

CIRKULÁRNÍ BIOEKONOMIKA

**Téma: Cirkulární
ekonomika jako příležitost
pro Českou republiku**

**–
Soňa Jonášová / INCIEN**



Agenda

1

Relevance of Circular Economy in the CEE region and Introduction

2

Introduction to the Czech challenges and opportunities

3

Circular economy & bioeconomy & research done by INCIEN

4

Bridge to other INCIENs projects + call to action



1 Relevance of Circular Economy in the CEE Region





Current (Linear) Economy



Why is the linear economy problematic?

Environmental degradation

Climate Change

Resources security

Economic Competitiveness

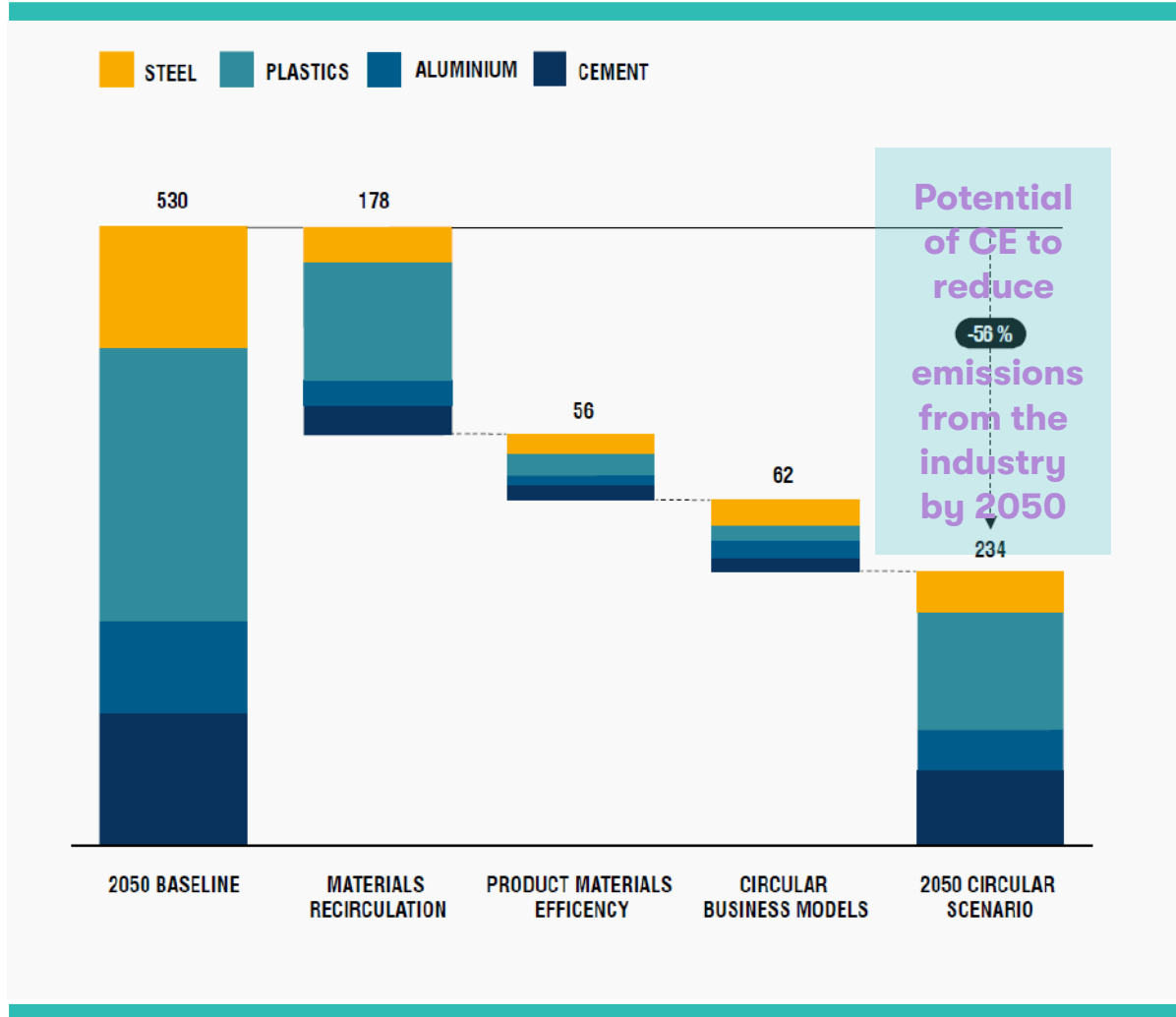
Job security & social cohesion



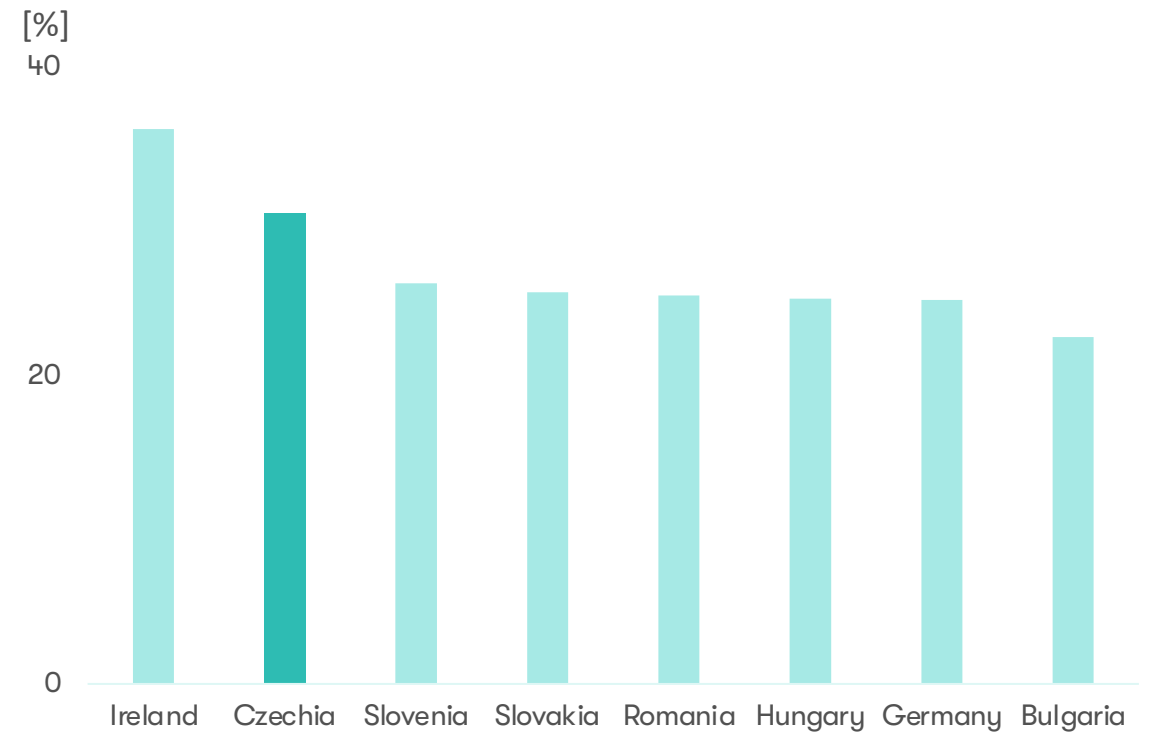
Linear economy in pictures – to make it clear



A more circular economy can cut emissions from heavy industry by 56 % by 2050



Share of industry in total gross value added in the EU Member States, 2018



[Material Economics \(2019\). The Circular Economy a Powerful Force for Climate Mitigation](#)

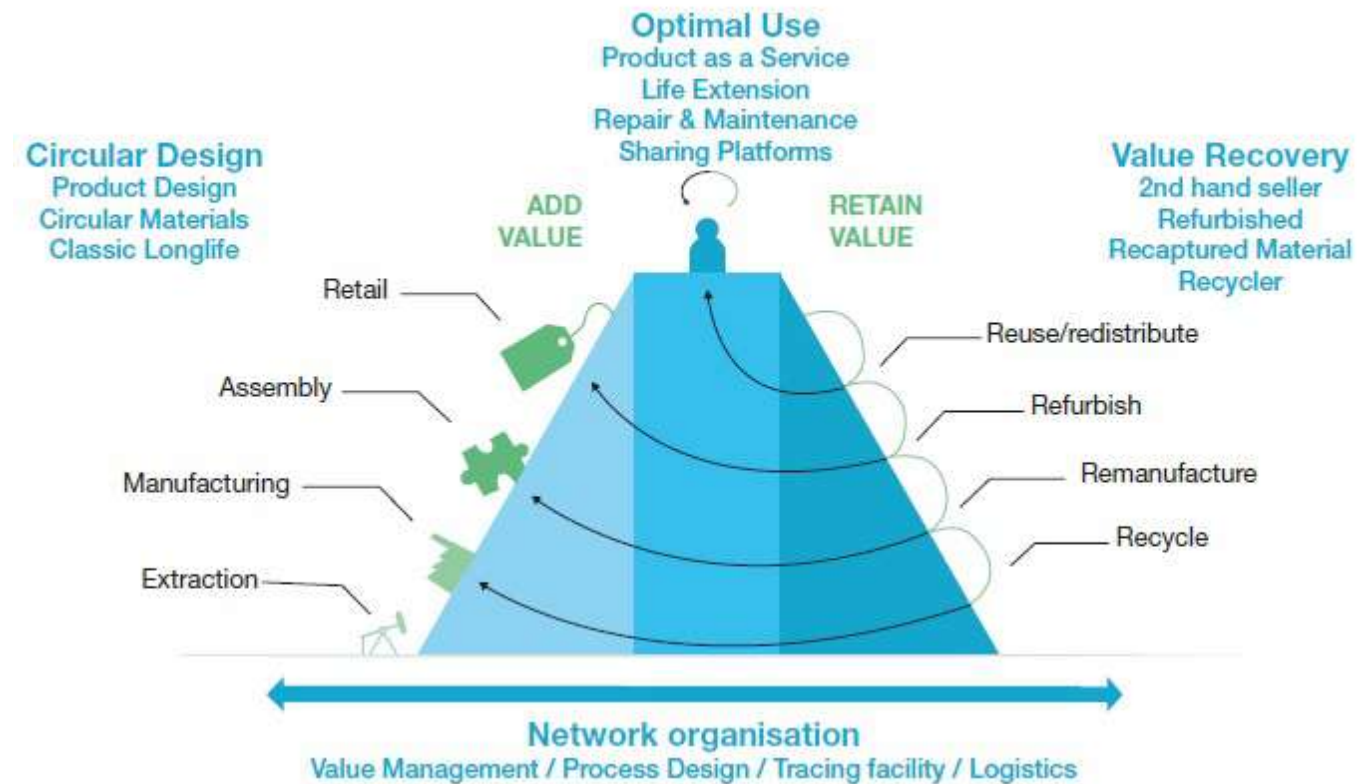
[Transformative innovation for prosperous and low-carbon industry.](#) (units in Mton CO₂eq/year)





