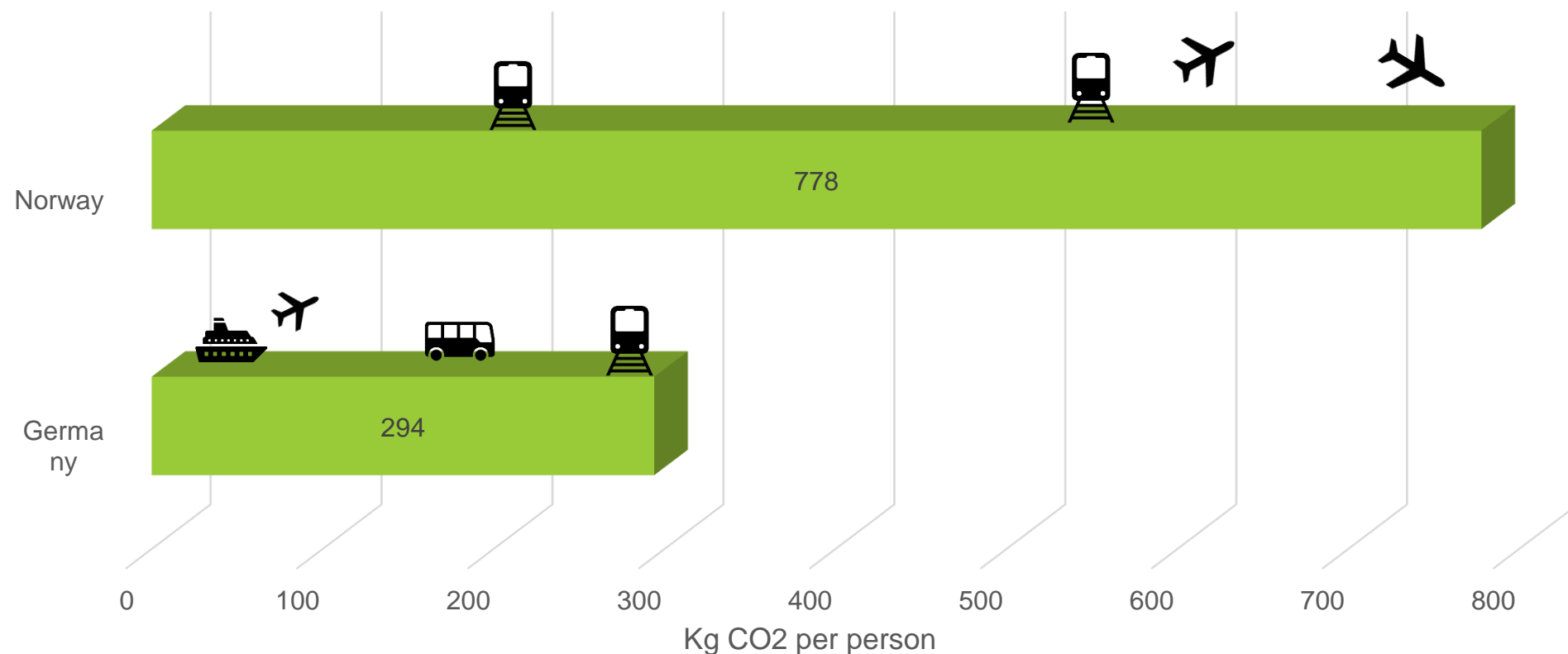


Carbon dioxide emissions





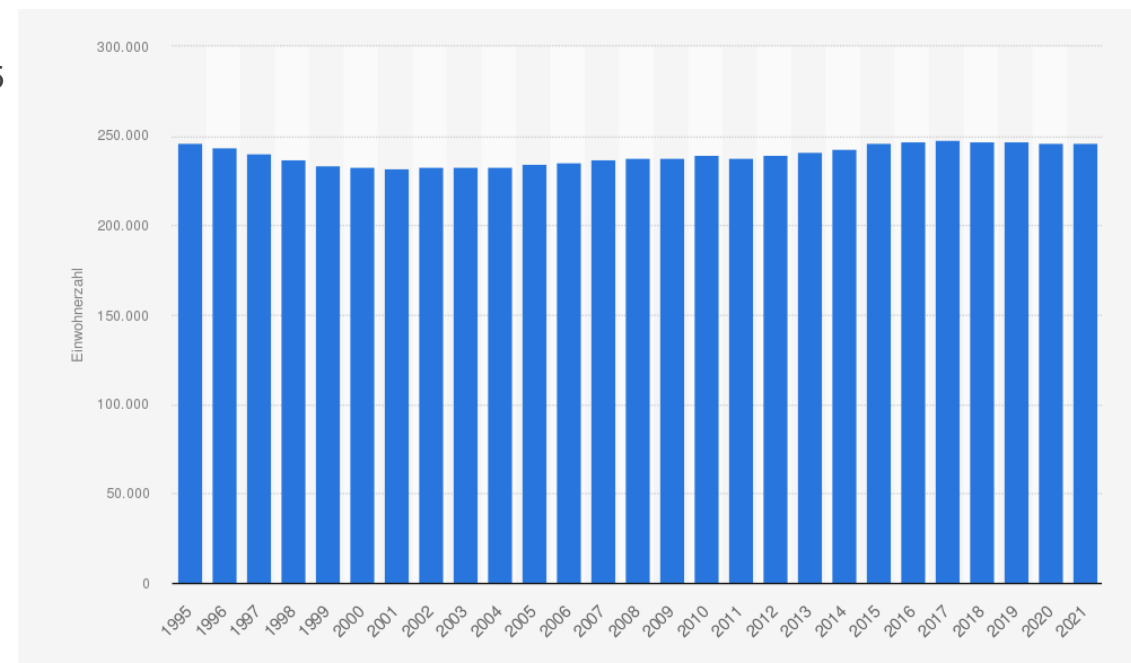
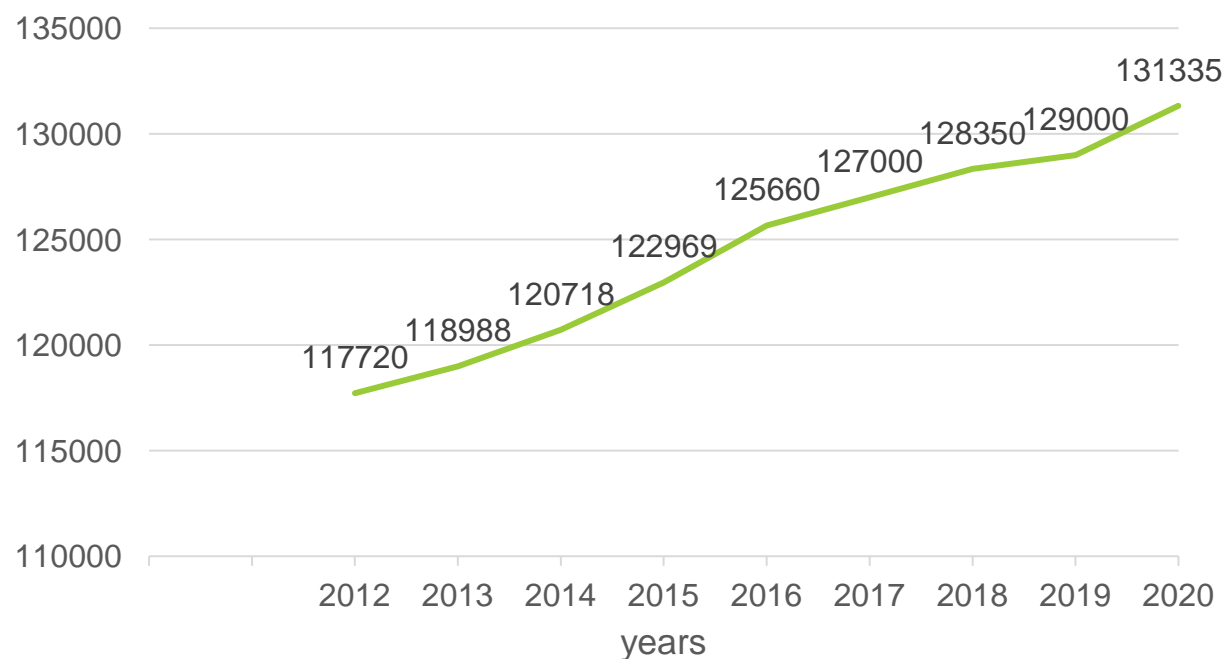
Comparison





