



Case Study

The Green Construction Site of the future



INTRODUCTION

Construction sites often cause noise and pollution, while idle times add to the contractors' costs. The Green Construction Site of the Future project aims to tackle the issues of noise and pollution that are typically associated with construction sites. The project's goal is to identify low-impact methods and processes that can be carried out to minimize the environmental impact of construction activities.

METHODOLOGY

AirScape Denmark provides real-time monitoring of air quality and noise on and around the construction site using sensor technology. The project involves converting construction machines to electricity and other alternative fuels and establishing CO₂-reducing energy systems. Other interventions include dust control technologies and alternative methods for driving piles and grinding. Digital tools and logistics optimization are implemented, and a digital twin is used to document driving and opportunities for reducing emissions. Sensors measure PM, NO₂ and CO₂, and a heat map shows the impact of actions taken. Also, sensors are placed on individual vehicles to track their impact on air quality and noise. This monitoring provides transparency and documentation of the project's impact on the environment and nearby residents.

RESULTS

The project is set to conclude by December 2023, providing evidence of the most climate and environmental impact for the money. Participants include Per Aarsleff A/S, AirScape Denmark, Alumichem A/S, Purefi A/S, Cat's Field, DCE, Aarhus University, Aarhus University – Engineering, Volvo Construction Machines, and Institute of Technology. The project is supported by the Danish Environmental Protection Agency's MUDP program and is carried out in close cooperation with the client, Ejendomsselskabet Olav de Linde A/S.

AT A GLANCE

CHALLENGES

- Noise, pollution, and expense faced by construction sites.
- Growing concern about the impact of construction on the environment and air quality.
- Regulations make it expensive to remain idle at night and on weekends.

BENEFITS

- Real-time monitoring provides transparency to the company and residents.
- The project aims to improve the quality of life for neighbourhoods and allow sustainable practice on construction sites.



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