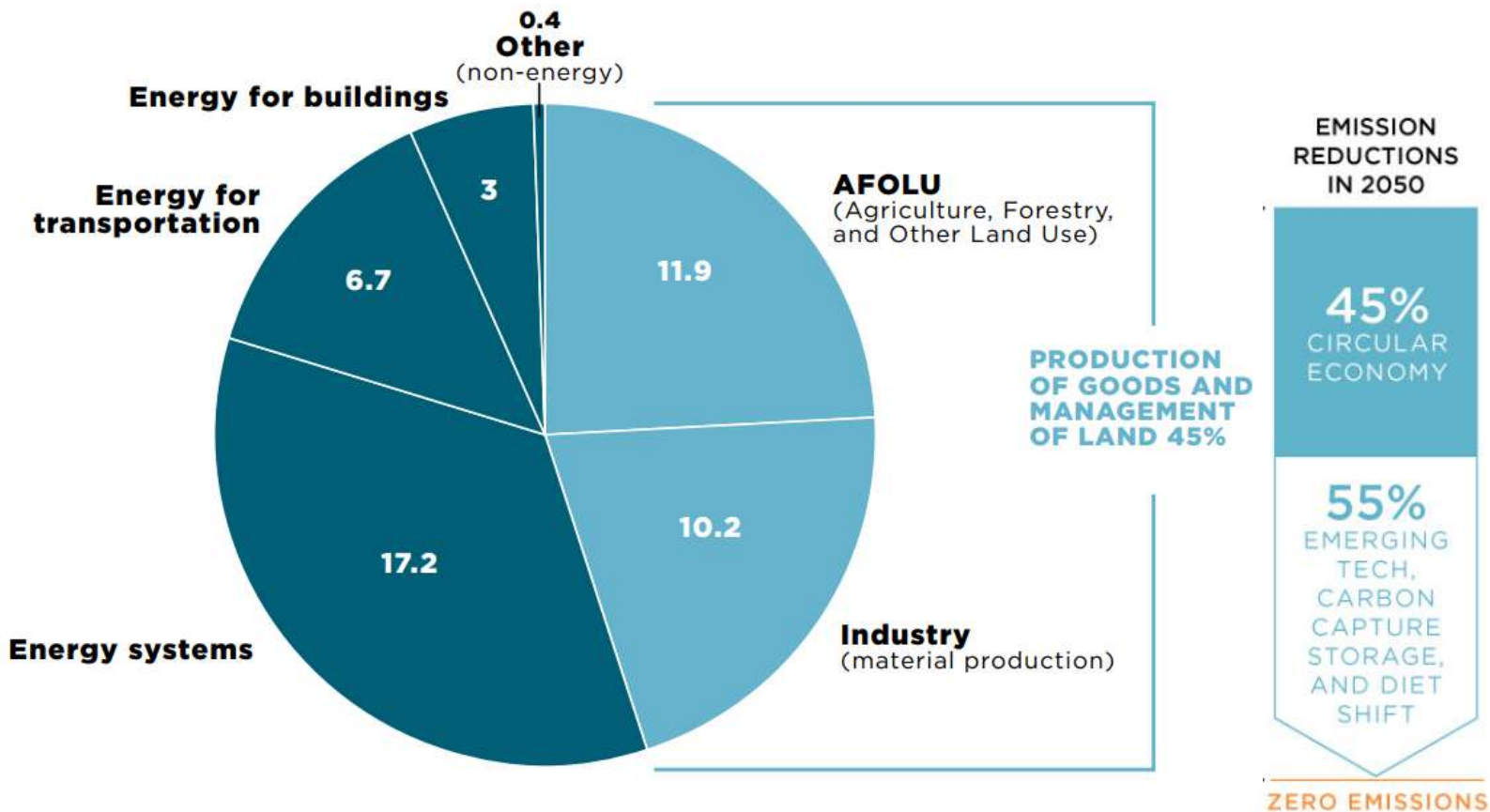
What is Circular Economy (CE)

- Circular Economy (CE) offers alternative economic model, which is based on high material efficiency;
- Aimed at eliminating waste and the continual use of resources;
- CE is employing reuse, repair, remanufacturing, upcycling, recycling and sharing in order to prolong the product / service life cycle;

