

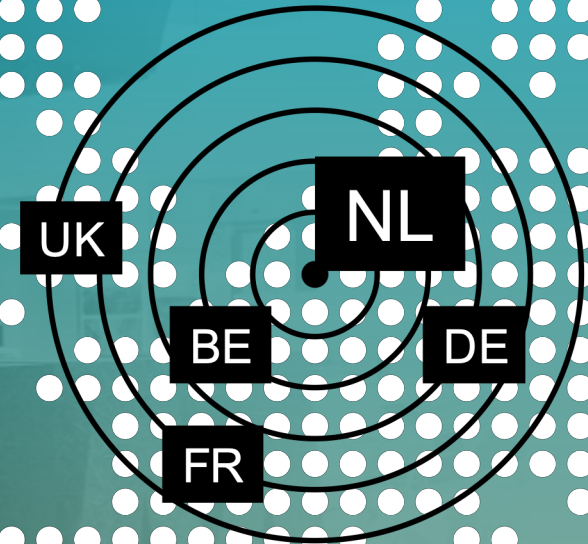
Directors Community

April 21, 2022

Introduction Presentation
By Bert Kip, CEO

Brightlands Chemelot Campus

Breeding ground for science and innovation
in materials, chemistry and biomedical solutions



Campus Energy Project



**RE/
SHAPING**
TOMORROW'S
ENERGY

Brightlands
Knowledge creating borders

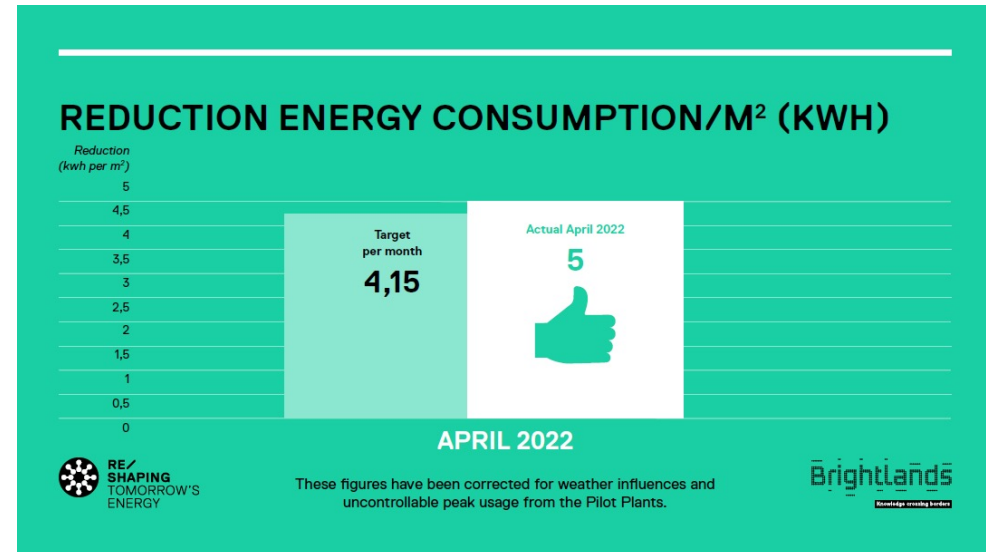
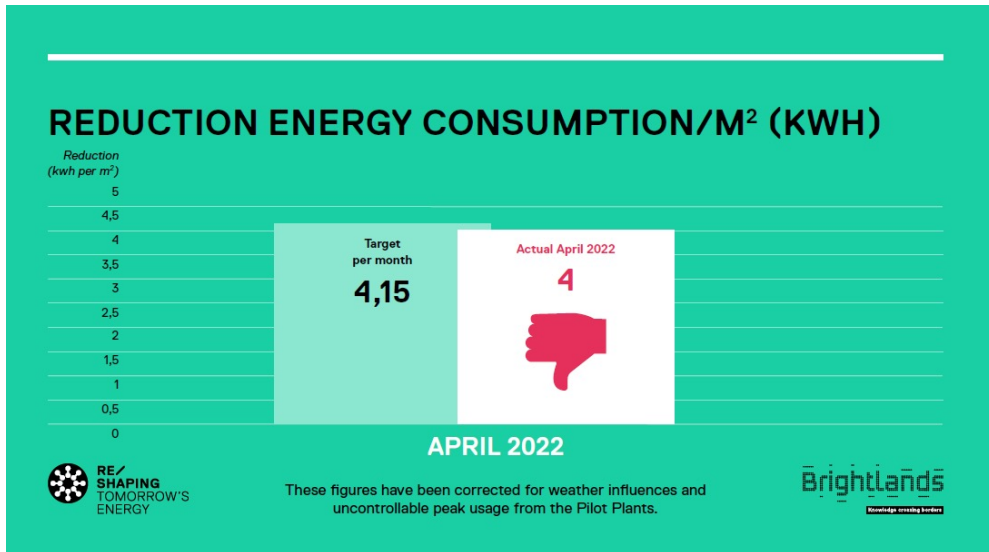
Objectives 2026

