Article
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Open Exchange

Measure greenhouse gas (GHG) emissions with Carbon Footprint Counter app

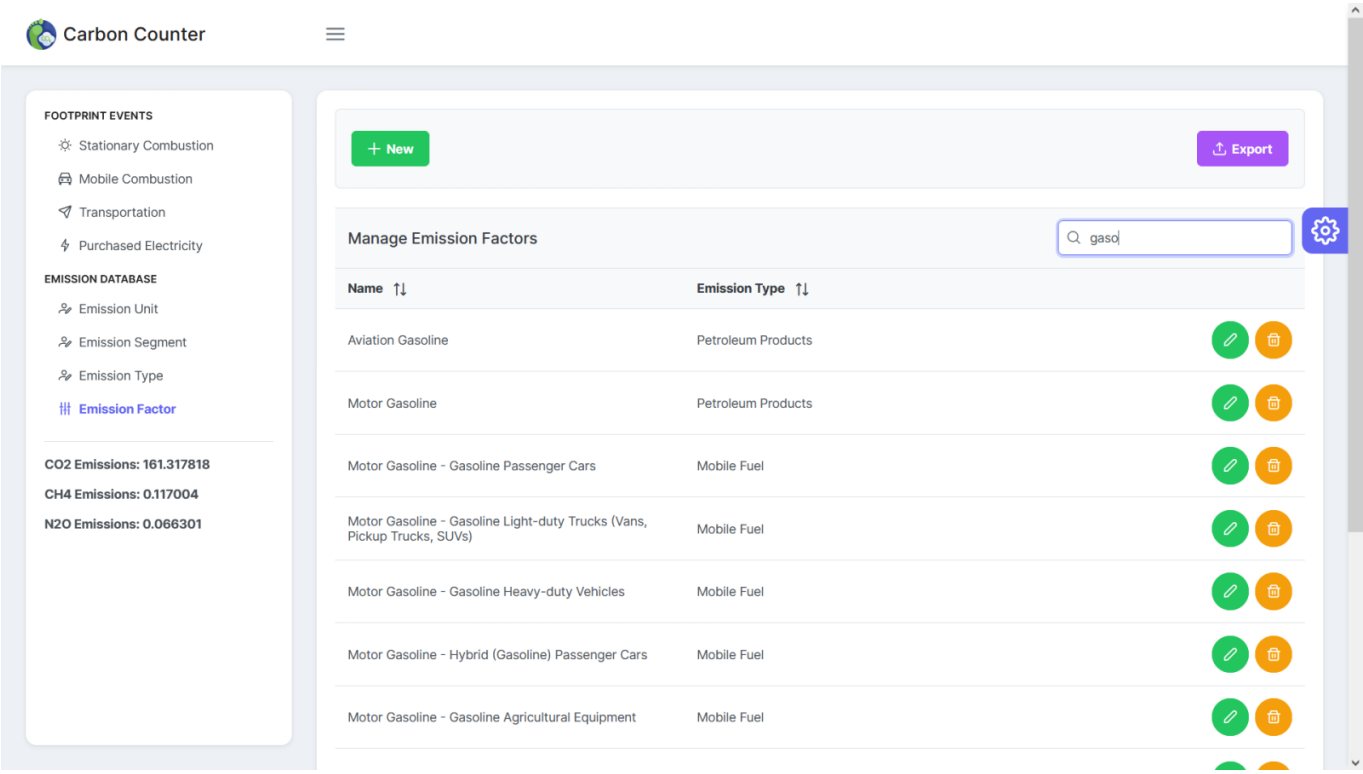
The Carbon Footprint Counter application uses the GHG Protocol to measure carbon emissions on enterprises. The GHG protocol establishes comprehensive global standardized frameworks to measure and manage greenhouse gas (GHG) emissions from private and public sector operations, value chains and mitigation actions.