Problems of cars in the city center

usage of motor vehicles in Kiel (2012-2020)



— usage of motor vehicles in Kiel





Problems of cars in the city center

- Loud noises
- Traffic jams
- Lack of space
- Air pollution
- Exhaust gases



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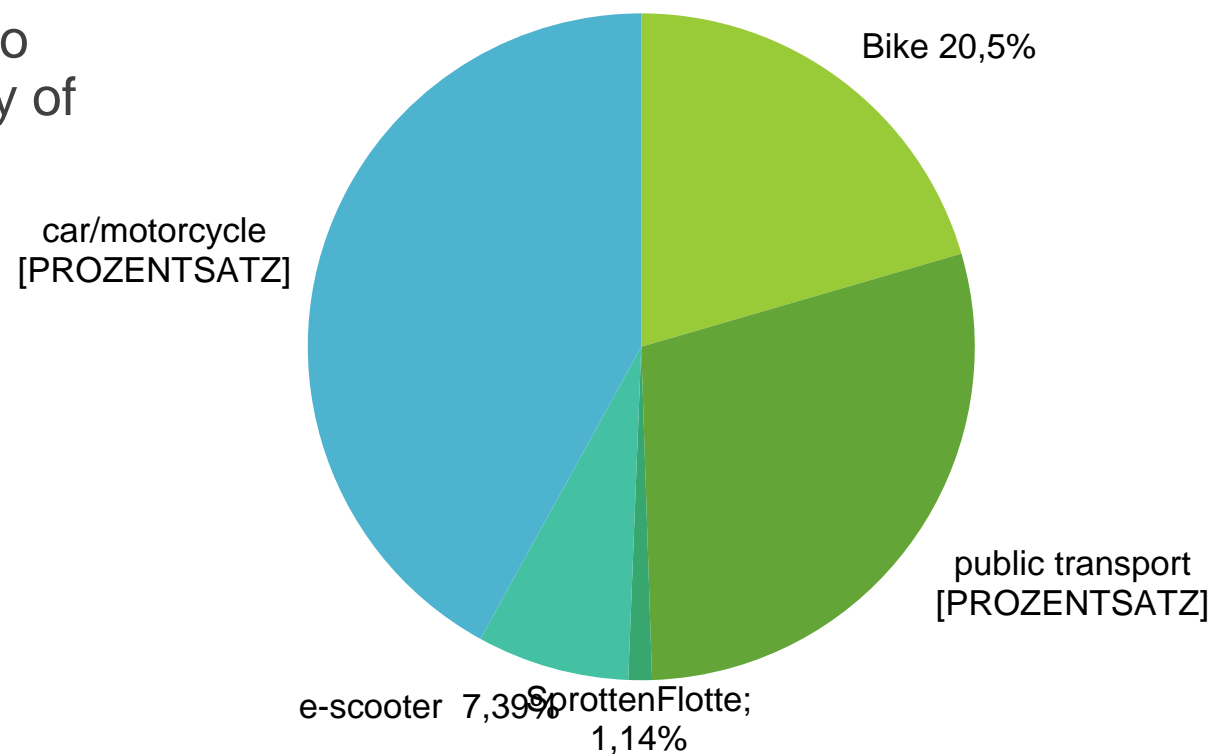
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Onlinepoll

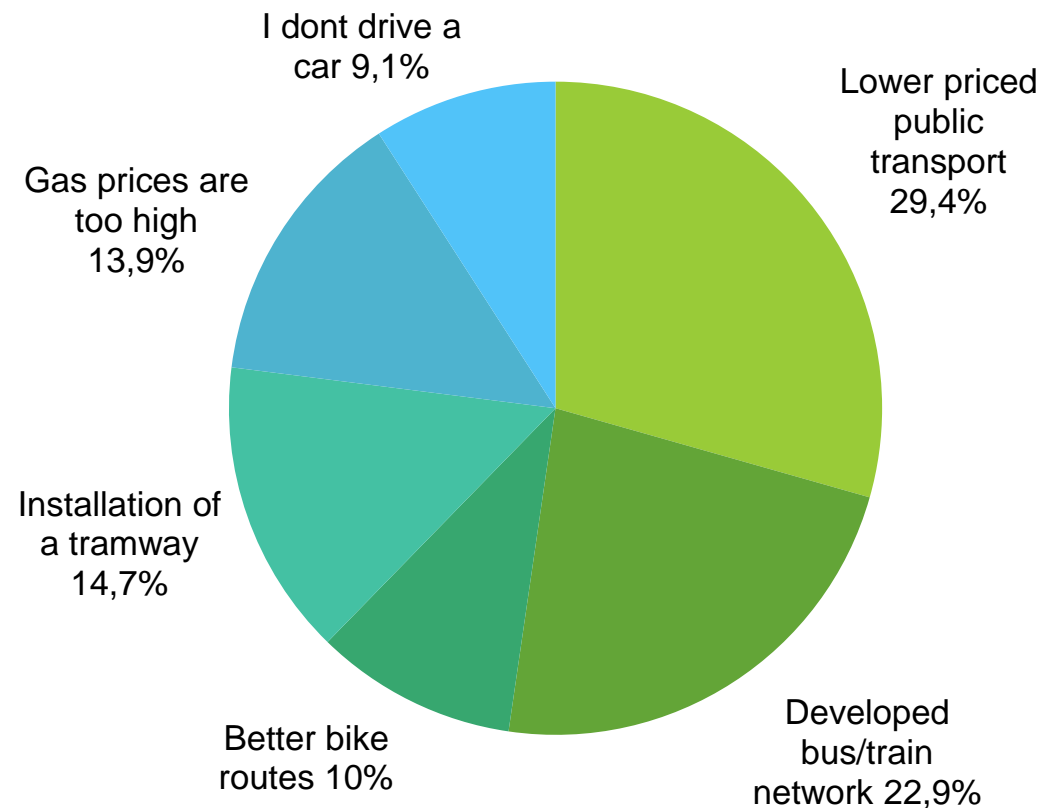
- What means of transport do you use regularly in the city of Kiel?





