



Water – Remote Technology – Emissions Nexus from Services

CHALLENGE STATEMENT

As the Paris Climate Accord continues to press nations to achieve net-zero-carbon by 2050, it is vital that service industries do their part to reach the global goal. It is often assumed that service industries are “emissions light” against individual industries such as Industry or Electric. This fact is often reassessed when we compare the goods manufactured and transportation required to providing a service, and the Water Purification Industry travels all over the globe to provide its services for water system needs.

Given the benefits to remote monitoring of equipment, we find new and innovative ways to bring more technology and insight into Water Purification. From establishing effective service routines that minimize gas consumption to schedules that promote full use of product lifespans, offering remote technology promotes efficiencies of equipment, minimizes unnecessary waste, and lowers the overall carbon footprint that industries place on the environment. Water purification not only allows enhanced water recycling methods, but truly creates an array of healthier environmental options for water usage.

Consider the number of times a facility may request service on a water system or digital network: You are asked to find new methods of remote technology, process improvements, or unique water purification product designs that could allow industries to reduce wastes created in these events. Your project should include a quantitative assessment of how the implementation of the proposed countermeasures will lead to GHGs reduction, by improving energy efficiency and water use.





Water – Remote Technology – Emissions Nexus from Services

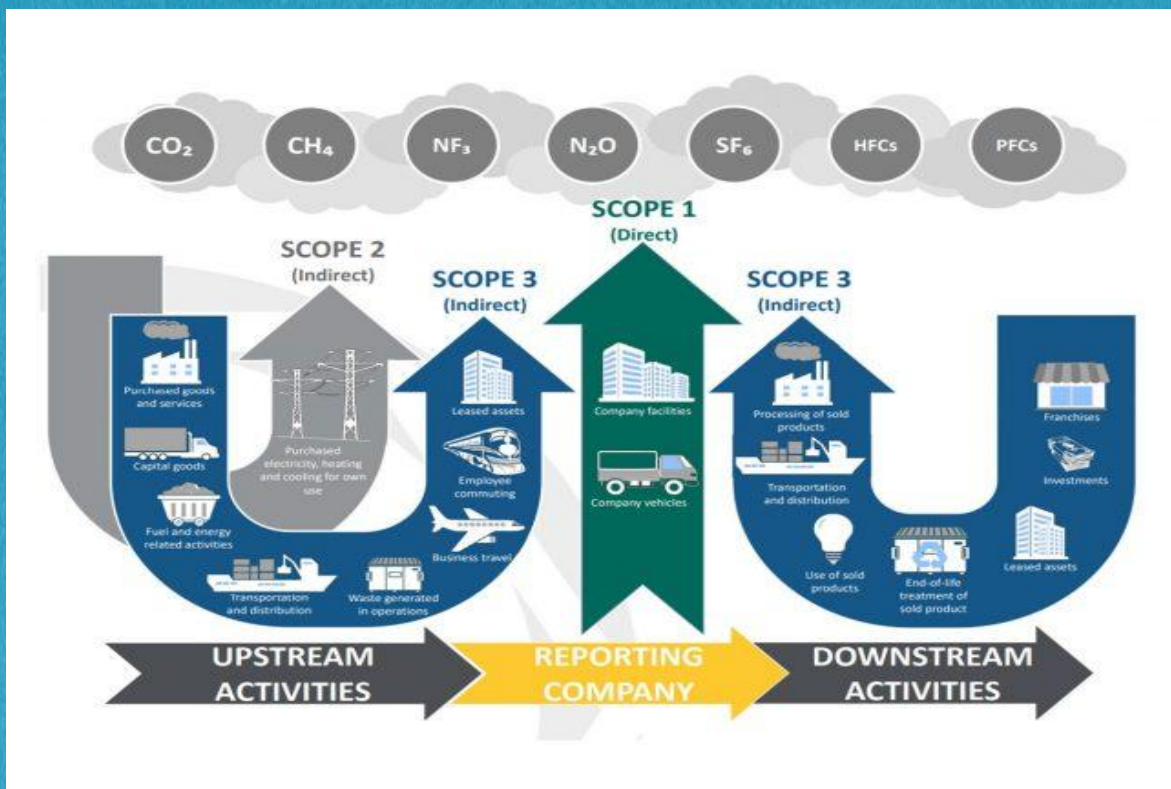
TAKE THE FOLLOWING STEPS TO DEVELOP YOUR PROJECT:

1. CASE STUDY SELECTION

Identify a commercial building's required maintenances in your country/region to be analyzed. You will need to characterize it in terms of water and energy supply sources and what services they require.