- ❑ Energy Savings: 50%, compared with end 2018
-> kpi: 4,15 KWH/M2, per month
- ❑ CO2 Footprint reduction: 90%, compared with end 2018
-> KPI: 51,76 ton/month

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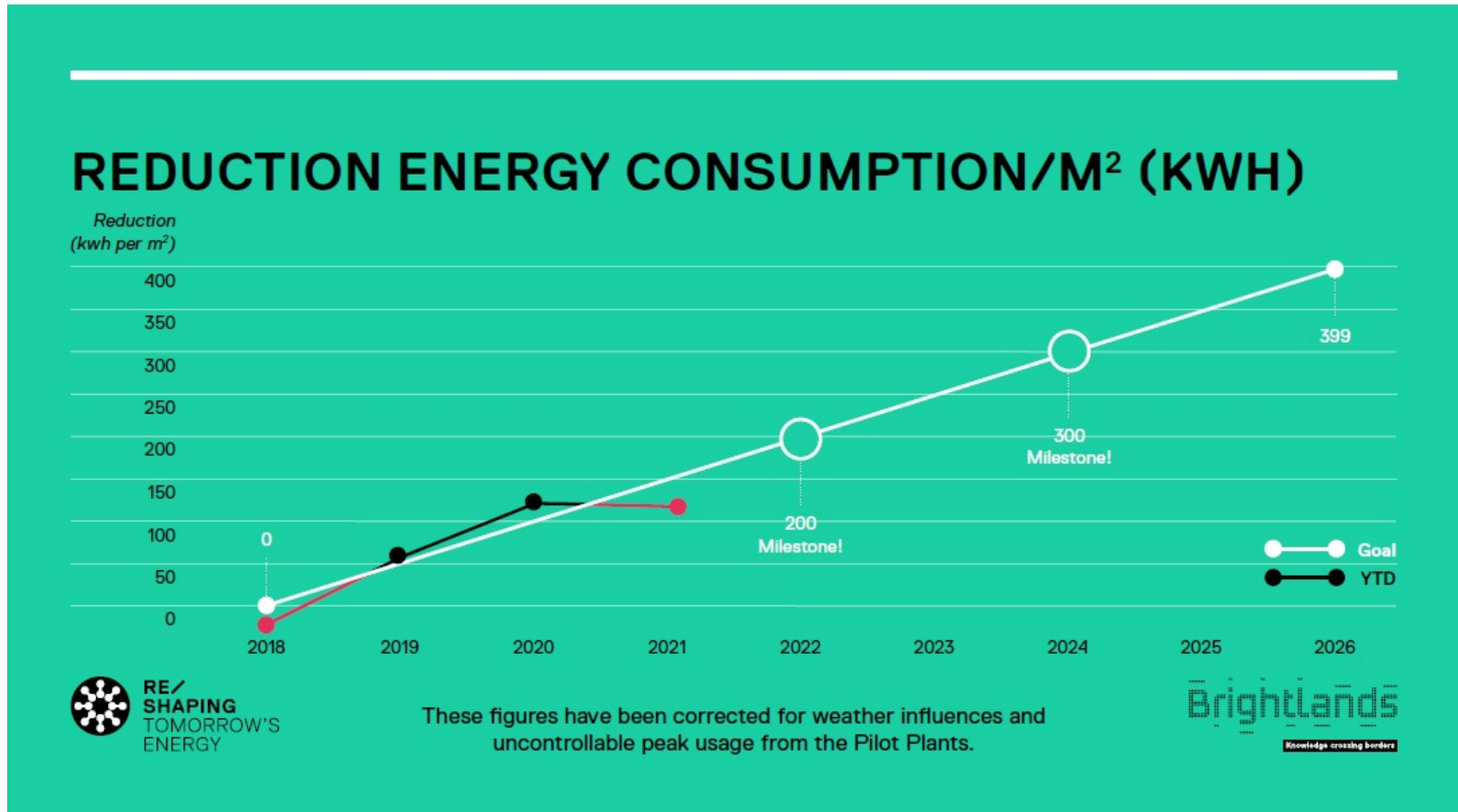
How do we keep you posted on the results?