Onlinepoll

- Under which conditions would you drive less car in the city of Kiel?





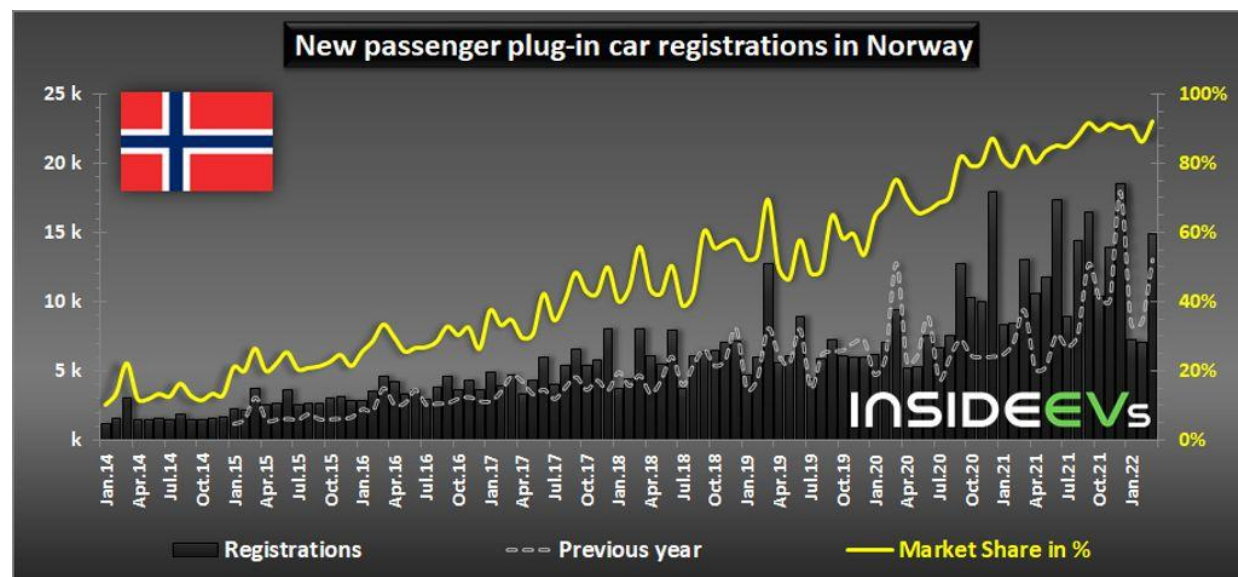
Smart mobility in Kiel

- The public transport company of Kiel uses 67 electric busses
 - 30% of their fleet
- Two plug-in-hybrid and one electric ferry are used
- Good bike infrastructure
- More than 600 bikes at 100 station for rent
- More than 600 rental scooters





Smart mobility in Bodø



- Four electric bus lines
- Many electric cars in Norway

Because:

- Lower taxes on electric cars
- No Toll for tunnels and bridges at many places
- Occasionally no parking fees

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Future visions in Kiel

- more electric buses and ferrys in the future
- Better and new bike routes
- Reintroduction of the tram



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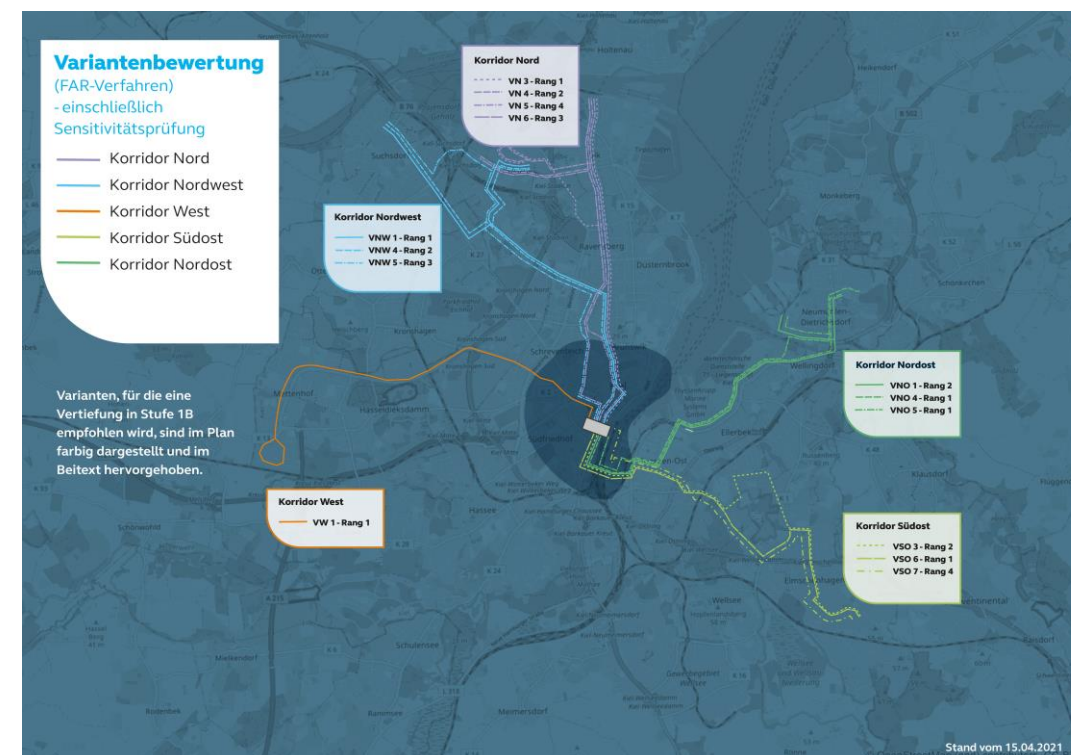
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Tram or BRT-System

- Solves the problems of cars in the city center
- 15 minute city
- Potential social and economic growth
- First route 2030



