Environmental Co-Creation Case
– New Solutions Can Lead to Innovation

Introduction
An employee from Tønder Municipality is sent to a company with a biogas plant. The employee is tasked with explaining the BAT (Best Available Technology) requirements under the legislation, and the company is obligated to incorporate new BAT requirements. Upon inspecting the company, the employee concludes that the company is not complying with the environmental permit conditions, which state that biomass must be covered with plastic. Instead, the company has covered the biomass with a layer of dust from animal feed, which contains small particles. The dust is a by-product from another company's production when they clean grain. The dust forms a seemingly thick layer over the biomass. As a general rule, the company is not in compliance, and it would be easiest for the employee to conclude that the current solution cannot be allowed and insist that the company use plastic instead.

Curiosity about the Case
However, the employee decides to approach the new solution with an open and curious mindset. This involves asking about the new solution and investigating the case further. It is immediately assessed that the layer of dust around the biomass, in the form of animal manure, contains the smell. The corn silage used as biomass is also considered to be of good quality. If the solution is to be approved, a more thorough investigation will be needed, including assessing to what extent ammonia from the biomass leaks through the dust insulation, for example, when it rains. A potentially relevant actor that could carry out the necessary investigation is SEGES Innovation, a private and independent research and development organization within the agricultural and food sector. The employee decides to involve this actor in the process to investigate the issue further. This could turn into a project for SEGES to seek funding for, possibly through the Green Development and Demonstration Program (GUDP). In this way, the local solution could serve as a starting point for general innovation in the field.

Exploring Solutions
The employee then focuses on exploring possible solutions for isolating the biomass together with the citizen. Can the biomass be insulated with a lime mixture instead of the dust mixture, achieving the same benefits? Can the current dust mixture be adjusted to insulate the biogas better?
It is also relevant for the employee to compare the insulation of biogas with the dust mixture against the standard alternative—insulating biomass with plastic. In evaluating the two solutions, it is clear that the dust mixture has several advantages:

I) The dust mixture does not turn into waste but is used for biogas production in the biogas plant. Plastic covering, on the other hand, is waste that needs to be regularly replaced.
II) A plastic covering of biomass products can likely only be used once and must be replaced every time new biomass is added, which can happen several times a year. In this way, the employee considers that the citizen's solution also aligns with a general climate goal for Tønder Municipality to reduce plastic use.
III) Furthermore, the dust mixture is much cheaper for the company to "purchase" than plastic covering. It is also more practical for the company to insulate biogas with the dust mixture than with plastic since it does not need to be removed.

Legislation in the Area
The covering of animal manure and silage on farms is regulated by regulations that apply to agriculture. These rules specify that it must be covered with a material that is impermeable to

moisture. Since the biogas plant is not a farm, these rules do not apply here.
Although the dust mixture has several advantages, the employee still needs to explore whether the solution fits within the current legal framework and environmental regulations. It must be assessed/investigated whether the solution meets the purpose of the law—does it align with the principles in the field? It is also possible that the solution does not comply with either the law or a regulation in the field. In such cases, it may be necessary to consider whether a regulation needs to be changed before the solution can be implemented. If this is the case, the Ministry of Environment will need to be involved. If the law itself needs to be amended, it would be a longer process involving the Danish Parliament.

Co-determination
There is a clear element of co-determination in this case, as it is the company itself that came up with and chose the dust mixture as an alternative to the plastic covering. The company will also need to decide whether to use plastic for the covering or participate in an experiment and investigation regarding the feed dust mixture, and whether other products can be used as biomass covering.

Co-responsibility
Moving forward, the solution requires the company to take joint responsibility for using the solution on a larger scale. For example, it may be crucial for the company that the dust mixture can be used as a covering for all types of biomass they use:

- Chicken manure
- Deep bedding from cattle
- Corn silage

The company, together with an advisor, must commit to investigating how the dust mixture can be used as biomass covering and whether the solution complies with regulations for each type of biomass. This includes examining potential wastewater issues related to the solution and whether there is additional evaporation from the biomass.

The municipality also contributes to the new solution by:

I) Investigating the legislation in the area—does the solution meet the requirements to protect nature and people?
II) Involving SEGES Innovation in the process together with the biogas plant.
III) Exploring how the new solution can be made into a new practice in other locations, possibly in an alternative form—e.g., where lime mixture can be used as insulation instead of the dust mixture.

The employee is aware that the company has strong ownership of the solution. Therefore, it is crucial to give the green light for a version of the solution so that the company’s high motivation for the solution does not diminish, and that momentum is created for more innovative solutions.