

Bornholm showing the way

– without waste 2032

BOFA

Vision for waste and resource management on Bornholm.

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Bornholm showing the way – without waste 2032

On Bornholm we wish to be the first region in Europe without waste incineration. We want to sort our way out of the need for incinerating waste.

Bornholm showing the way – without waste is the vision of a cleaner, healthier, and greener Bornholm boosting growth and development. A Bornholm expanding and enhancing its attractiveness as Denmark's and Northern Europe's green island, taking the lead and showing how green visions may become reality.

The vision revolves around many years of work of the Regional Municipality of Bornholm with the Bright

Green Island strategy that has sustainability as the focal point of the future development of the island.

Thanks to its size, its green visions and its geographical location Bornholm, both as an island and a community, will be a tangible and credible example of how to manage the transition of a modern society from a linear to a circular economy thanks to the conversion of the waste management system in close interaction with citizens and businesses.

Bornholm showing the way – without waste is the vision of a **cleaner, healthier, and greener** Bornholm boosting growth and **development**.

Together we take responsibility for all of Bornholm

Vision: In 2032 there will be no more waste on Bornholm – all discarded items are resources that can be recirculated to the benefit of the entire community.

- **The citizens of Bornholm pave the way.** In households and businesses all waste is sorted, making it easy and simple to use it in new resource loops. Existing fractions such as metal, plastics, and cardboard are widely recycled and new waste fractions such as fishing nets, insulation materials, and special plastics are recycled in collaboration with local businesses and partners.
- **Organic waste** is converted to energy through composting or biogasification. The green part of garden and park waste is also recovered for energy purposes. The nutrient-rich residue from energy recovery is used as a fertiliser on agricultural land, in gardens, and in the green spaces of the island.
- **The citizens of Bornholm reuse** everything from furniture to children's wear, and they make use of sharing economy services. Socioeconomic businesses repair everything from old bicycles to discarded kitchens.
- **Schools, childcare institutions,** and secondary education institutions along with all other institutions of the Regional Municipality prevent waste generation through sustainable and waste-reducing procurement combined with new resource-saving technologies and waste solutions.
- **The elementary school** pupils of Bornholm - as the first ones worldwide - are educated as "resource heroes" through practical and direct work regarding waste, resources, environment, and nature.
- **Tourists and visitors** to Bornholm are active players in one of the world's first waste-free societies and thereby in Bright Green Island. They prevent waste through sustainable consumption, and they sort their waste in the novel waste solutions that hotels, restaurants, the entertainment industry, and cultural venues place at their disposal. And they learn about sustainability and resources at the summer schools, green workshops, and holiday farms of Bornholm.

In 2032 all
waste on Bornholm
is treated as
resources.

2. Vision

- **Bofa, the municipal waste** management company of Bornholm, as the first municipal waste management company in Denmark has phased out incineration as a treatment option. Now all waste is collected and treated as sorted recyclable resources through local public, private, and public-private collaborations and partnerships.
- **Bornholm is a technology and systems** beacon in the waste and resource field. This position has been achieved thanks to the concrete results that the conversion of the waste management system has produced on Bornholm, and to the associated growth within commerce, agriculture, industry, tourism, and education and training. The island is a national and international showcase for how to realise a true circular economy in practice.
- **A waste and resource cluster** has been established with new and established businesses on Bornholm through several years of targeted efforts. The resource cluster serves as a knowledge centre and an international showroom for Danish waste solutions, technologies, and knowhow.
- **In collaboration** with a university Bornholm has established its first education and research centre for green transition and circular economy. The centre is characterised by conducting evidence-based and practice-near education, research, and development activities created in close collaboration with the island's business community, citizens, and public institutions.

Bornholm has a unique opportunity of being a **first mover** in the waste and resource field to the benefit of growth, **development**, and green transition on the **island**.

Why Bornholm and why now?

In 2032 the incineration plant of Bornholm will be depreciated; for this reason we need to either invest in the establishment of a new plant, or we must have a waste service obsoleting a local incineration plant on Bornholm.

Bofa wishes to work with focus on the waste services on Bornholm in the period up to 2032 in order to arrive at a situation where negligible amounts of residual waste for incineration will be generated, and where a broad range of waste fractions can be recycled. In short, waste must be sorted far more than today, and much more must be reused.

Technological developments within digital waste solutions are being developed rapidly. New solutions such as intelligent bins, robotic sorting, nudging, and biotechnology based on organic waste in combination with changed consumer behaviour are but some of the major growth areas in the waste and resource field. Bornholm must take part in this development, so that we invest as suitably as possible in our future waste services, creating new jobs and sustainable growth.

