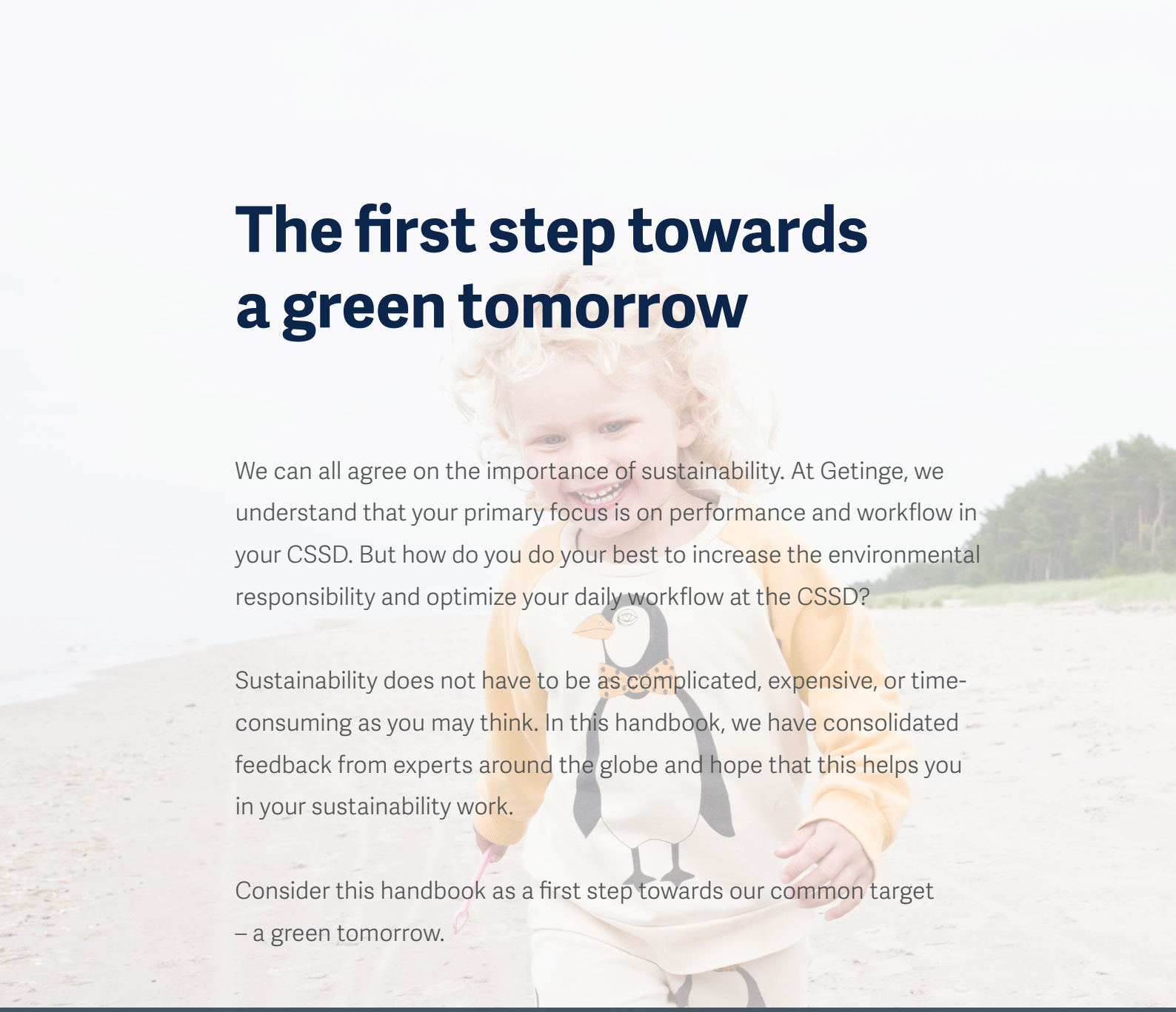
Sustainability Handbook

10 ways to make Sterile Reprocessing more sustainable

This document is intended to provide information to an international audience outside of the US.

GETINGE

The first step towards a green tomorrow



We can all agree on the importance of sustainability. At Getinge, we understand that your primary focus is on performance and workflow in your CSSD. But how do you do your best to increase the environmental responsibility and optimize your daily workflow at the CSSD?