2. DATA GATHERING

- Evaluate the current infrastructures by finding data on the energy and water consumption.
- Map the location of common service providers for the building where water and energy are provided and associate them with the corresponding final use. What is the impact of emissions to provide direct service to the facility?
- What are the existing water and energy management technologies? What is the environmental impact of each of them?
- How far is the present situation from the goal of a Zero-Carbon services? What are the main challenges to be faced in order to reach that target?





Water – Remote Technology – Emissions Nexus from Services

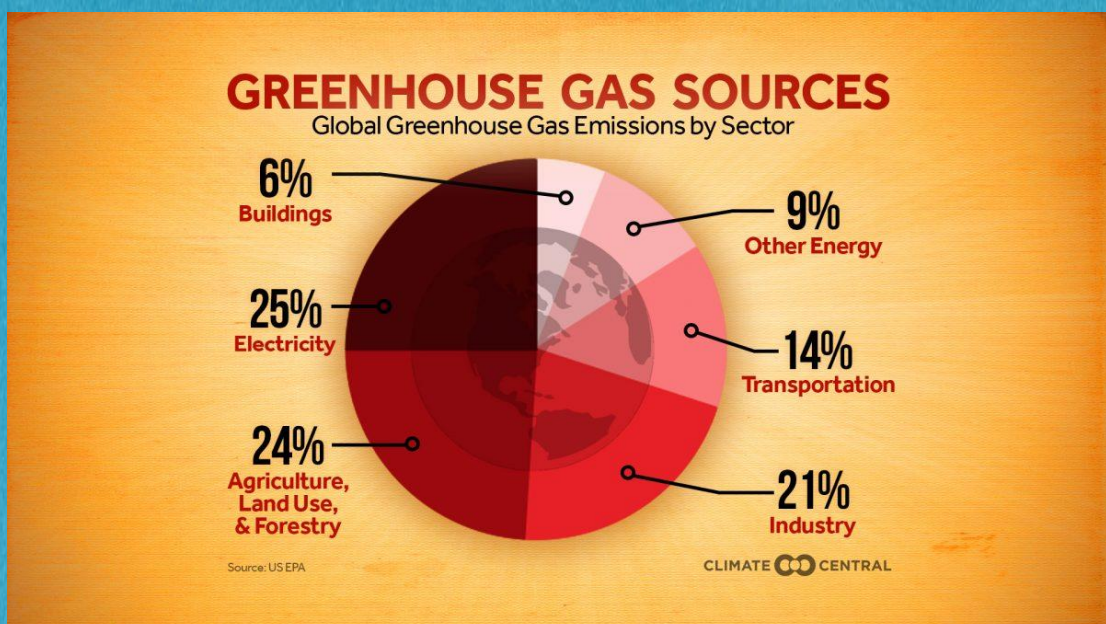
TAKE THE FOLLOWING STEPS TO DEVELOP YOUR PROJECT (CONTINUED):

3. SCENARIO COMPARISON

- Investigate the different options to improve the energy efficiency and water utilization of the selected services. Focus on the integration of remote technology integration sources, water and consumable product reuse, and take into consideration energy efficiency standards, regulations and local grants.
- Think about the role of digitalization in “smart buildings” and screen for early technologies which would fill a gap in their preventative maintenance plans.
- Identify the most compelling changes and crucial intervention points. What would be their impact on GHGs reduction?
- Then, move to the execution phase. Consider both the possibility of retrofitting and re-designing the system or service method: Considering cost, time, carbon footprint of the new designs or development processes as decisional parameters, what is the optimal option in terms of performance and feasibility?

4. TO BE SOLUTION

Emphasize the advantages in which the realization of your project will bring with respect to the current situation.