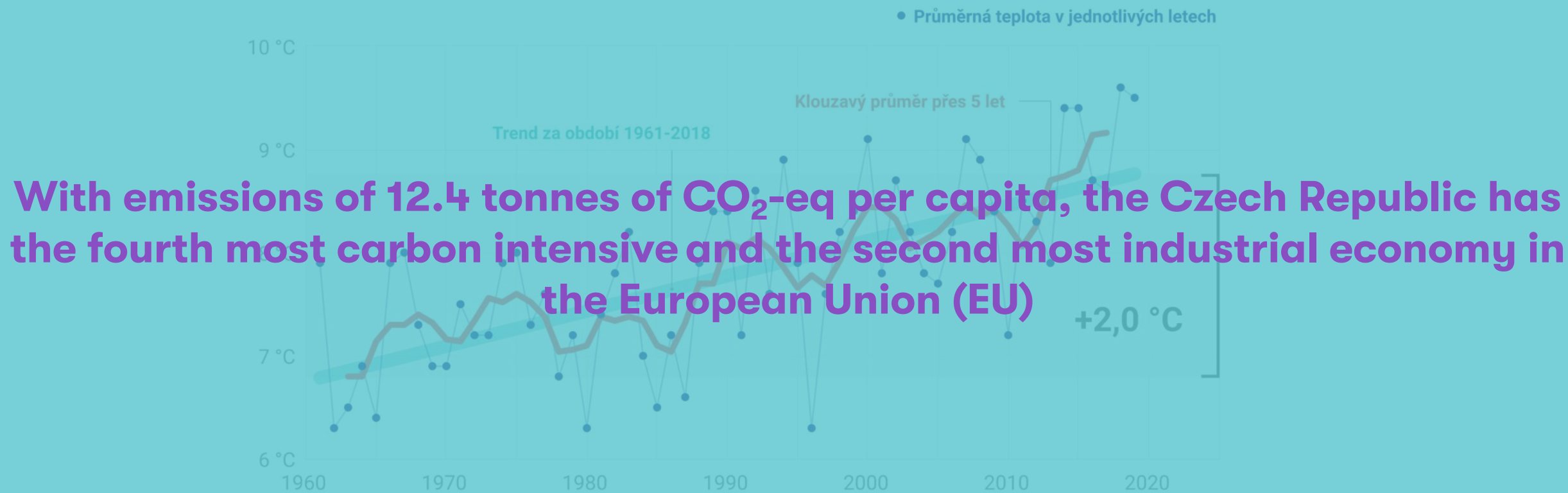


Why Circular Economy?

Climate Change & Circular Economy



Czech republic has already transgressed the 2°C target



With emissions of 12.4 tonnes of CO₂-eq per capita, the Czech Republic has the fourth most carbon intensive and the second most industrial economy in the European Union (EU)