Sustainability does not have to be as complicated, expensive, or time-consuming as you may think. In this handbook, we have consolidated feedback from experts around the globe and hope that this helps you in your sustainability work.

Consider this handbook as a first step towards our common target – a green tomorrow.

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Our Passion for Life

Sustainability work is an integral part of our passion for life. We are committed to helping our customers save lives without compromise. Getinge conducts business in ways that are socially, ethically and environmentally sound across the entire value chain. We make a positive impact on society by providing our customers with safe and sustainable products and solutions that respect people and the planet – today, and in the future.

How it works:
A collaboration with our customers

Working together, we can build a green, sustainable tomorrow, starting in the CSSD. We have listened to your needs, experiences, and ideas to develop best practices in Sterile Reprocessing that are more efficient, less resource-intensive, and more sustainable.

What you get:
Best practices for improving sustainability in Sterile Reprocessing

This handbook is made by you and for you: the CSSD manager and your team. This handbook contains best practices and insights from CSSDs around the world. We hope that you can apply these recommendations to improve the sustainability of your daily workflow.

What you will learn:

- 10 recommendations for how to make your daily CSSD workflow more efficient and sustainable
- New ways to lead your team in your sustainability journey
- How to identify utility consumption and waste

Welcome on board. We are happy to be a part of your sustainability journey.

1. How to focus on sustainability in your daily work

Sustainability doesn't have to require a radical overhaul of your department. Even small changes can add up.

First, consider working with your team to define your common sustainability goals. While your broader organization undoubtedly has policies and targets in place, you can discuss the crucial details of how they relate to your department, and how your group can put these ideas into practice.

The following quotes are based upon responses from CSSD managers and aim to inspire you in your local discussion. Start by asking yourself and your team:

- *Why are we working in the Sterile Reprocessing facility?*
  - "It is our immense responsibility to ensure patient safety. We believe that in collaboration with our stakeholders, we can create the best possible solutions to ensure a safe, green, sustainable tomorrow."
- *How are we creating value through our job, and can we do it better?*
  - "We strive to continuously create new, efficient, and yet sustainable initiatives. We prioritize the education of our staff to develop our skills and to ensure a persistent focus on sustainability according to the ISO-standards.
- *What is the value we deliver to our customers, and what is the effect on the planet?*
  - "We provide good service through transparent communication between the operation-room and the CSSD. We regularly test the validation of the Sterile Reprocessing process to ensure the safety of the patients and to reduce the risk of recontamination."

Second, take a look at your broader organization and its context, following the ISO-standard. This can help you to identify areas of significance and set targets and actions. Perhaps your organization has already conducted a materiality analysis as part of the Global Reporting Initiatives (GRI) standards. These can be excellent reference points for identifying what is relevant to monitoring and reporting.

These discussions help to build team engagement and collaboration.

2. How to set and lead your team sustainably

Sustainability is a leadership task. A successful leader creates an open and safe environment in which employees thrive and contribute with their full potential. Leading a team towards sustainability goals is more than simply reducing excess consumption – it's about building engagement through problem solving and creativity.

Recommendations from CSSD managers include:

1. Be open in your communication, even if the message is tough.
2. Involve your employees in processes that are vital to the success of their task.
3. Prioritize the diversity within your team and benefit from each other's experiences.
4. Delegate responsibility and trust the competencies within your team.
5. Encourage innovation, and make sure that the ideas are brought to life.
6. Build self-confidence and independence in your team through coaching.
7. Create a common sustainable vision and discuss the crucial steps along the path.

Sustainability initiatives are a great way to increase employee motivation and engagement. Not only will you be creating processes that reduce your environmental burden, but also increase employee engagement. Motivated and engaged employees thrive in innovative and creative environments, and are less likely to suffer from stress and other work-related health issues.

3. How to create awareness of your utility consumption

It's important to first measure your facility's utility consumption. It establishes a baseline that helps you to quantify progress.

Overall, current awareness of total media consumption – and thereby environmental impact – is quite low. But there are a number of simple measures that can be undertaken, without compromising on efficiency or final result. Here are some indicators to consider:

- **Utilization of capacity (volume of load) and efficient load patterns**
  - How many cycles per day do you have in your facility today, and how many cycles will you have if you considered a more efficient load pattern?
- ***Utilization of the machine features such as hibernation to avoid unnecessary standby mode***
  - How much electricity do you use today, and how much electricity can you save by using hibernation instead of standby mode?
- ***Utilization of ECO-program (when available) to avoid unnecessary use of water, heat, and detergents***
  - How much water, energy and chemicals can be saved, each cycle, by running a program that you have validated being exactly right for your load type?