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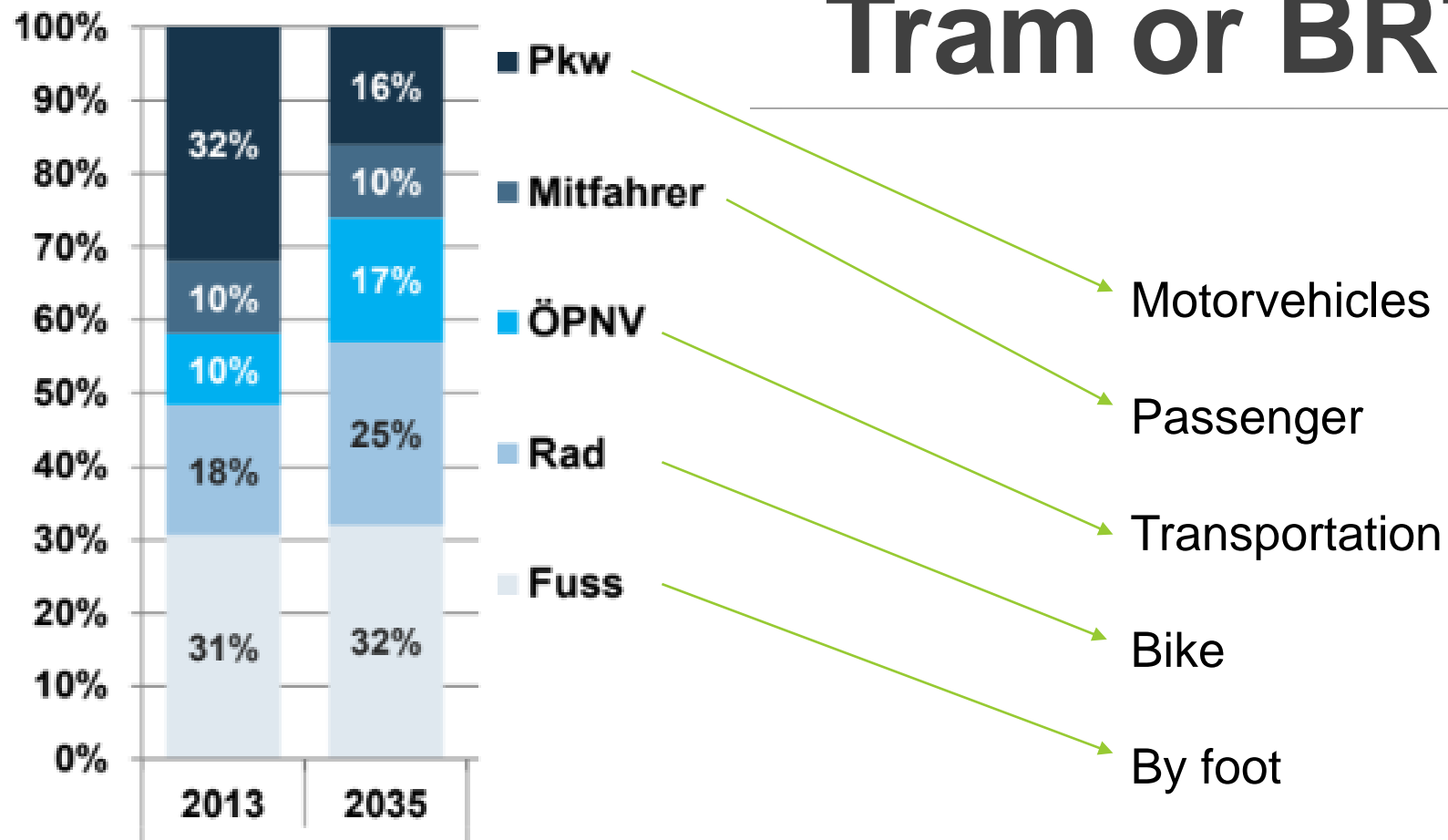
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Modal Split in Kiel



Tram or BRT-System





Future visions in Bodø

- Two self-driving electro busses in the city
- currently testing
- More attractiv public transport
- Less cars and parking place in the city
- More safety in traffic



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Menti.com

Code:

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Energy

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A solid green horizontal bar at the bottom of the slide.



Electric Cars

- Remaining energy must be stored
- Use the battery of an electric vehicle to save energy
- Feed energy from your car to your house system



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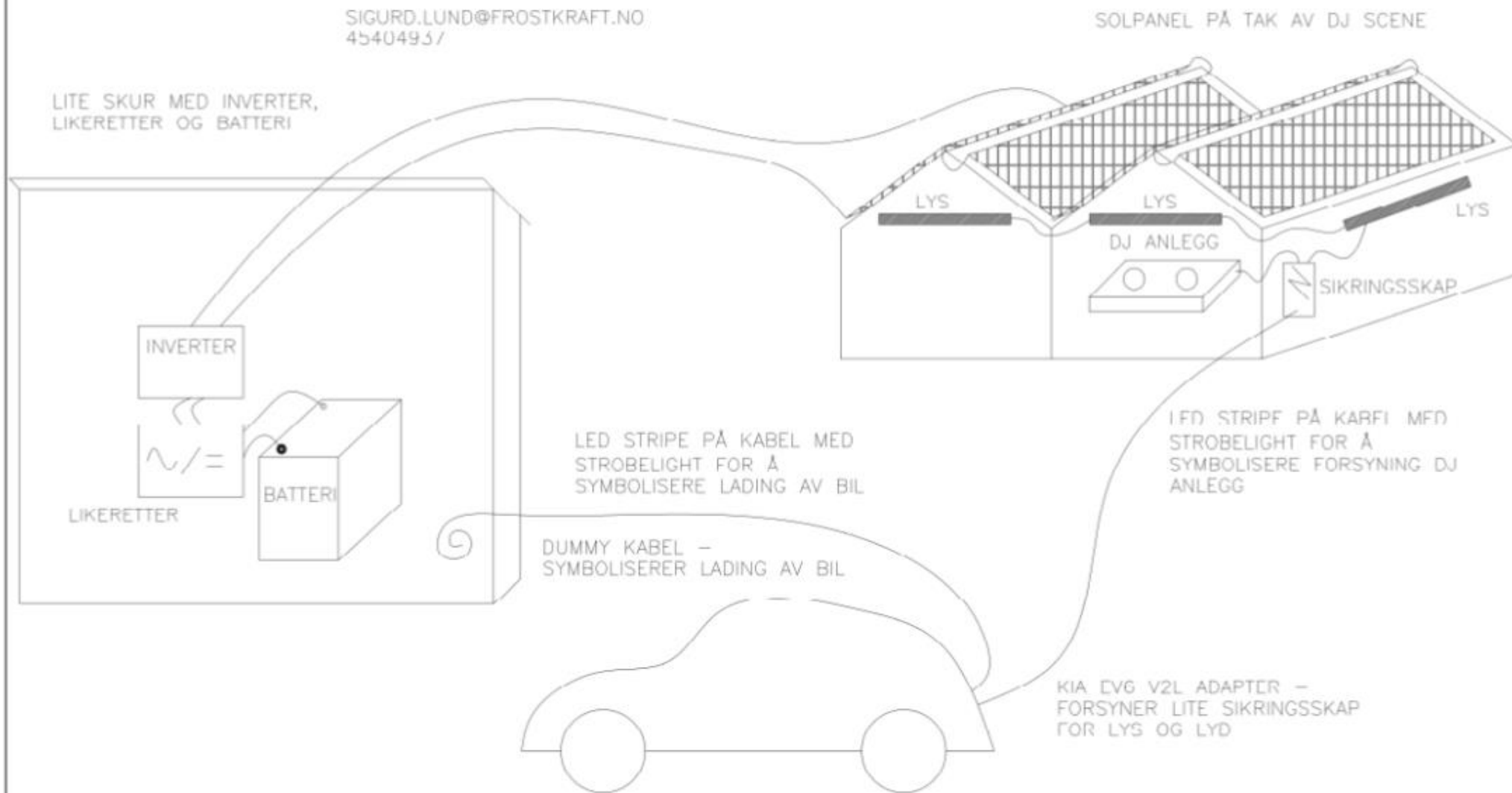
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Vehicle to Grid (V2G)