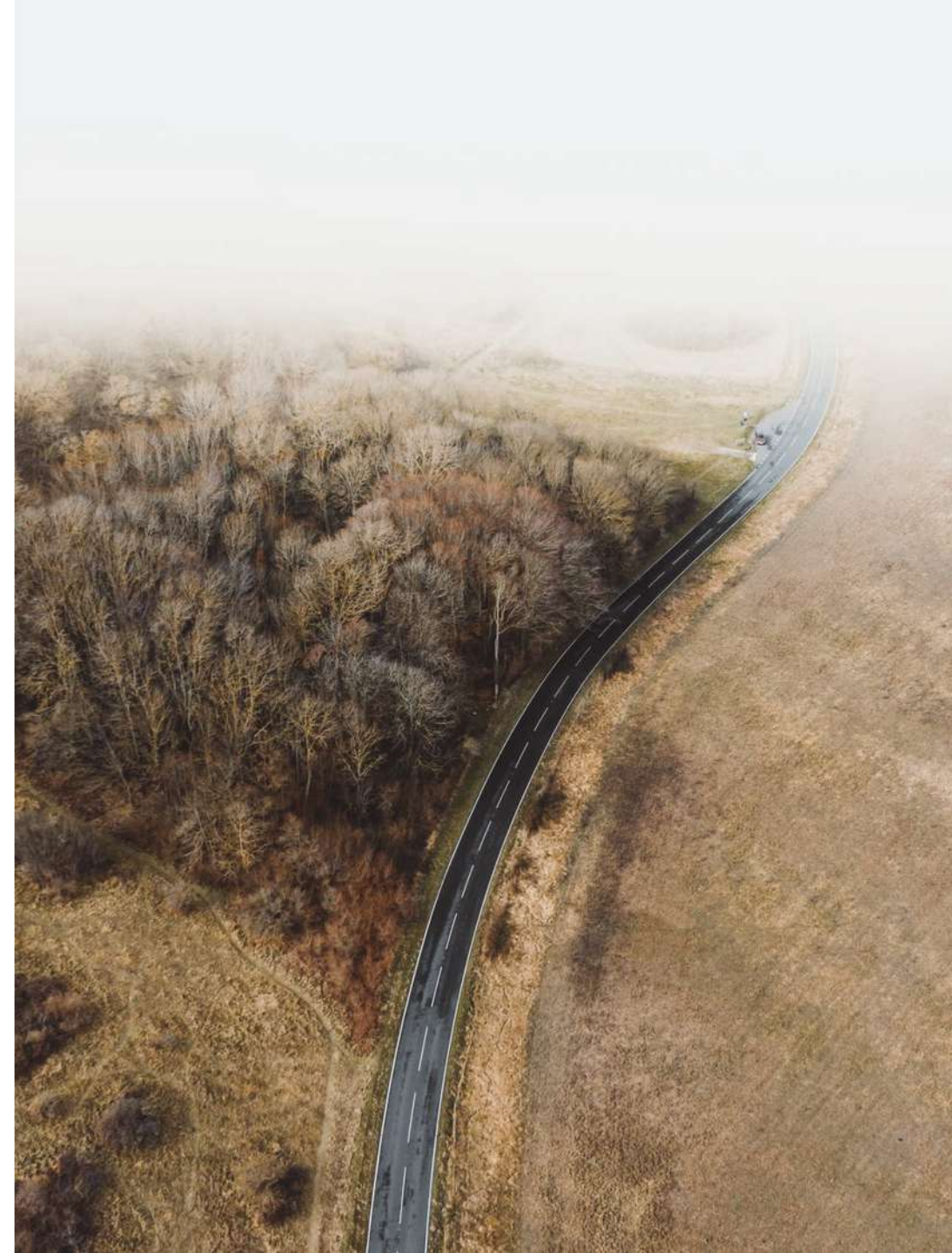
2 Introduction to INCIEN



INCIEN is a non-governmental organisation which was established in 2015 with the aim to increase awareness of the concept of Circular Economy and to demonstrate it in practice

Our responsibility is to be active in the realm of public and private sphere and to shape the debate into a state where the “new normal” will be a society with limited impact on the local ecosystems whilst having a prospering and competitive economy.

The vision of INCIEN is a society in which human capital is nurtured, and natural capital is preserved or when needed then exploited, however, within the planetary boundaries.





The mission of INCIEN is to be a catalyst for fostering both bottom-up and top-down transformation towards a circular economy (CE) as a way towards carbon neutral and environmentally sustainable society.

The mission of INCIEN is to:

- **connect** the right people and organizations
- **facilitate a dialogue** among the key players in the economy
- **inform** objectively about the up- and short-comings of CE
- **research** the potential of CE in the different sectors of the economy
- actively participate in the **systemic change** towards circular and low carbon economy.



INCIEN is built on four intertwined pillars



INCIEN ACADEMY

Educating the youth
and the
professionals to
increase the traction
towards CE



INCIEN RESEARCH & CONSULTANCY

Researching and
consulting to private
and public bodies on
CE



INCIEN THINK-TANK

Setting up the
agenda in key
economic sectors

(For 2021: Textiles, Plastics,
Bioeconomy, Circular
Procurement)



INCIEN WATCHDOG

Overseeing the right
course of CE so that
it serves the
economy, the
environment and the
society



3

Circular economy & bioeconomy & research done by INCIEN



A yellow excavator is shown from a high-angle perspective, working in a vast landfill. The ground is covered in a dense layer of multi-colored waste, including plastic, paper, and other debris. The excavator's arm and bucket are visible, positioned in the lower-left quadrant of the frame. A semi-transparent blue filter is applied over the entire image, and a line of purple text is centered horizontally across the middle.

Around half of waste is annually landfilled in the Czech republic.



The Czech Republic is facing a huge bark beetle calamity. We expect a crisis in the availability of wood within five years.

An estimated 20-25 millions m³ of damaged wood in 2019.

The increase of beetle-damaged wood has been exponential over the past years (from 1 million m³ in 2014 to 5 million m³ in 2017)



**Czech soil is subjected to strong erosion due to lack of organic matter,
which threatens the future of Czech agriculture.**



(Circular) Bioeconomy

The circular bioeconomy focuses on the sustainable, resource-efficient valorization of biomass in integrated, multi-output production chains (e.g. biorefineries) while also making use of residues and wastes and optimizing the value of biomass over time via cascading.

- Utilization of organic waste streams
- Resource-efficiency (strategies)
- Renewable & bio-based products
- Cascading use strategies
- Cascading use
- Organic recycling, nutrient cycling

Methodology



Status quo
overview



Material flow
analysis



Stakeholder
analysis



PESTLE analysis

ETA PROJECT

To test our proposed methodology as a sector analysis comprising:

- SWOT analysis
- Stakeholder analysis
- PESTLE analysis (barriers)
- Material Flow Analysis
- Identifying circular scenarios,
- Recommendations + lessons learnt

Important: a critical view and critical analysis

- no easy solutions (eg. case of bioplastics)



Status quo
overview



Material flow
analysis



Stakeholder
analysis



PESTLE analysis

CIRCULAR BIOECONOMY IN CZECHIA

WHAT WE DO?

FORESTRY – Technology agency (TAČR) project

- Wood industry traditional (less wood in 10 years)

PESTLE analysis, MFA (bark beetle wood)

- Political: Department barriers
- Economic: Consumption habit barriers
- Social: Manpower shortage barriers
- Technological: connected with logging, transport (road load), storage, and production/recycling barriers
- Legislative: Absence of harmonization policy
- Environmental: Climatic barriers

SOLUTION

- RECYCLE; SEPARATE WOOD WASTE; CASCADING, RECYCLING, LOCALISATION OF PRODUCTION & CONSUMPTION
-



CIRCULAR BIOECONOMY IN CZECHIA

WHAT WE DO?