- ✓ Monthly updates in campus newsletter, narrowcasting screens and in this Directors Community (Start end May)



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We will celebrate milestones with the community
(Example energy milestones)

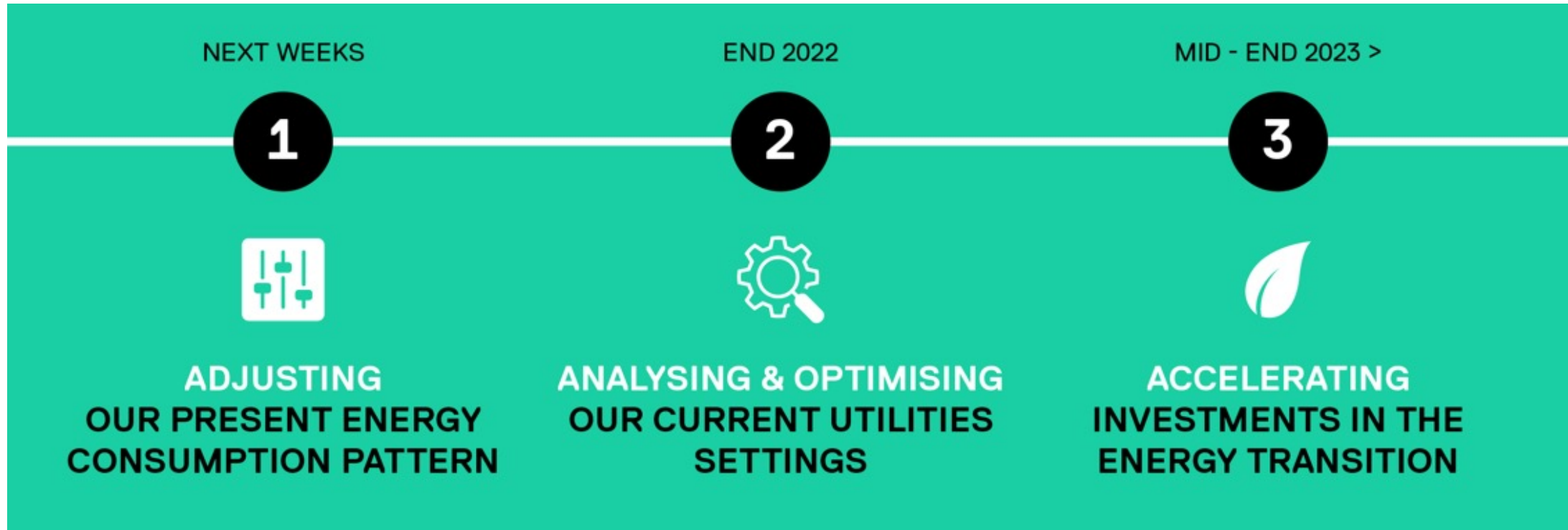


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The Three Program Lines



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Program Line 1 & 2: Activities, so far