BODØ ENERGI 15.03.2022
TESTPROSJEKT OFF-GRID LADING MED SOLCELLER OG
FORSYNING TIL DJ ANLEGG

SIGURD.LUND@FROSTKRAFT.NO
45404937





Kiel's coastal power plant

- Since 2020
- Saves approx. 1,000,000 tonnes of CO² per year
- Produces electricity and heat with gas



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Hydroelectric power station

Run-of-river power station

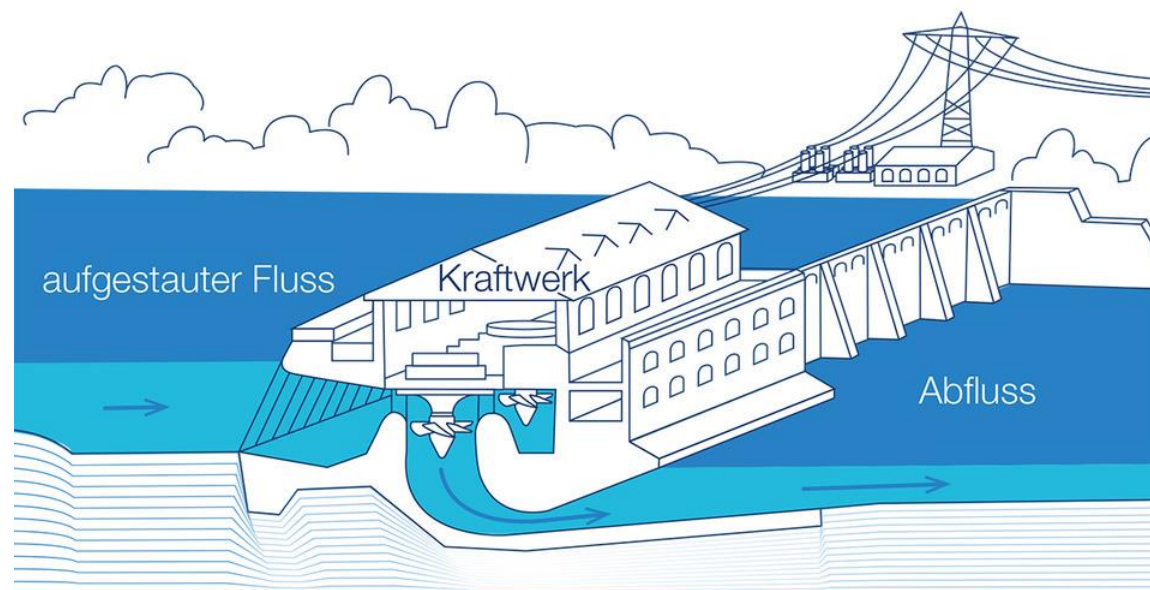
- Covers basic needs of electricity

Storage power station

- Electricity production on command

Pumped storage power station

- Stabilization of electricity network



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Positive and negative aspects from hydroelectric power station

Positive

- Renewable energy
- Capable of storing energy
- Flexible in producing energy
- No CO² emissions

Negative

- Destruction of ecosystem
- People need to leave their homes
- Climate change

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Wind energy

Germany:

- Onshore & offshore
- Makes the largest contribution to the energy transition

Norway:

- Only onshore
- Two test plants offshore
- Most of the electricity produced will be supplied abroad



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Solar

- Sell the energy, you don't need to other households or back to the company
- Svalbard airport has 430 solar panels



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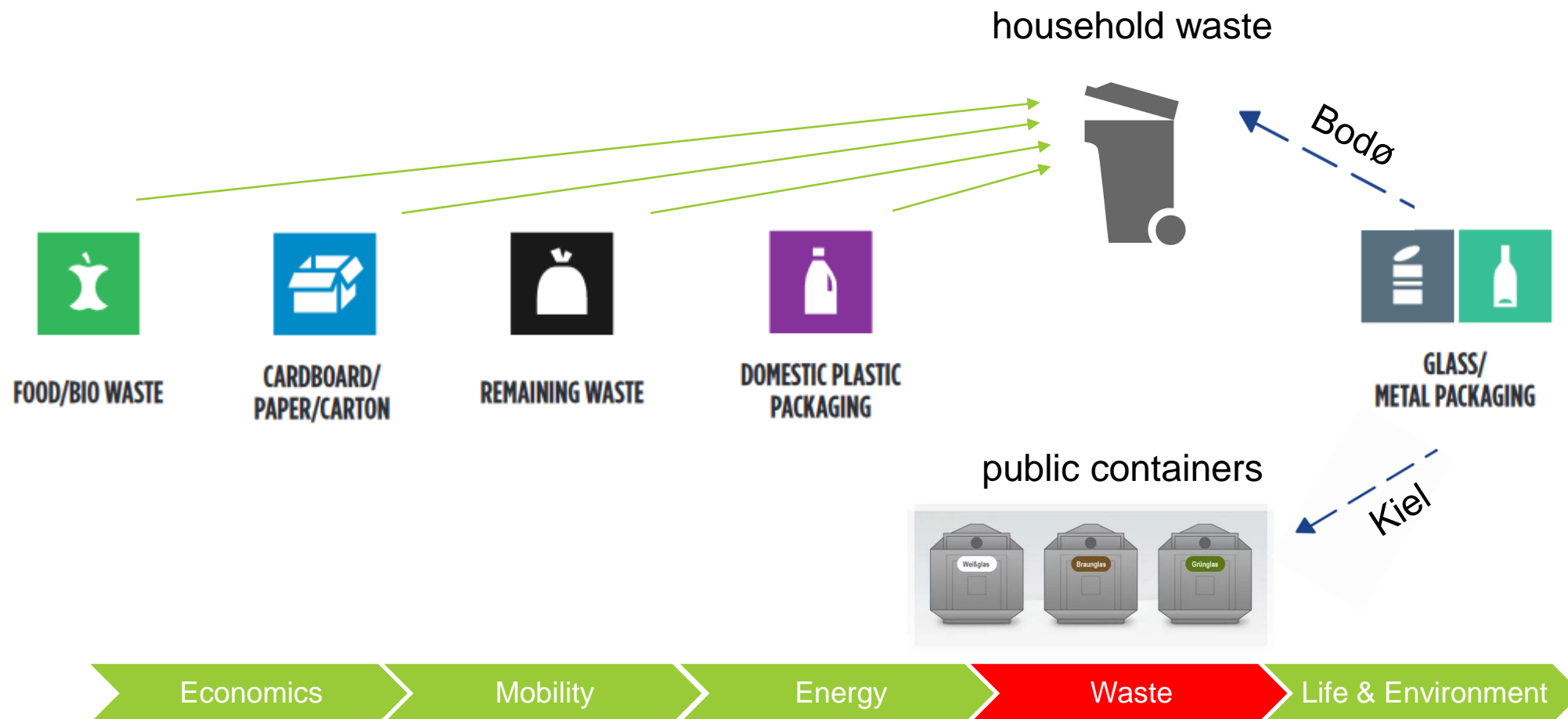
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Waste in Bodø and Kiel

