



The growth accelerator towards
a circular environment.

provincie limburg



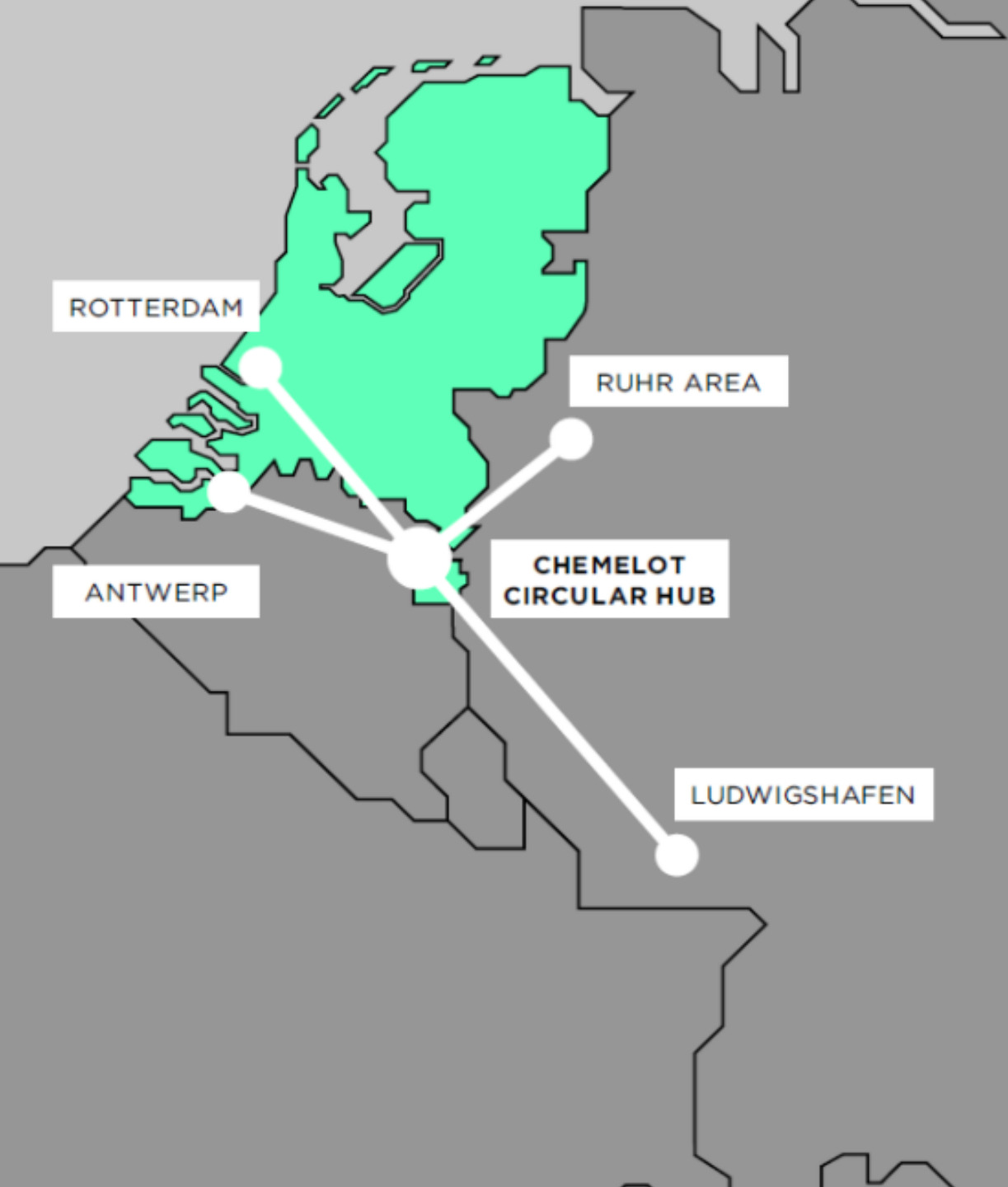
C[•]CH **Chemelot**
Circular Hub

Dirk Plees
Province of Limburg
REPLACE 11.03.2022

In South Limburg we are developing the first large-scale Circular Hub in Europe

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Ideally situated in Western Europe right in the heart of the ARRA chemistry cluster

ARRA:

340.000 jobs in chemicals

40% van European Chemical sales

Chemelot:

- 8.100 jobs

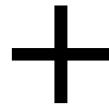
- 100 nationalities

- 110 companies and factories

Leading Circularity

C·C·H Chemelot
Circular Hub

Investment Agenda
2020 - 2030



Circulaire Economie Actie Plan

Transitie agenda
Chemelot Circular Hub

C·C·H Chemelot
Circular Hub
Leading Circularity

C·C·H Chemelot
Circular Hub

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Our goal:

Securing the future of the region and NL (preventing mine closure 2.0)

Developing a new economic branch for the Netherlands and Europe:

Circular Chemistry and Materials

Our way:

“Connecting Minds, Creating the Future”

New Ecosystems- new Business models

System-integrated value chain transition (push-pull)

Using a lot of creativity/ learning communities

In cooperation with other relevant parties/ regions in NL and Europe

Crucial for transition = Creative- innovative Ecosystem ('disruptives')

Such as Brightlands Chemelot Campus



R&D Platforms



Community



Knowledge



Campus Environment

Place to be in
Chemistry &
Materials

Brightlands

Knowledge crossing borders

Brightlands Innovation Program

Sustainable Chemical Processes

Sustainable carbon and hydrogen
Waste streams as new feedstock
Biobased
Electrification

Circular Materials and Products

Designed-from and to-recycle
Longevity and Functionality

1. Acquisition of breakthrough technologies at Chemelot Industrial Park - First in kind factory
2. Acquisition of breakthrough technologies at Chemelot Campus – Pilots & Demonstrators
3. Scaling breakthrough ideas in development centres

Brightsite
Transforming industry

 **Brightlands
Materials Center**

A photograph of a large industrial facility, likely a refinery or chemical plant. The scene is dominated by tall, complex structures made of metal frameworks and piping. In the foreground, there are several large, rectangular industrial units with glass doors, some of which have the 'DASSEN' logo on them. The background shows more of the facility's infrastructure, including tall distillation columns and various pipes. The lighting is bright, suggesting daytime. The overall impression is one of a modern, large-scale industrial operation.