- ✓ Thank you for your cooperation. Your employees too!
- ✓ Creation of awareness to
 - lower / higher the temperature with 2 degrees
 - turn off the lights when possible
 - no unnecessary coolers and condensers in use in labs and pilot plants
 - inventarisation with employees which equipment can be turned off at the end of the day
- ✓ Centrally directed: lights off between 19h – 07h
- ✓ Every building requires customization
- ✓ Search for most optimal and economical installation of buildings and equipment
- ✓ Control air flows in offices and labs
- ✓ By closing fume cupboard, we can save energy with 650 m³/h (cabout 24 TL lights)
- ✓ Adaption of clock programs
- ✓ No one noticed, suffered or complained

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Program Line 1 & 2: Activities, so far

The following Buildings are optimized last March and April (date: April 19):

122-001	READY
122-001N	READY
122-004	READY
122-006	READY
122-005	READY
111-017	READY
122-026	No action necessary
122-040	READY
122-045	READY
122-050	No action necessary
111-160	READY
122-094	READY
122-200	READY

The planning for optimization of the next buildings*

122-170	Week 17
121-220	Week 18
121-240	Week 19
122-093	Week 20
122-025	Week 21
122-046	Week 22
122-047	Week 23
121-250	Week 24

* Please notice that those dates are an indication. Actual start date may differ and the lead time of 5 days is an average.

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Program Line 3: Activities, so far

- At this moment we audit and (re)calculate investments based on new energy prices
- Innovations from residents will be implemented when relevant and possible, some examples are:
 - ✓ Idea Fibrant: use free heatflow from the site
 - Unfortunately, the investment required for it is (way) too high
 - ✓ Idea Covestro: check coatings on new solar panels to boost return revenues
 - ✓ Idea Lamoral: cool roof membrane to save 30% energy costs
 - ✓ Idea Yparex: check streetlighting
 - ✓ Idea DSM Biomedical: fume hoods are used only for 80%, shut them off afterwards
 - ✓ Idea ARLANXEO: can hydrogen fuel cells be used as a source for electricity for buildings and services?
 - ✓ Idea Sappi: use residual heat of the pilotplants at campus
 - ✓ Idea Kriya: use facades as heat supply or the foils of Kriya
 - ✓ Idea Sitech: not only heat less, but also cool less in summer
 - ✓ Idea campus: Solar panels on Parkings
 - This appeared to be too expensive, rooftops as attractive alternative are being explored at this moment
 - ✓ ...
 - ✓ ...

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Example 1: Close fume cupboards when not in use...

By closing fume cupboard, we can save energy with 650 m³/h (cabout 24 TL lights)

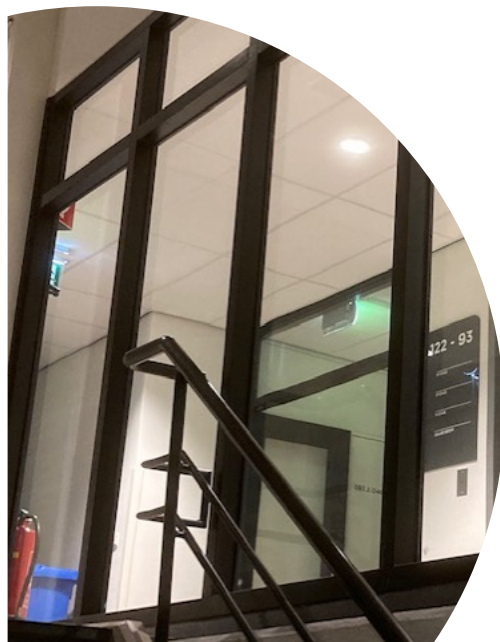


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Example 2: Turn off the lights and screens before leaving the office...



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04.00 @ campus



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Idea Box!

Do you have any good tips or ideas for us?

As the management of this campus, we are always looking for ways to improve. Send your suggestion to Ingeborg: ingeborg.voncken@brightlands.com. Thank you! We always try to respond within a week to let you know if and how we have made use of your idea.