Due to our Bright Green Island Bornholm has special preconditions for taking the lead and showing Denmark and the world around us how the transition to the waste-free society can be realised in practice.

In 2032 the incineration plant of Bornholm will be depreciated. Should we **construct** a new plant – or **obsoleting** the one we have?

In addition, Bornholm has the advantage in terms of strategy planning that the Regional Municipality of Bornholm may receive and treat all waste from the island, be it from households or businesses. Therefore, the Municipality in close dialogue with our citizens and businesses can stand behind an overarching green transition of the waste management system.

So far, nobody has taken the lead and sketched such an ambitious waste management plan. Bornholm has a unique opportunity of being a first mover in the waste and resource field with the opportunity also to apply for private funding and look for collaborators with the argument that we are the first to pursue this path.

Correlation with international, national, and local objectives

Bornholm showing the way – without waste 2032 takes offset in international, national, and local objectives in the waste and resource field.

Bornholm showing the way – without waste 2032 interacts directly with several international objectives, first and foremost the 17 UN Global Goals, the Agenda 21 goals, and the goals of the global climate agreement from 2015. In its *Resource Strategy* from 2013 Denmark has set up the target that 50 % of household waste must be recycled no

later than 2022 (seven so-called focus fractions: metal, glass, paper, cardboard, plastics, wood, and food waste).

In 2018 EU Member States adopted the ambitious Circular Economy Package and a number of supporting directives. They entail, among others, targets for the Member States to recycle 65 % of household waste in 2035 and 70 % of packaging waste in 2030. In addition, there is a range of concrete initiatives to promote circular business models and prevent waste through sustainable product design.



3. Framework

Bornholm showing the way — without waste 2032 is also closely interlinked with Bornholm's political strategies and development plans, including:

– The local council's vision tracks:

Vision track 1. Creating 1,000 new job openings by 2028.

Vision track 4. Making Bornholm the attractive choice for new settlers, tourists, and businesses.

Vision track 6. Using our available and local resources in the best possible way.

– **Bright Green Island** and the target of being CO₂ neutral in 2025, as the incineration technology will be phased out on Bornholm. If after 2032 new and greener treatment technologies are established, in the form of, e.g., a biogas plant for the treatment of organic waste this will further contribute positively to CO₂ reductions.

– **Bornholm Business Strategy 2015-2020**, *Will to growth*, particularly in relation to sustainability, attractiveness for new businesses, attraction of



manpower and investments, and Bornholm as the testing and meeting venue for industry and commerce.

– **Tourism Strategy**, *Richer in adventures and growth 2017-2019*, specifically in relation to green tourism, Special Interest Tourism (SIT), gastronomy and sustainable local foods, as well as business tourism.

Direct correlation with the targets of Bright Green Island

Target 1: Bornholm turns sustainability into good business.

Target 2: Bornholm keeps accounts of the green transition.

Target 3: Bornholm will at any time be a role model for a climate-friendly community.

Target 8: When I stay on Bornholm, I am a part of *Bright Green Island*.

Tracks and main measures up to 2032

As the strategic anchor for the global efforts Bofa will implement measures up to 2032 in seven closely interlinked tracks and supporting measures. As a cross-cutting measure a waste and resource cluster will be established.

For each of the seven tracks several small concrete projects and areas for effort will be identified, and over time Bofa will further develop measures within each track.

TRACK	FOCUS AREAS
1. PREVENTION	Local: Support and co-development of local measures promoting direct reuse beyond Bofa.
2. COLLECTION	Local: Develop and implement collection schemes, bins, and waste types along with identification of outlets.
3. TREATMENT AND OUTLETS	Local: Pretreatment of collected waste in relation to possible outlets for reuse and recycling. Preferably in close collaboration with local players, businesses, and entrepreneurs. National/international: Work on attracting entrepreneurs and businesses to the island in the form of cluster collaboration on waste and resources.
4. LEARNING AND KNOWLEDGE	Local: Continuation and development of Bofa's school service in order that Bornholm's children, young people, adults, and elderly learn even more and commit to circular economy and sustainable development. National/international: Work on attracting knowledge and research institutions to the island in the form of cluster collaboration on waste and resources.
5. COMMUNICATION AND DIALOGUE	Local: On the project's progress, current new sorting options and objectives. Motivation and knowledge to the citizens of Bornholm. National: On the objectives of the project, its progress, challenges, and results.
6. ORGANISATION	Internal: Bofa's total staff must have the competencies for realising the vision, and a concrete project group is needed to drive the process. External: Partnerships and collaborators (local as well as national) to attract knowledge, businesses, and innovation to the waste and resource cluster.
7. ECONOMY	Local: Annual political authorization of fee rates. National: Fundraising for financing of current activities, sub-projects, and development.