unique
upscaling and debottlenecking
know-how & facilities

Innovative Process Technology
Raw Materials/Energy Transition

TRANSFORM
MATERIALS

COOLBROOK®



I-N-N-O
|
S-Y-N

Brightlands

Knowledge crossing borders

Recycling
Technologies®


Boostani

home of
many
disruptives

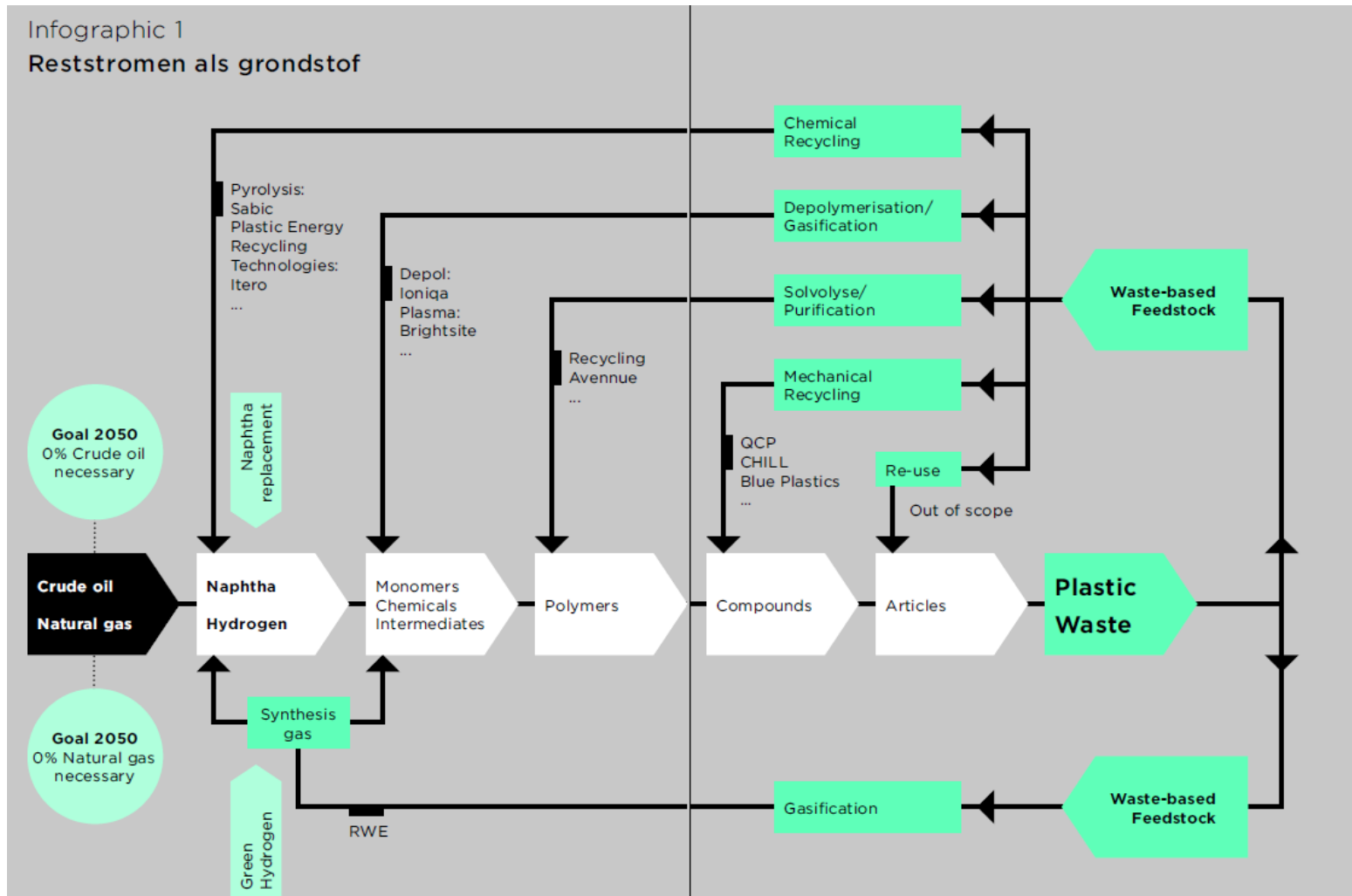
Lonza



All these elements
come together in:

Horizon2020 SyschemiQ

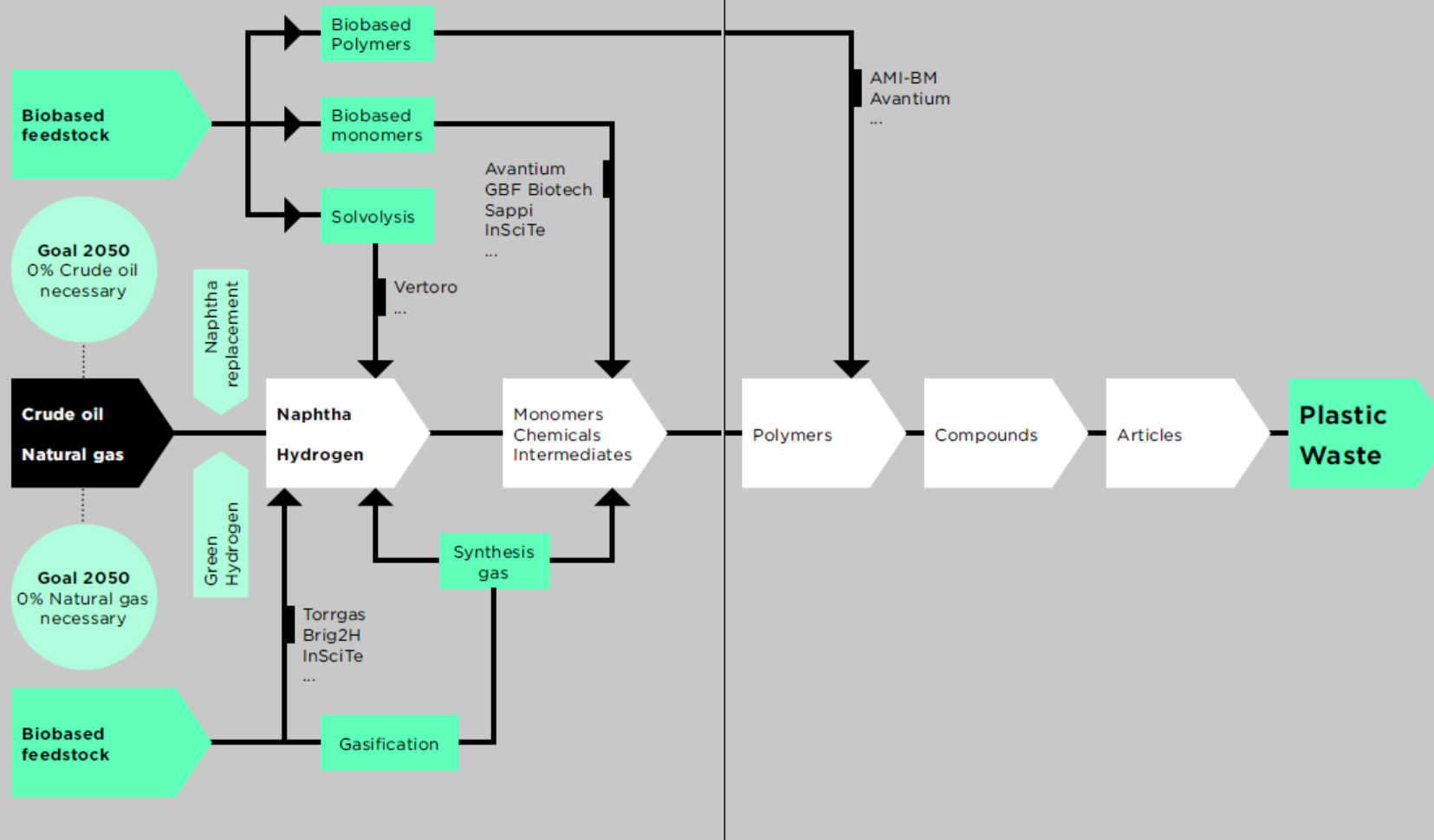
New circular Feedstock



New Circular Feedstock

Infographic 2

Biomassa als grondstof



SYSCHEMIQ- Closed Loop on Plastic Recycling

1. Fact-based scenario driven Governance for systemic transition

Dual-Track multi-stakeholder
Governance (DTG) model

Plastic Recycling Impact Scenario Modelling tool
(PRISM)

2. MPW Recycling Quality (RQ) standards

Assess composition of MPW streams in
trilateral region and define potential for
high quality MPW streams

Define RQ sorting standards
for MR and CR

3. New sorting solutions and processes

Cities and citizens
engagement ('nudging
experiments')

Design new sorting line
configuration with RQ
software

4. Design for and from recycling

Mechanical Recycling Q-requirements



Testing in 4kT/a pilot scale MR plant

Chemical Recycling Q-requirements



Testing in 18kT/a
Commercial CR demo plant

Optimal MR vs CR trade-off

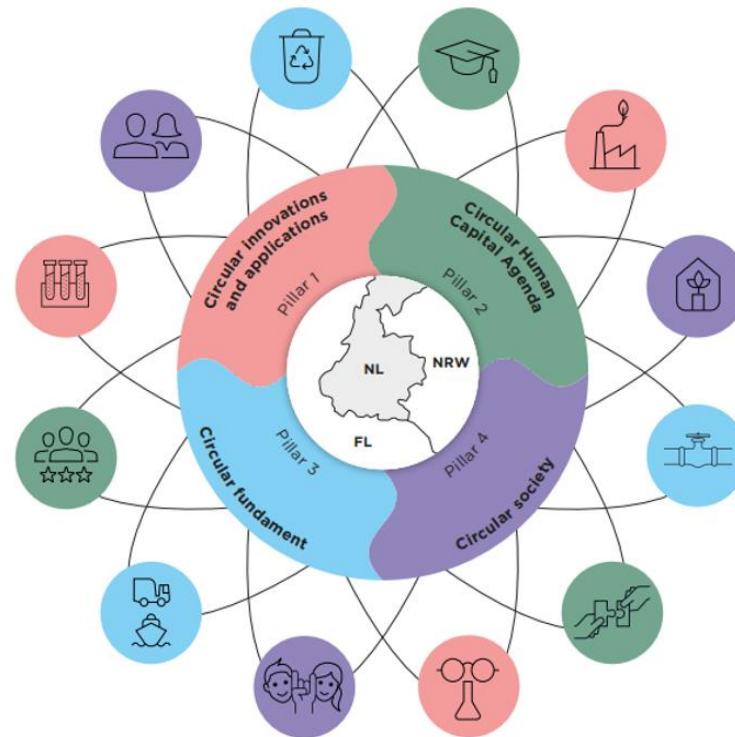
Integral approach cooperation across 4 pillars

Pillar 1

Circular innovations and applications
Innovation, demonstration, business models

Pillar 2

Circular Human Capital Agenda
New skills and worthwhile jobs for people



Pillar 3

Circular fundament
Logistics and Infrastructure,
industrial-urban symbiosis

Pillar 4

Circular Society
Development of surrounding cities

Thank you for your attention

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