Water and energy consumption can be viewed directly in the end-of-cycle report for the GSS67H and GSS610H series steam sterilizers. Useful information on the utility consumption of the equipment can be extracted directly at the machine or via online statistics and analytics.

To follow up on statistics of the utility consumption with all teams involved in the operating, maintenance, and financial setup of the equipment may help you to measure progress in these routines and conditions and keep your team motivated.

Starting with the baseline data, many CSSD managers create a dashboard to track sustainability performance in the department. You can gather data regularly for follow up and long-term prognosis across the organization or summarize the data occasionally to discuss it in suitable forums. Metrics can include water consumption, electricity usage, and lifespan of your equipment. This makes it easy for employees to see how their efforts improve those numbers and motivating them to achieve more.

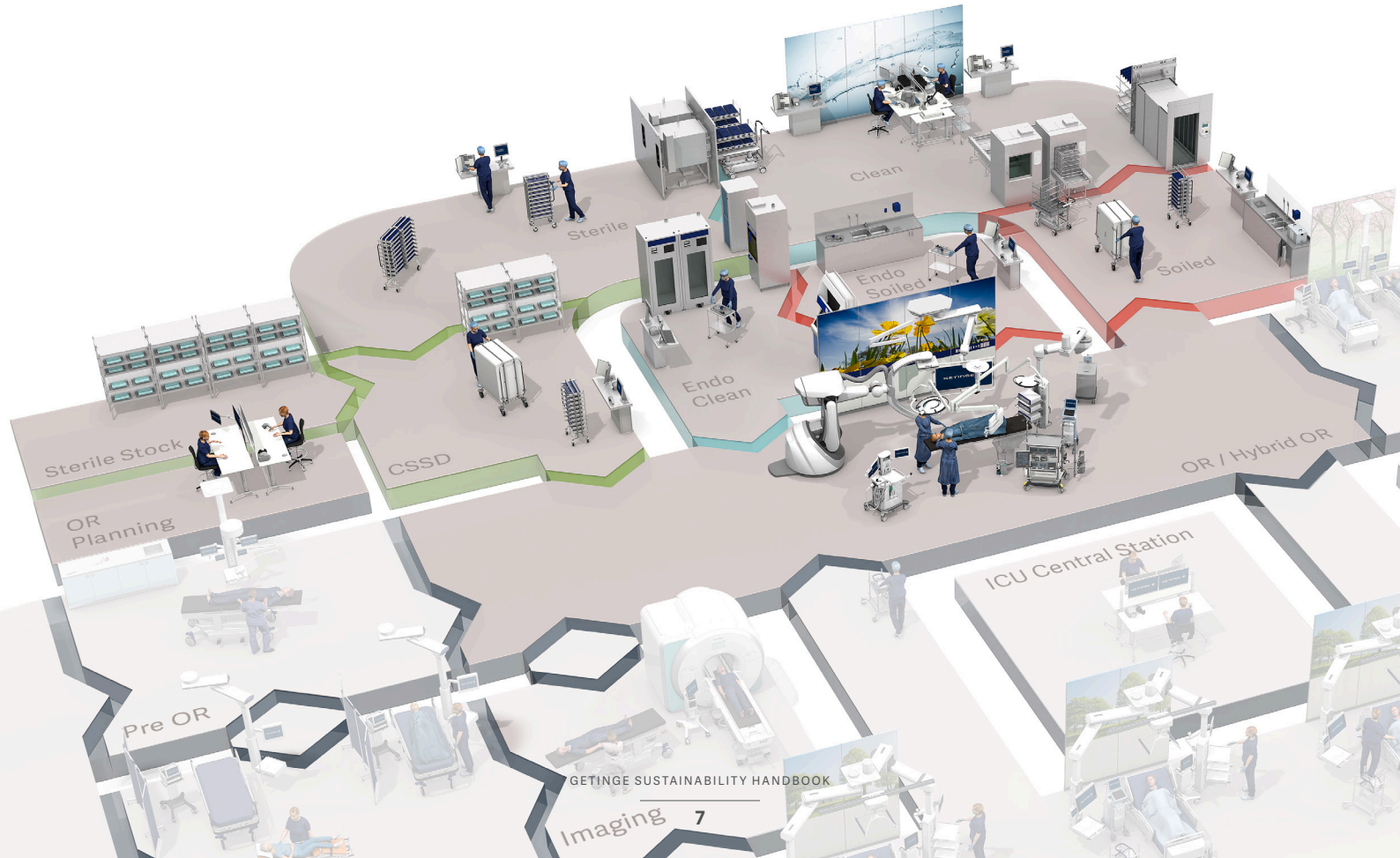
4. How to optimize the workflow

All effective sustainability projects must consider the safety of patients and staff. CSSD managers suggest looking at the architecture and workflows of the facility to ensure it supports simple, correct actions, reducing the risk of cross-contamination or the need for wasteful reprocessing.

Review the architecture: Consider sitting down with your team to look at the architecture of your facility. What hinders your workflow? Do the goods follow a forward-moving flow? In some cases, potential obstacles can be sorted out easily by moving and turning some packing tables to create more space. In other cases, the problem might involve a risk of cross-contamination between zones; we recommend an architecture planning designer to assist you with improving issues of this scope.

Rely on barriers: It is recommended to have a two-barrier system in place to create a physical separation between the soiled, clean, and sterile zones. There is also a sustainable aspect as a energy can be reduced due to less ventilation and/or cooling. Unloading the washer-disinfector from the clean side prevents recontamination of the goods by your team. The second barrier avoids mixing clean and sterile goods and minimizes the flow of people between zones.

Respect the rules: To avoid cross-contamination, every employee must know and follow the recommended workflow. But it's also important to understand the procedures, such as considering open, yet unused instruments to be dirty. This helps to the risk of contamination in the sterile zone and stock.



5. How to reduce the consumption of water and to *reuse* the water in your facility

We do not only pay for the water we use; we also pay for the water we waste.
Consider ways to reduce water consumption and reuse the water in your facility.

