

# CASE STUDY

## Making digital CO2 emissions manageable by introducing a carbon KPI

Management of carbon emissions cannot happen without a target KPI

### CHALLENGE

Our client, a SME for software development hired us to start a sustainability journey in the company and bring carbon as a KPI into the teams

Carbon is often a problematic new metric to introduce as it comes on top, additionally, to other metrics already involved in development and management processes.

The client was interested in a workshop to first understand where carbon emissions were originating, but also to find out how to bring it into the team dashboards.

The main risk with bringing these metrics into the company is to not slow down current processes or create overhead. Although carbon goals are important it is not helpful if they are rejected due to impracticality.



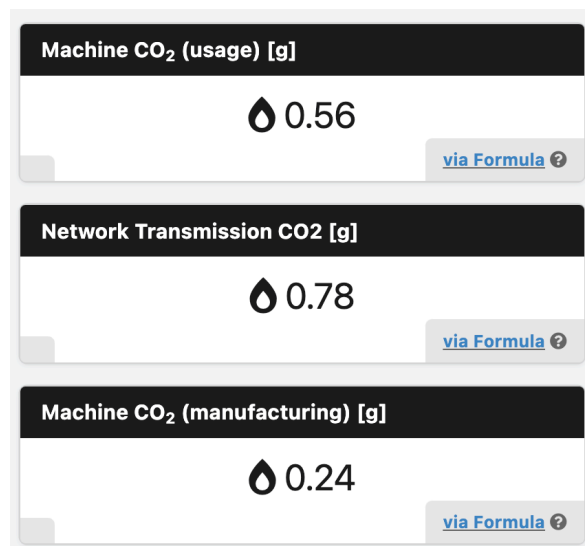
Introducing new KPIs into a company is no easy task. Since it sets new target goals it can derail current project planning and execution. Furthermore software tools have often no easy mechanic to integrate new target KPIs

When a software development is already in place the tools must be tailored to the custom tooling and pipelines already in use.

Email: [info@green-coding.io](mailto:info@green-coding.io)

Website: <https://www.green-coding.io>

Address: Jablonskistr. 24, 10405 Berlin



### ABOUT US

As a company for consulting, contract research and development in the field of sustainable software, Green Coding Solutions GmbH has a team of developers with many years of experience in web and performance engineering.

Through numerous conference contributions and publications on the subject of green coding, we are known as a German and European specialist with cooperation in the SDIA and Green Software Foundation as well as cooperation with renowned universities on the subject such as the Umweltcampus Birkenfeld or the HTW Berlin.

The focus is on the development of open source solutions for SMEs for energy measurement of cloud and container systems, as well as CI/CD pipelines and software lifecycle assessments, including their accounting methods in accordance with ISO 14001 and the GHG Protocol.

Green Coding Solutions is also the main organizer of the Eco Compute Conference - a green tech conference with internationally renowned speakers on the topic of sustainability in the digital economy.

## SOLUTION

For the client integrating measurement tools was still too early in the sustainability journey.

So we decided to create a digital inventory of all the software products through a Software Bill of Materials (SBOM) and attaching average carbon values according to our internal databases.

For the most cost and carbon intensive used products such as CI / CD pipelines we made estimates based on our Cloud Energy ML models to create an estimate carbon value.

Instead of separating values of CO2 into machine, usage and network we decided to go for a unified carbon value and transforming this to FinOps metric that can be used directly in the present dashboards and tools.

The company had already a strong FinOps practice in place and every digital product or resource that is requested by a team received a virtual internal price. We transformed the carbon cost also into this price metric and added it on top of the current virtual pricing effectively representing the carbon emissions as financial metric.

The acceptance in the development team was instantly very high including a better manageability from the team leaders.

## TOOLS

- Cloud Energy Model
  - <https://www.green-coding.io/projects/cloud-energy>
- Carbon DB
  - <https://www.green-coding.io/projects/carbon-db>

 **High acceptance** in dev team

 Utilized **already existing** metrics

 True **carbon pricing** introduced



## SUMMARY

The client was able to bring carbon emissions into the current dashboards without creating new KPIs or introducing overhead.

Established KPIs like cost could be used.

- Carbon can be transformed into different internal metrics that are already used
- In order to achieve team buy-in overhead must be low
- Measurements tools can be applied after sustainability journey has been
- SBOMs are helpful when creating an internal digital inventory but also bring the risk of creating too many averages.

Measurement tools should be applied after having started with a sustainability journey