PRESENTED BY LENI, CHRISTIN, EVELYN, MALIN AND
LILIAN

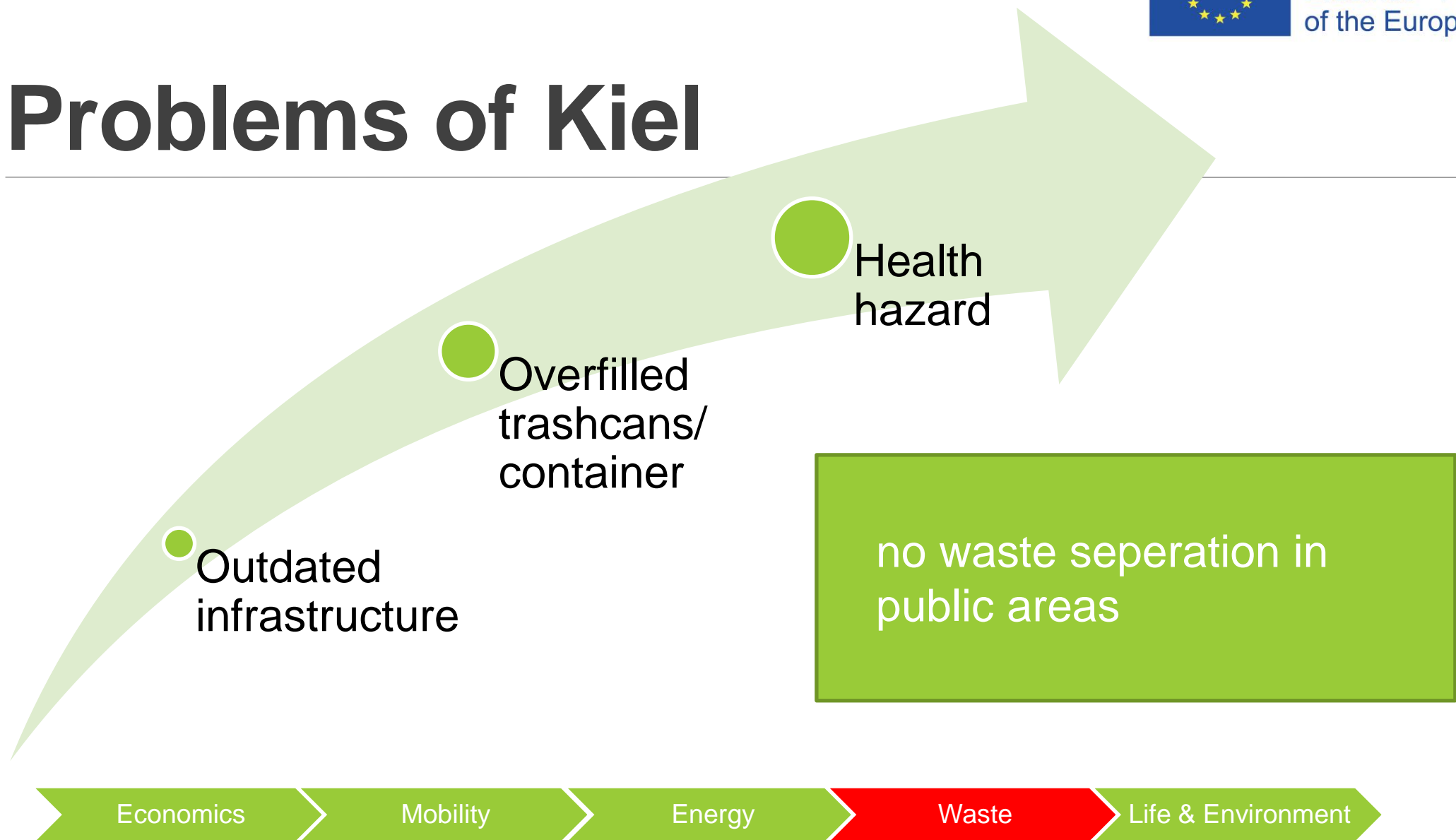


Garbage waste collection





Problems of Kiel





Smart Waste

RIGHT NOW



Optimized route vs. unoptimized route

IOT SENSORES



Optimized route vs. unoptimized route



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What happens with the trash in Kiel?

Waste incineration Kiel

- Since 1975
- First the trash wasn't separated
- Nowadays

Recycling

- Organic waste
- Plastic waste
- Hazardous waste



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ABK report

<https://youtu.be/X8-BdTCZeD0>

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RESIDUAL WASTE INCINERATION

WOOD INCINERATION IN BODO



Sent to 2
different facilities

Fee

- Generate district heating



Heat up water
and buildings

Generate energy

- Wood remnants

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Iris Salten & Nordkontakt



- Iris → Salten
- 12 stations in Salten

Head of communication and marketing



Pernille Devold Kolsing

Leder for kommunikasjon og marked

988 39 529

pernille.kolsing@iris-salten.no

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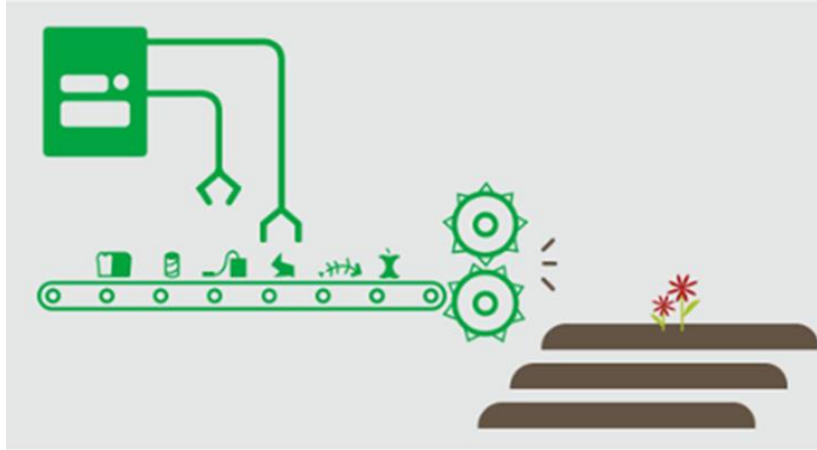
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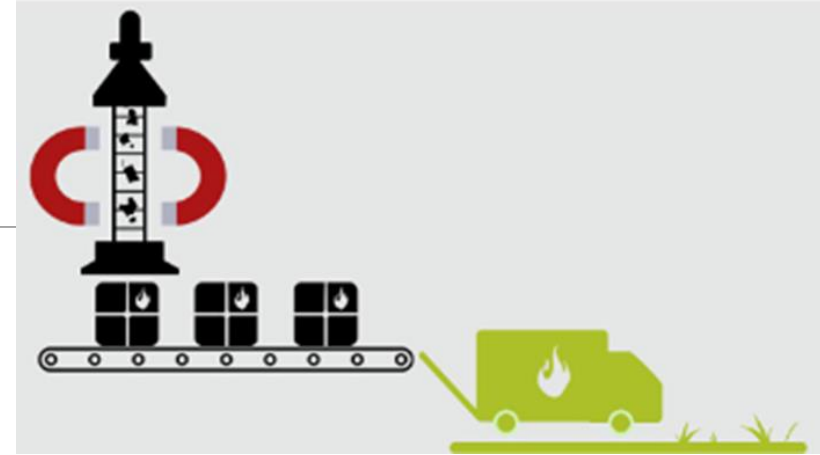
Food waste