- Minimize the time between procedure and cleaning prevents soil from drying; dried soil on instruments requires additional water and detergent to clean
- Encourage the surgical department to soak used instruments to make the soil easier to remove
- Customize the wash cycle to the conditions (soil amount, instrument type, risk class)
- When possible, run the equipment in an eco-friendly mode to save water
- Adjust detergent use to match the water hardness to reduce consumption
- Change the water connection to a chilled water recirculation

You can also measure the number of cycles run per day. Are there ways to load the washer-disinfectors and sterilizers more efficiently to reduce waste?
Have your team to identify ways in which they can improve processes to support your sustainability goals.

6. How to reduce the electricity consumption of washer-disinfectors and sterilizers

All washer-disinfectors and sterilizers require electricity to clean, disinfect, and sterilize the used instruments to ensure patient safety. But there are ways to reduce your utility consumption.

- Utilize the low-energy hibernation mode when the sterilizer is not in use
- Set a timer to restart the machines at an optimized time each morning
- Re-use tanks that retain the heated water from previous cycles. In efficiency mode, both energy and time for re-heating and detergent can be reduced for coming processes.
- If possible, adjust the drying time to prevent unnecessary energy use from extended drying, or use the A0 control function on the washer to attain the same disinfection rate but with less energy spent
- Reduce the time with open chambers for sterilizers to retain the heat.
- By following an optimal preventive maintenance schedule, you will ensure maximum uptime for your equipment.

Try different options to see which methods have the most impact on your sustainability efforts, and still work best for your workflows. You can also encourage your hospital to invest in renewable energy sources, which can cost less than traditional energy sources based on fossil fuels[1].
The emissions associated with your electricity can normally be provided by your energy supplier in gCO_2/kWh.

[1] https://www.irena.org/publications/2020/Jun/Renewable-Power-Costs-in-2019

7. Improving the lifetime of your instruments is a sustainability goal

Improving the lifetime of instruments is a critical component of the "reuse" portion of the "reduce, reuse, recycle" methodology. Proper care and cleaning of instruments ensures that your instruments perform optimally throughout their lifetime to reduce your total cost of ownership.

Carefully follow the instructions and timeframes in terms of the different stages in the sterile reprocessing such as pre-cleaning, cleaning, disinfection, and sterilization. Consider creating a standardized process together with your team to ensure consistency. Measure the equipment utilization to see if instruments are being discarded earlier than expected.