AGRICULTURE

- focus on self-sufficient farms (e.g. Choťovice)
- 1) Unsustainable use of productive resources
 - 2) Negative impacts of climate change (drought)
 - 3) Challenges linked to the European Green Deal and Farm to Fork Strategy (greening agriculture vs. strong large-scale farming lobby)
 - 4) Consumer patterns – reduction of food waste, localised and seasonal production



4

Bridge to other INCIENs projects + call to action



CIRCULAR PRAGUE

Phases of circular scan



**Socio-economic
analysis**



Material flow analysis

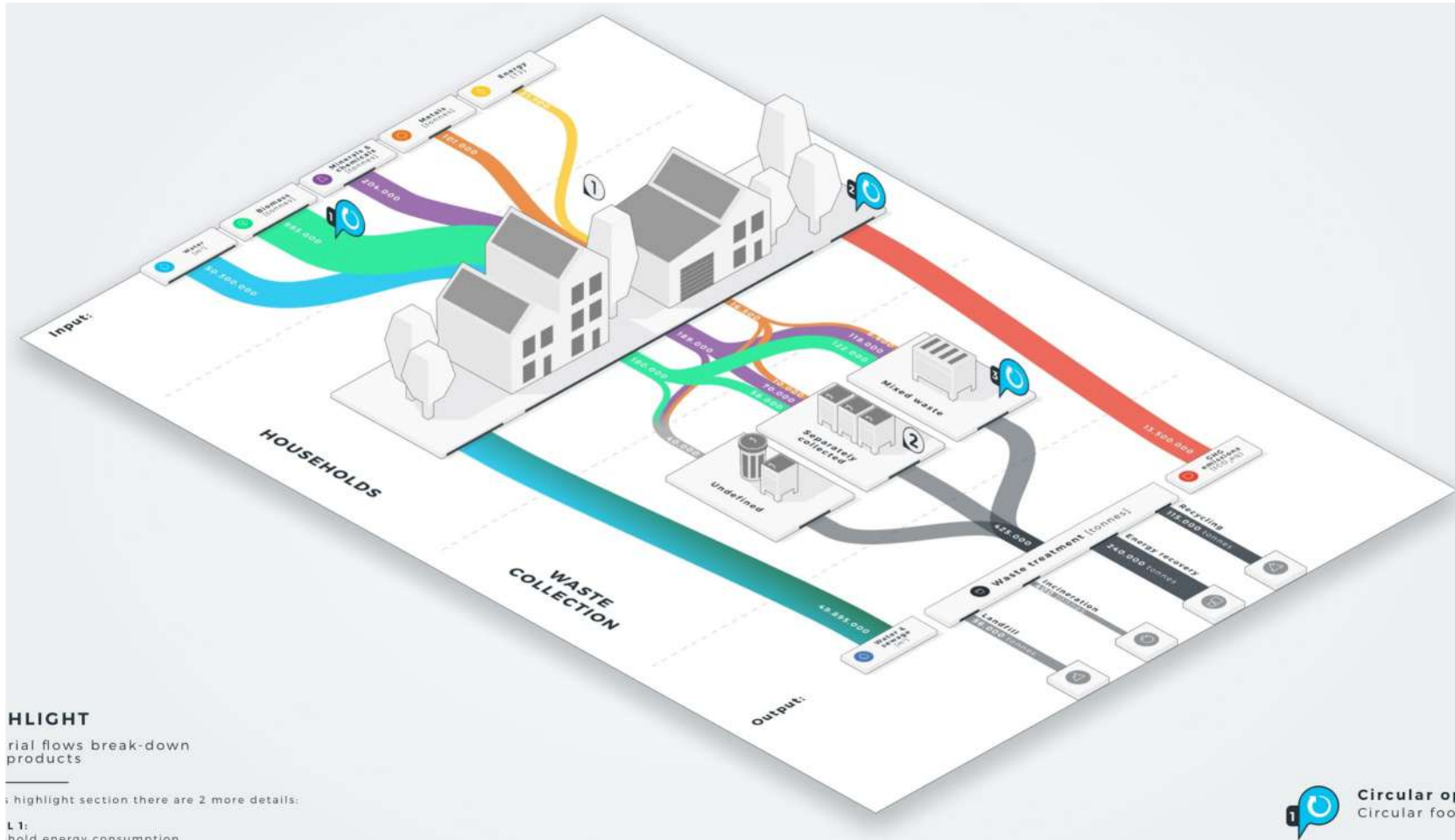


Action plan

Analysis of current political agenda and stakeholder engagement



Phase 2: Analysis of material flows in households



Phase 2: Analysis of material flows in households

- Biomass is one of the most used materials in households. Approximately 180 ths. tons of biomass is discarded as waste per year by households
 - 80,000 tons of furniture and building materials are handed over to residents every year to collection yards
 - Prague is one of the cities with the worst indicators of municipal waste sorting
-