Water – Remote Technology – Emissions Nexus from Services

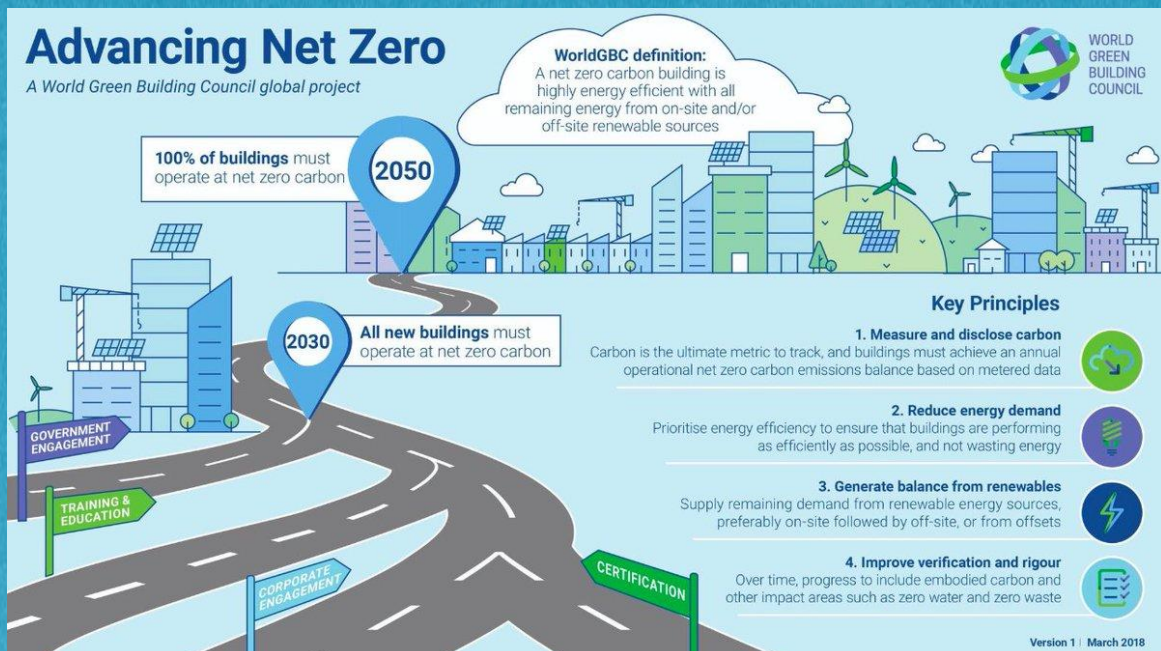
TAKE THE FOLLOWING STEPS TO DEVELOP YOUR PROJECT (CONTINUED):

5. FINAL DELIVERABLE

- Summarize the changes in the current infrastructures & operations, technology choices (including software, sensors and role of digitalization), contribution to Net Zero commitment, required investments and financing strategy, feasibility, and risk assessment.

- Highlight the role of Xylem within the process. How will Xylem product & services be part of the proposed solution?

* **BONUS:** *If your project were to be implemented, it would be an opportunity to raise awareness in the local community on the crucial role of the built environment transformation to achieve Net Zero. What actions would you take to promote community engagement?*





Water – Remote Technology – Emissions Nexus from Services

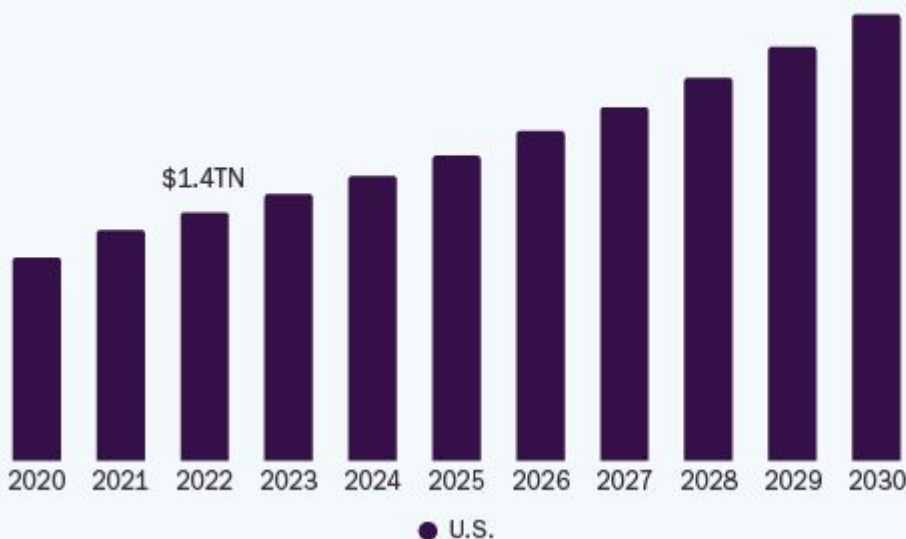
BACKGROUND & KEY CONCEPTS:

□ Industry Facility Growth– Services – Emissions Nexus:

The model below shows an expected growth trend of Hospital Facilities in the U.S. Most other countries are continuing to grow their number of facilities alongside the trends of population growth and its needs. Xylem is a key service provider in healthcare industry and a multitude of other industry facilities. As this number increases, so too will the water and energy systems that provide utilities to these locations. Given that 7.7% growth will be achieved in the healthcare industry alone, we must continue to reduce the impact water and energy systems will place on the environment. Every service and system which develops a new, lower carbon footprint will reduce further impacts as industries grow.

U.S. Hospital Facilities Market

Size, 2020 - 2030 (USD Trillion)



7.7%

U.S. Market CAGR,
2023 - 2030

Source:
www.grandviewresearch.com



Water – Remote Technology – Emissions Nexus from Services

OPPORTUNITY AREAS:

Process Improvements

□ Servitization:

Processes like Servitization incentivize conservative and efficient use of water. Not only will it minimize unnecessary consumer waste, it also encourages service companies to leverage better technology and products that last longer.



Manufacturing and controlled products

□ ENERGY CONSUMPTION:

Based on a typical commercial building regulatory requirements, there are an array of processes that have driven inefficient service demands due to strict process controls. Even government run facilities have various contractual requirements and obligations to facilities serviced periodically. You may want to start from the following points and then expand:

- **Medical Facilities**
- **University Labs**
- **Manufacturing Facilities**
- **Tool and vehicle rental facilities**
- **Smart metering & digital options**



Water – Remote Technology – Emissions Nexus from Services

OPPORTUNITY AREAS (CONTINUED):

□ Building Longevity

Facilities can dive into disrepair and lag behind in modern technological improvements or grow too large too quickly and lead to inefficient designs:

- **Older, less modern facilities**
- **Businesses established before digital era**
- **Universities with large lab facilities**

Potential Roles:

□ Contacts

Many job roles affect or interact with water systems, contractor services, and project efficiency. Some listed below are roles that may provide insight or an interest in the data related to system or process efficiencies:

- **Project Manager**
- **Facilities Engineer**
- **Maintenance Engineer**
- **Service Technician**
- **Applications Engineer**
- **Operations Manager**
- **Building Manager**



Water – Remote Technology – Emissions Nexus from Services

REFERENCES:

- Actions for a Zero Carbon Built Environment: <https://architecture2030.org/actions/>
- Key Components of Zero Carbon Buildings: <https://worldgbc.org/thecommitment/>
- Hospital Facility Market Trend from Grand View Research: [U.S. Hospital Facilities Market Size & Share Report, 2030](https://www.grandviewresearch.com/industry-analysis/hospital-facilities-market) ([grandviewresearch.com](https://www.grandviewresearch.com))
- Xylem Water One Services: [Water One® Services \(evoqua.com\)](https://www.evoqua.com)
- Xylem Product Sustainability Cards: <https://info.xylem.com/eu-xylem-making-water-sustainable.html>
- Xylem Building Solutions: https://www.xylem.com/siteassets/location-specific-content-for-country-sites/uk/xylem-xbs-brochure_a4-main-v22-lo-res.pdf

SUBMISSION INFORMATION:

- Please refer to the [official rules](#)
- Up to 5 members per team
- Deadline: Friday | April 22 at 1:00pm PT / 4:00 pm ET / 8:00pm UTC
- **5–7 min video presentation demo about your project**
- Judging will base of three criteria: Impact, Innovation, Challenge Fit and Feasibility
- Submit your projects [here](#)