Recommendations from CSSD managers include:

Post-operation and pre-cleaning:
After visual inspection, items can be put straight on racks and loaded into the washer-disinfectors. Instruments can also be manually cleaned by soaking, spray-gun rinsing, and/or ultrasonic cleaning, before being loaded into the washer-disinfector.

Cleaning and disinfection to inspection and packing:
The clean and disinfected goods enter the area for sorting, inspection, and packing. They can be unloaded manually or by an automated system. Once sorted, inspected, and packaged, the goods are ready for sterile processing.

Sterile instruments – ready to be used again:
Once sterile, the goods can either be stored in a dedicated storage area, where they are kept until they are needed again, or transported directly to the next surgery waiting for them to arrive in time.

Sometimes the instruments can be repaired or sharpened when necessary. Consider these alternatives before investing in financially and environmentally costly replacements.

8. How to optimize the planning process to ensure instrument availability

Optimized planning ensures instrument availability, avoiding unnecessary resterilization due to procedure cancellations. From washing and sterilization to the patient, the workflow must be documented to ensure consistent quality of the reprocessing and that the required sets of instruments are available for upcoming surgeries. This can be done by a manual count or by using software for sterile supply management.

In your facility, it is recommended to document the following key performance indicators:

- Instrument demand and usage to guide processing accordingly
- The exact location and required handling of instruments to get an overview of the instruments available for upcoming surgeries
- The need for on-time delivery of instruments for each procedure
- A potential decentralized stock in the operation room or prepared specialized case carts that contain pre-determined instruments for less frequently used instruments

Have you considered a system to plan and keep track of when instruments are available? One way is to divide and categorize the surgeries is according to urgency:

- P1: Instruments must be available within 3 hours
- P2: Instruments must be available within 5 hours
- P3: Instruments must be available in the afternoon
- P4: Instruments must be available the following day

This categorization and optimization help you to optimize your operation planning process and determine how to set-up and run your washer-disinfectors and sterilizers.

Maintain regular communication between the surgical department and the CSSD. This allows you to track common mistakes, identify issues, and quickly bridge any gaps between supply and demand. This helps to track patterns and identify if the problem is due to human error or a process issue.

9. How to optimize inventory management and reduce the risk of re-sterilization

Don't waste time and resources re-sterilizing instruments due to lack of planning and expiration.

- Arrange your stock in a "first in, first out" display to ensure that the oldest instruments or case carts are at the forefront. Use your sterile supply management IT software to document instrument expiration and notify you when specific instruments are about to expire.
- Streamline handling of the instruments and packing to minimize the risk of damage.
- Track and monitor instrument use. While some extra instruments are necessary to prevent unexpected surgical outcomes, too many unused instruments are unnecessarily re-sterilized. Consider creating a decentralized stock as a buffer, with extra instruments on hand only as needed.
- Validate your processes regularly and routinely monitor performance. Wash monitors in the washer-disinfectors and biological indicators in the sterilizers help you to independently verify whether the process is effective and consistent, eliminating "judgment calls" that require reprocessing.

These four processes help to improve departmental efficiency and sustainability.

10. How to optimize the ordering/ investment of instruments for surgery

Optimizing efficiency reduces costs. Planning is crucial to success.

Know the demand for surgical instruments. How many surgeries did your facility cover in the last period? How many surgeries do you forecast for the next period? What is the current usage and turnaround time per instrument? Use your sterile supply management IT software to optimize the number of instruments to maximize availability while minimizing costs.

Calculating the demand allows you to create a circular flow with the required number of instruments, which decreases wasted capacity and increases the turnaround per instrument. Build in a buffer of extra instruments for unexpected events.

Some specific and often expensive instruments are rarely used. Consider reducing costs and improving efficiency by sharing these instruments among the hospitals in your region. This reallocation of resources will allow you to invest in activities your facility will benefit more from, such as a sustainable water saving system.

And finally, evaluate and purchase equipment that has a low environmental impact. The equipment that you choose plays a significant role in your overall sustainability achievements.

Thank you for letting us be a part of your sustainability journey

As you can see, it doesn't require a complete overhaul to achieve a more sustainable CSSD. By following best practices from other CSSD managers, your department can be more efficient, less resource-intensive, and more sustainable – without sacrificing safety.

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