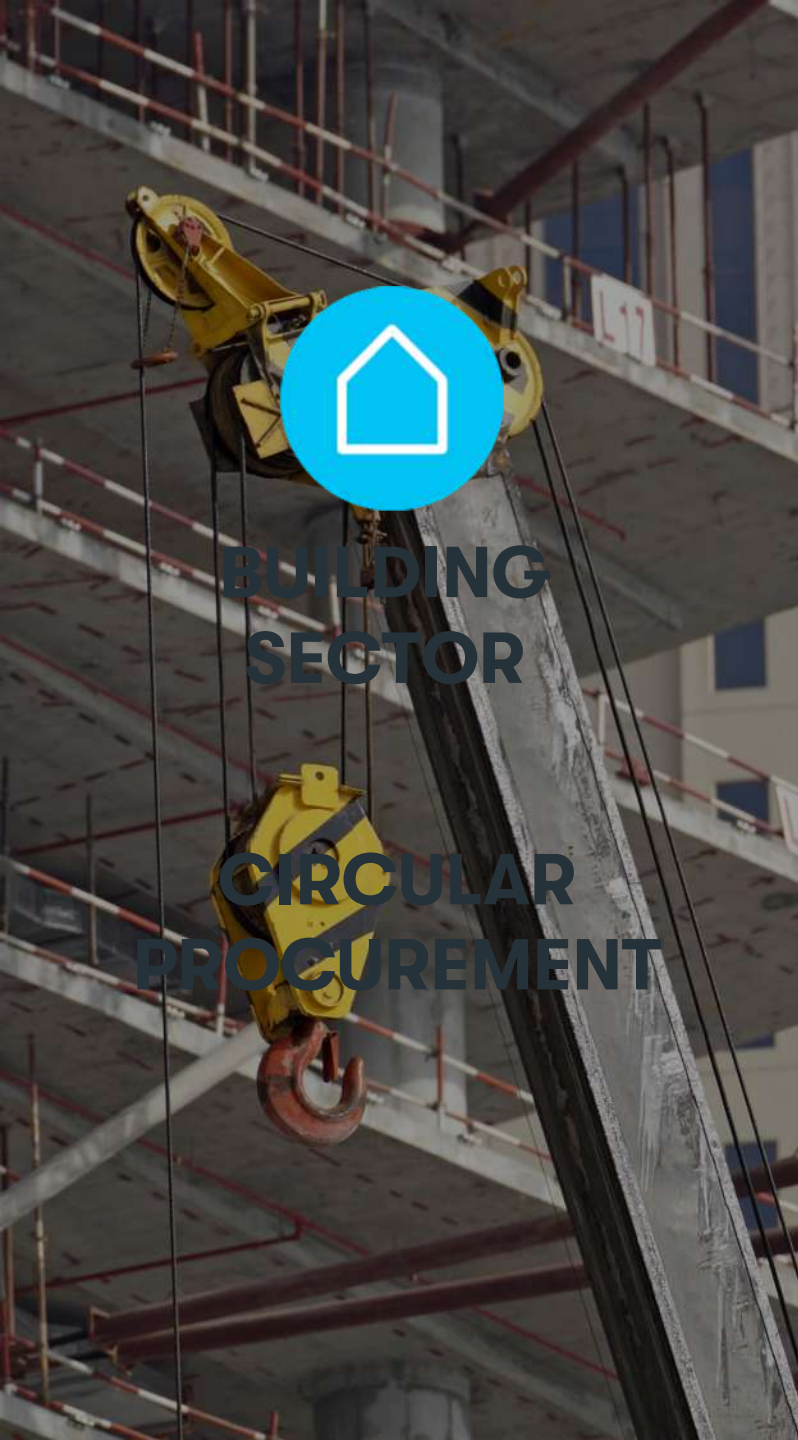
Phase 2: Water, energy, waste - analysis of material flows

- Most of the rainwater that falls on Prague in a year (40 million m³) flows through the common sewer to the WWTP
 - 70% of the waste is exported and processed outside the city limits
 - 180,000 tons of biowaste from the population is largely incinerated in ZEVO
-