4. Tracks and measures

Overview: Examples of specific fractions

In the following an overview is provided with examples of specific measures that Bofa will implement up to 2032. The outline is divided into three time periods:

1. Near future 2019-2022, where we know the requirements and measures.
2. Slightly distant future 2023-2026, where we have some knowledge of legislative requirements and available technologies.
3. Distant future 2027-2032, where we cannot predict new legislative requirements and technological developments.

EXAMPLES OF MEASURES FOR SPECIFIC FRACTIONS	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Small burnable items														
Waste from municipal companies and institutions														
"Denmark without waste"*														
Local outlet for wood														
Construction waste														
Waste from commercial and industrial activities														
Other plastics														
Waste from bulky waste														
The bothersome household waste**														
Insulation materials														
What we don't know about as yet														
Hazardous waste														
Waste for landfill														

Note: * National Resource Strategy, the seven fractions and 50 % recycling
 ** Cotton swabs, packed lunches, nappies etc.

4. Tracks and measures

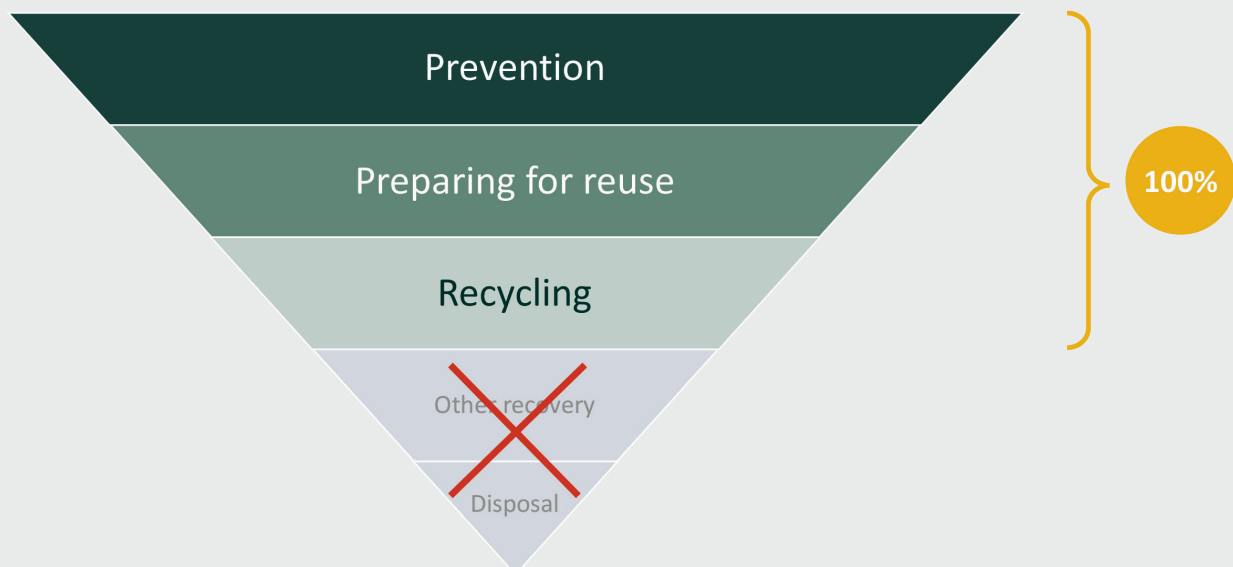
Cross-cutting resource cluster

The project will establish a waste and resource cluster gathering businesses, organisations, and educational and research competencies internally on the island and from outside it. The waste and resource cluster will contribute to accelerating developments up to 2032 in close collaboration with citizens and businesses on Bornholm.

Regardless of Bornholm's local targets and objectives Bofa is obliged to work for the prevention, reuse, and recycling of waste before incineration in accordance with the Pan-European waste hierarchy.

The waste and resource cluster will **accelerate developments** up to 2032.

Waste hierarchy



Waste hierarchy – everyone working with waste is obliged to manage it in accordance with the waste hierarchy. This means in brief that we must prevent waste as much as possible, then prepare it for reuse and recycle it in order of priority - before we take it to incineration and landfilling. In short, waste than can be recycled must be recycled.