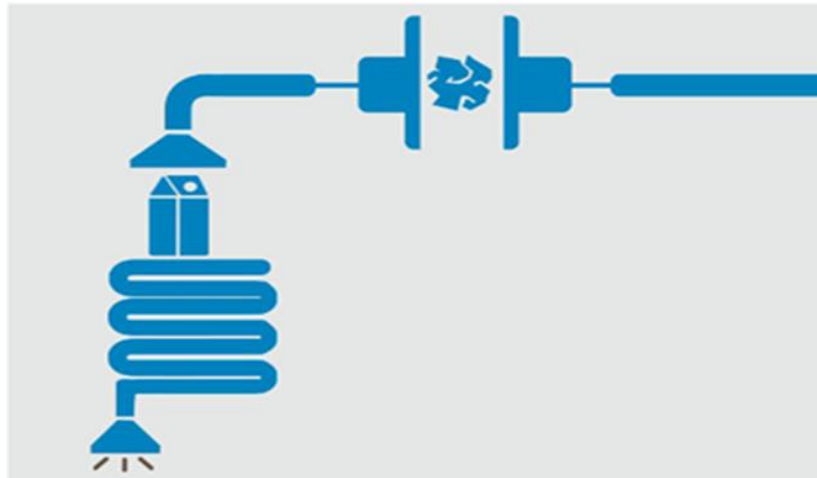
Plastic packaging



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Paper and cardboard



Glass/ Metall



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Goals and future plans

- EU guidelines

Recycling of textiles
→ provide stations by
2025

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Kieler Woche

- More trash
- Collected and examined
 - Three quarters plastic
 - Cigarette ends



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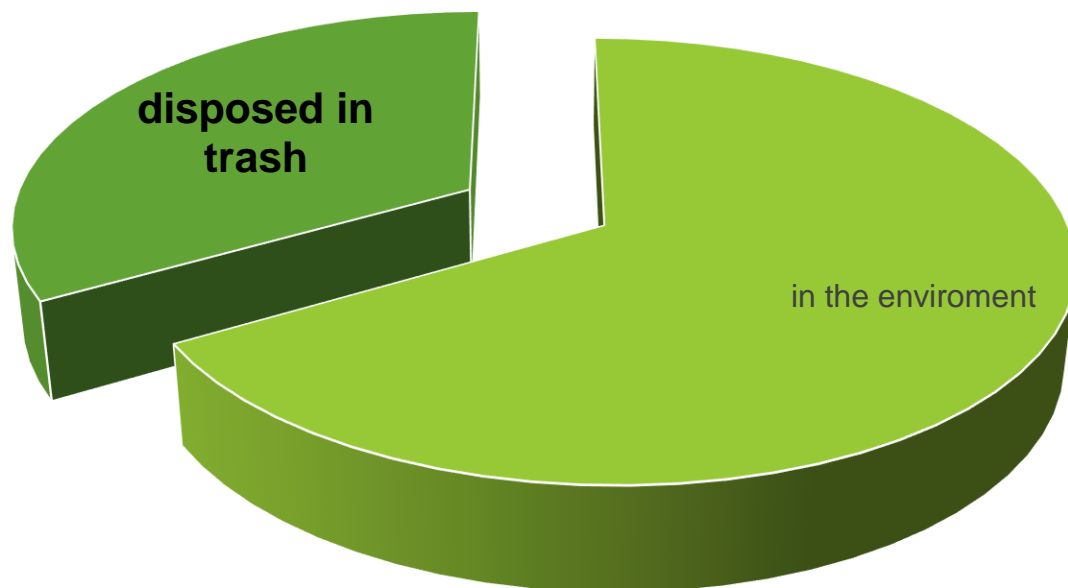
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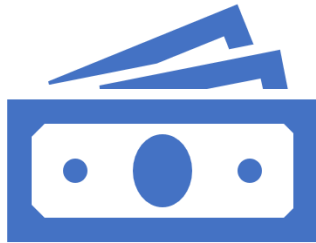
Cigarettes in the environment





Cafeteria

BODØ



For half the price or for
free

KIEL

- Employees get leftovers
- Further processed
- Re-cup system



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Zero Waste



Future goals



Pay-as-you-throw
system



Regular residual waste
analyses



Drinking water
dispensers in public

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The environment and life in Kiel and Bodø

PRESENTED BY SOPHIA, VITALINA, ROSANNA AND VIVIEN



Theodor-Heuss-Ring



- busiest and most congested road in SH
- measurements of high concentrations of nitrogen dioxide

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air measuring station



passive collector

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- closed several access roads
- detour of trucks
- speed limit of 50km/h



speed camera after speed limit

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Lichens at the Theodor-Heuss-Ring



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Lichens

- symbiosis of alga and fungi
- benefit each other
- distinction between different types



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Method

- 3-4 trees
- net with 5 squares 10x10cm
- north, south, east, west
- look into the net for lichen species and count them