Priorities





**BUILDING
SECTOR**

**CIRCULAR
PROCUREMENT**

Circular strategies



HOUSEHOLDS

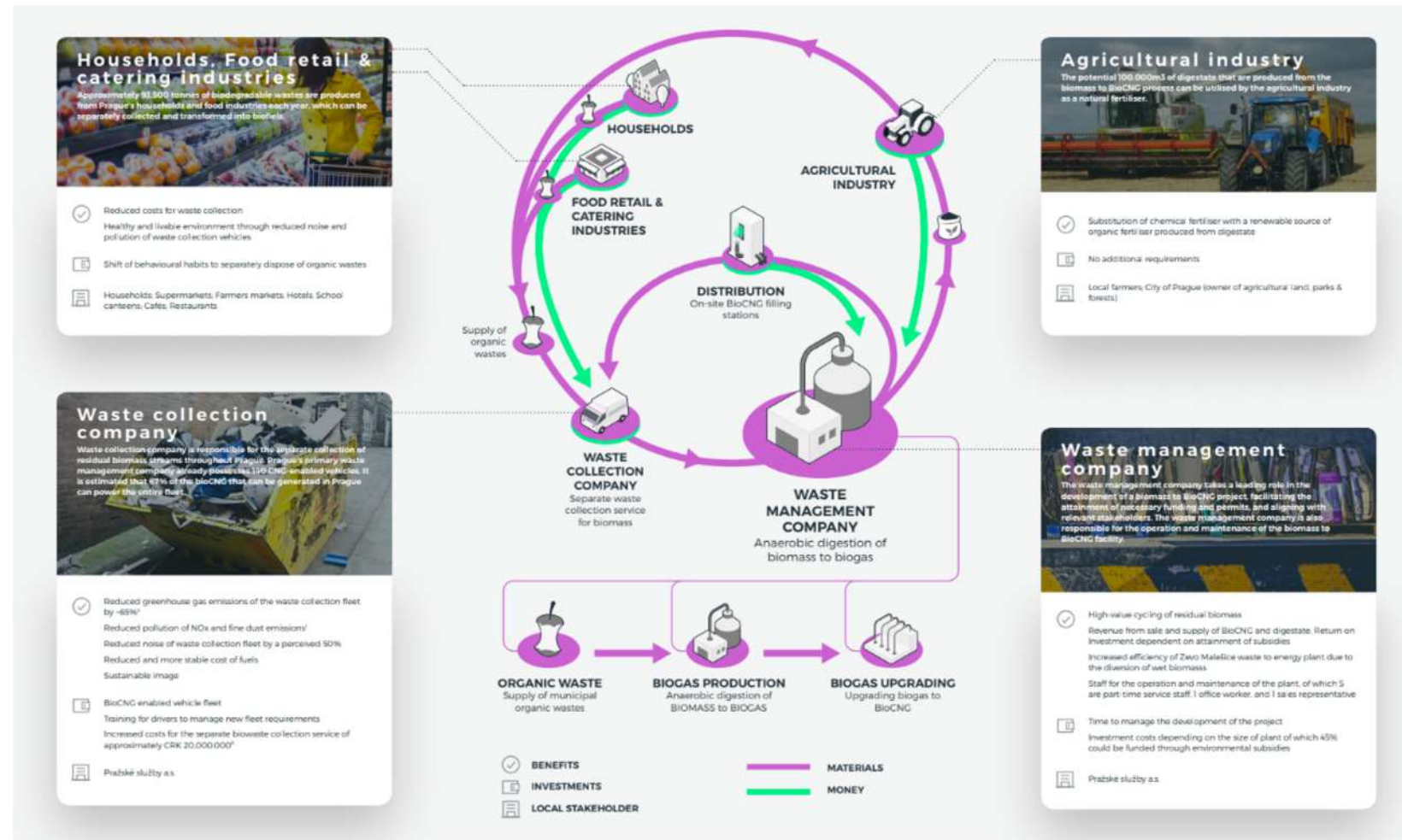
Re-USE centers



SERVICES

**BIOCNG FROM
ORGANIC
WASTE**

Phase 3: Action plan - production of BioCNG from biowaste



CASE STUDIES

TRANSPORT & GREEN ENERGY – ALTERNATIVE TO NATURAL GAS

- **pilot project:** buses in Brno power by biomethan (BioCNG) made from biowaste and human waste (biodegradable waste)
- it works already in Finland, Norway, Sweden, Germany, Poland, France, UK or India
- main promoter: Petr Novotný (INCIEN) – common technology in 2030
- cooperation with the city, transport company and sewage disposal company, expert company MemBrain
- Energy Globe prize for enterprises
- more info in Czech: www.zajimej.se





RESULTS



Praha.eu
portál hlavního města Prahy

[O MĚSTĚ](#) [POTŘEBUJI ŘEŠIT](#) [DOPRAVA](#) [CO DĚLAT V PRAZE](#) [KONTAKT](#)

[Úvod](#) > [O městě](#) > [Magistrát HMP](#) > [Tiskový servis](#) > [Tiskové zprávy](#)

Praha zvažuje stavbu městské bioplynové stanice

Rada hl. m. Prahy dnes vzala na vědomí informaci o záměru postavit na území hlavního města bioplynovou stanici. Ta by měla pomoci kvalitně zpracovat a využít biologicky rozložitelné odpady



FINAL WORD

- **We must consider every waste as a source!**
 - reduce waste
 - localise production
 - focus on biological waste as the greatest potential
 - focus on responsible Research and Innovation - cooperation as a key part of any research
 - be part of the Green Deal – ideal moment for mindset change in the post-crisis management
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ANY QUESTIONS?



INSTITUT CIRKULÁRNÍ EKONOMIKY



BY INCIEN

We close the loop

www.incien.org

T A
Č R

Projekt číslo TL02000234 s názvem „Cirkulární ekonomika jako příležitost pro ČR - Dlouhodobá koncepce pro přechod na oběhové hospodářství“ který je spolufinancován se státní podporou Technologické agentury ČR v rámci Programu ÉTA

 **bic** BRNO podnikatelské
a inovační
centrum

 **INSTITUT
CIRKULÁRNÍ
EKONOMIKY**

Sources

Slide 4: [Circle Economy - Circularity Gap Report](#)

Slide 5: [UNFCCC - Circular Economy as crucial to achieve the Paris Agreement](#), [Material Economics - the CE a powerful force for climate mitigation](#), [Ellen Macarthur Foundation - Climate Change Paper](#)

Slide 6: [Fakta o Klimatu - An average annual temperature](#)

Slide 7: [Kafkadesk - CEE amongst most industrialized countries](#)

Slide 9: [Ministry of Industry and Trade](#), [EU Environment Agency](#)

Slide 11: [Ellen Macarthur Foundation - Climate Change Paper](#)