Bornholm inspiring the world

Bornholm cannot go through the transition to the world's first waste-free society on our own. Bornholm must have partners from Denmark and abroad contributing with knowledge, technology, and investments.

The combination of ambitious objectives and Bornholm's status as an island gives particularly good prerequisites for attracting collaborators and investors. As participants in the future waste and resource cluster they will contribute to imple-

menting the conversion of the waste and resource system on Bornholm. Here, collaborators can gain actual, scalable knowledge, having technologies and competencies tested before finding markets on the growing global market for new waste and resource solutions.

A lead in the market may prove of utmost value to the partners. According to the EU Commission the market for circular economy in 2030 in the EU alone may create up to 580,000 new jobs and make way for 600 billion Euro savings in European businesses.

Partnerships with unique potential

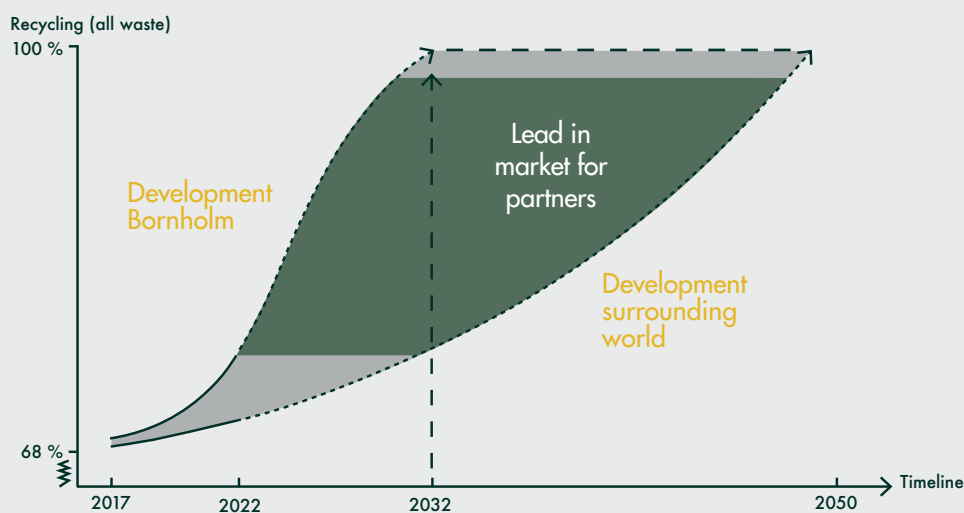


Illustration of the difference between following developments in the waste area at an accelerated pace and at a normal pace.

Note that the figure is illustratively designed with ideal curves for general, exponential technology development (Development surrounding world) and accelerated, innovative technology development (Development Bornholm).

From 2022 onwards, thanks to the initiatives and measures of *Bornholm showing the way – without waste 2032*, Bornholm will accelerate developments away from incineration towards recycling and reuse through partnerships with local, Danish, and international players. This will give Bornholm - and not least the associated partners - a valuable lead to the benefit of climate, environment, and economy.

Sustainable economy

If Bornholm chooses to take the lead in the green transition in the waste field there are good opportunities for finding external financing for large parts of the process.

Up to 2025 Bofa will implement a number of changes to the present waste services. These changes will be made in pursuance of The National Resource Strategy, “Denmark without waste” and the first part of the EU Waste Directive (further requirements will come in 2030 and 2035). This will mean new fees, new sorting systems in the households, and new bins.

With *Bornholm showing the way – without waste 2032* Bofa wishes to build on the foundation created by law, thereby having Bornholm showing the way to a waste-free society.

When Bornholm chooses to take the lead in the transition it will give the opportunity for attracting collaborators, knowledge partners, and businesses from the waste management sector, both in terms of finances and resources. Furthermore, it will pave the way for obtaining public co-financing at the national and international levels.

Organisation and resources within Bofa are assessed to amount to two to three in-house financed man-years up to 2032.

Against this background Bofa assesses a fee increase of no more than 1-2 % per household for financing the project.

Also in the future the fees will be presented annually for authorisation in the local council in connection with the annual municipal budget.

In connection with the project it is expected that developments up to 2032 will create a market advantage and a growth potential for Bornholm’s business community. This will apply to businesses documenting that their waste is treated in direct reuse, recycling, or recovery (not incineration/landfill), and it will apply to businesses being directly involved in the project and taking the lead in their own market.

An ambitious objective is to attract external co-financing and resources.

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