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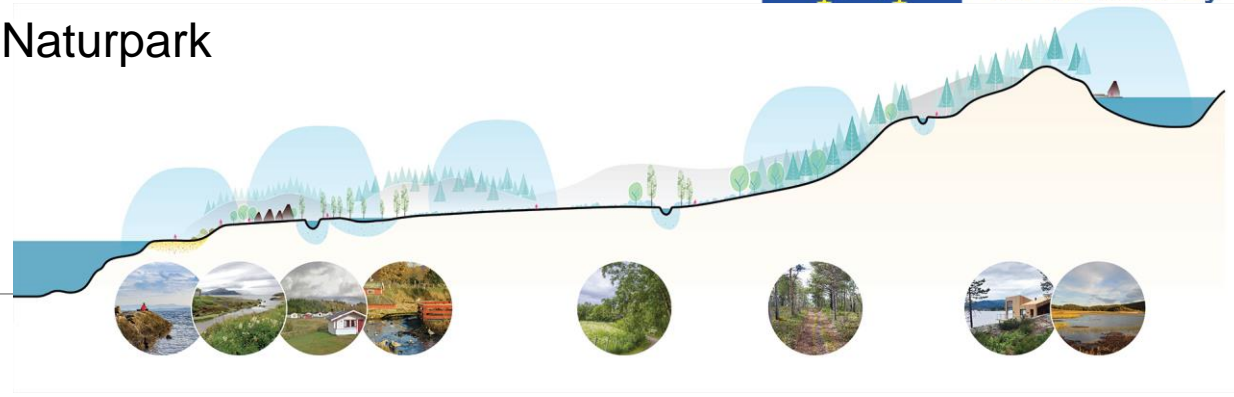
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Bodø

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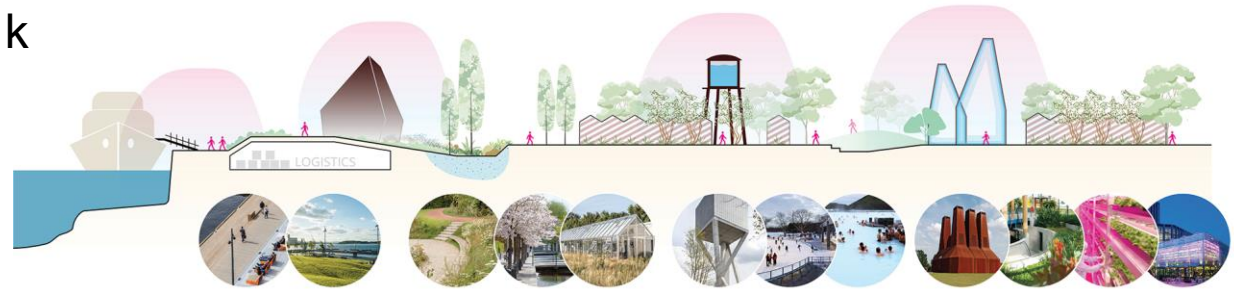
Naturpark



Bunkerpark



Produktivpark



Social commitment:

- Kieler Woche



- since 1996: climate protection city
- first german city to call out climate emergency
- won the **german climate award 2021**

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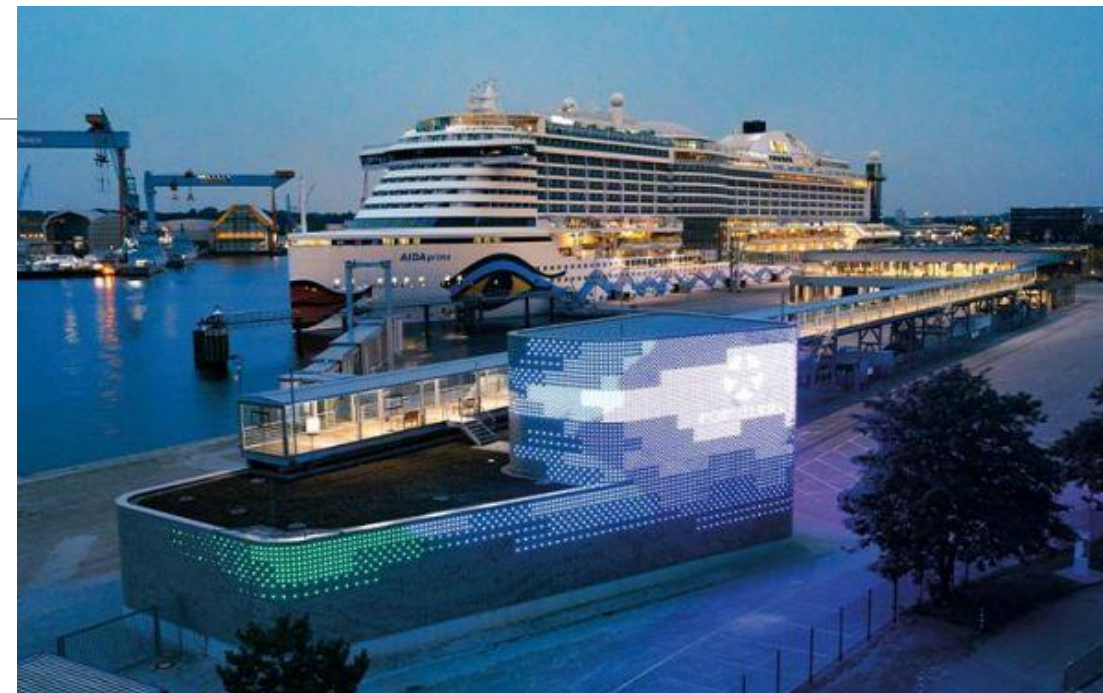


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Connecting climate, resources and marine protection:

- goal: becoming climate neutral in 2050

Blue Port



- reducing over 30.000 transports on land and 20.000 tons of CO2
- facilities for ship 's waste water and shore-side power plants

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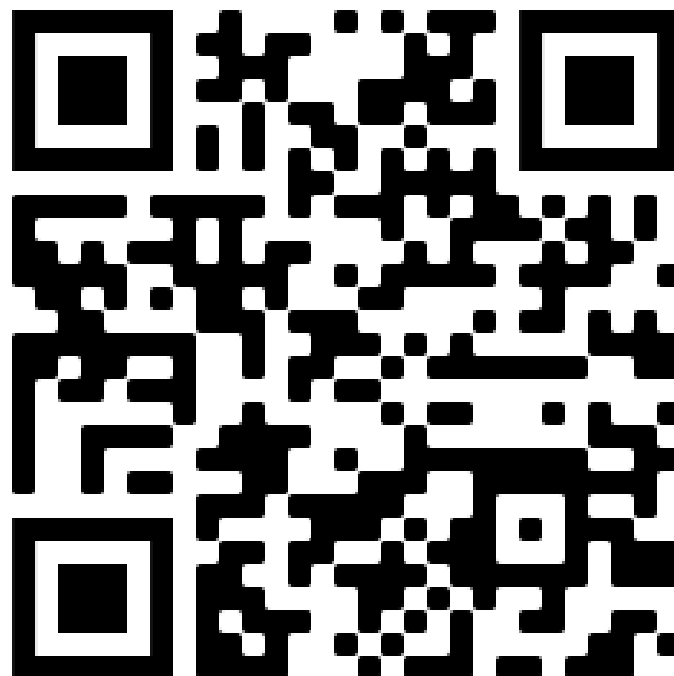
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attention 😊**



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Here is our travel blog





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<https://nachhaltigkeit.bvng.org/en/the-global-goals-for-sustainable-development/sdg-goal-3-good-health-and-well-being/>

<https://www.felixx.nl/projects/circular-city-bod-20.html>

https://www.kiel.de/de/kiel_zukunft/deutscher_nachhaltigkeitspreis.php

<https://www.camp24-7.de/>