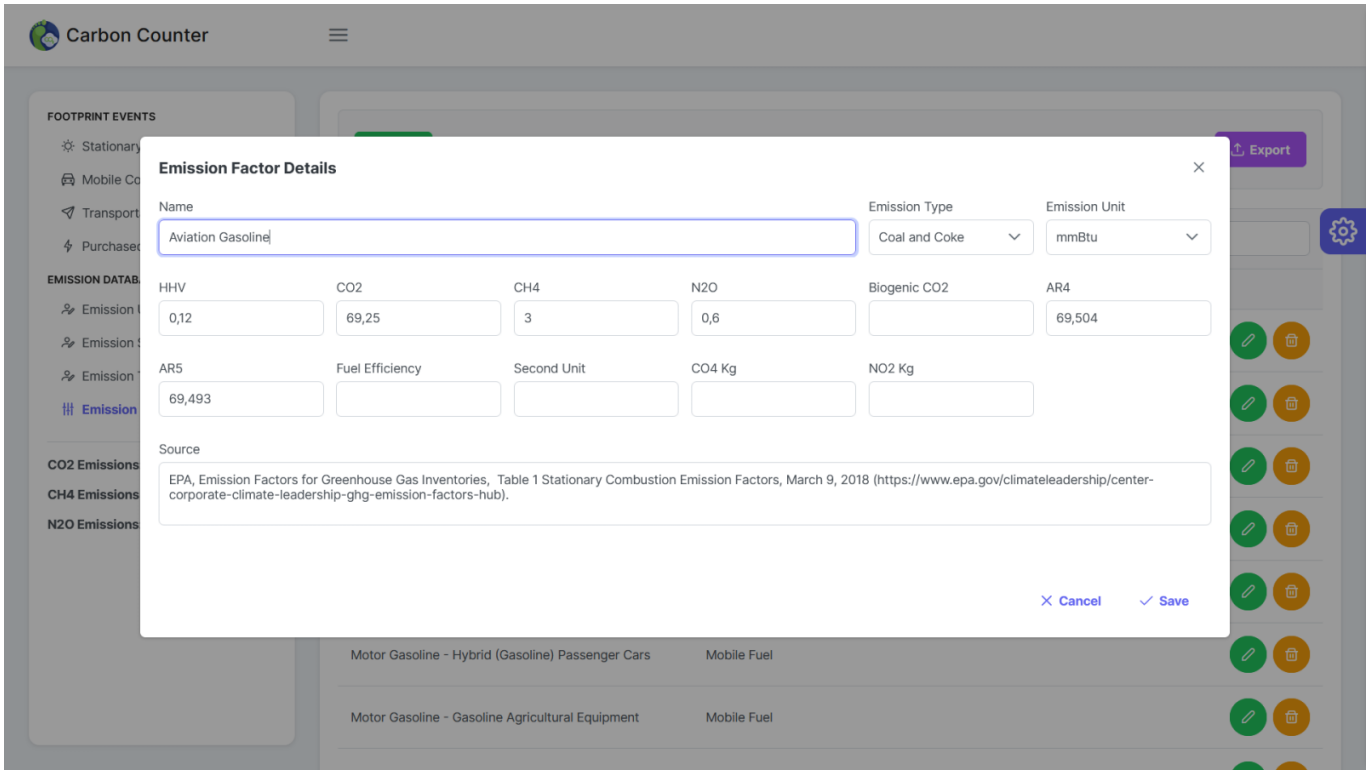
Building on a 20-year partnership between World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), GHG Protocol works with governments, industry associations, NGOs, businesses and other organizations. (source: https://ghgprotocol.org/about-us).

The Carbon Footprint Counter app uses the InterSystems IRIS to deploy REST APIs and SQL database to manage the carbon emission inventory on enterprises. The frontend is Angular 12 with PrimeNG framework (open source leader to Angular).

Emission Factors

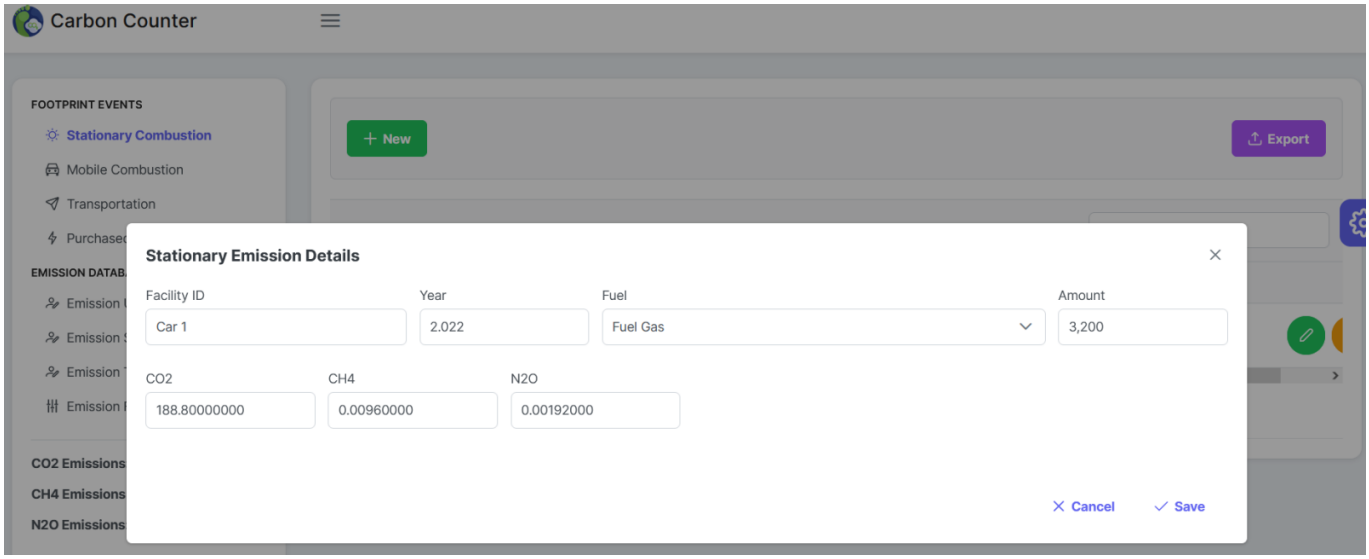
To measure the company carbon emissions the App stores 300 emisson factors distributed into 4 segments (stationary, mobile, transportation and purchased electricity). Each factor, like natural gas, gasoline, bus transportation, aviation transportation, car trips, etc, has reference values to calculate co2, ch4 and n2o emissions. See:





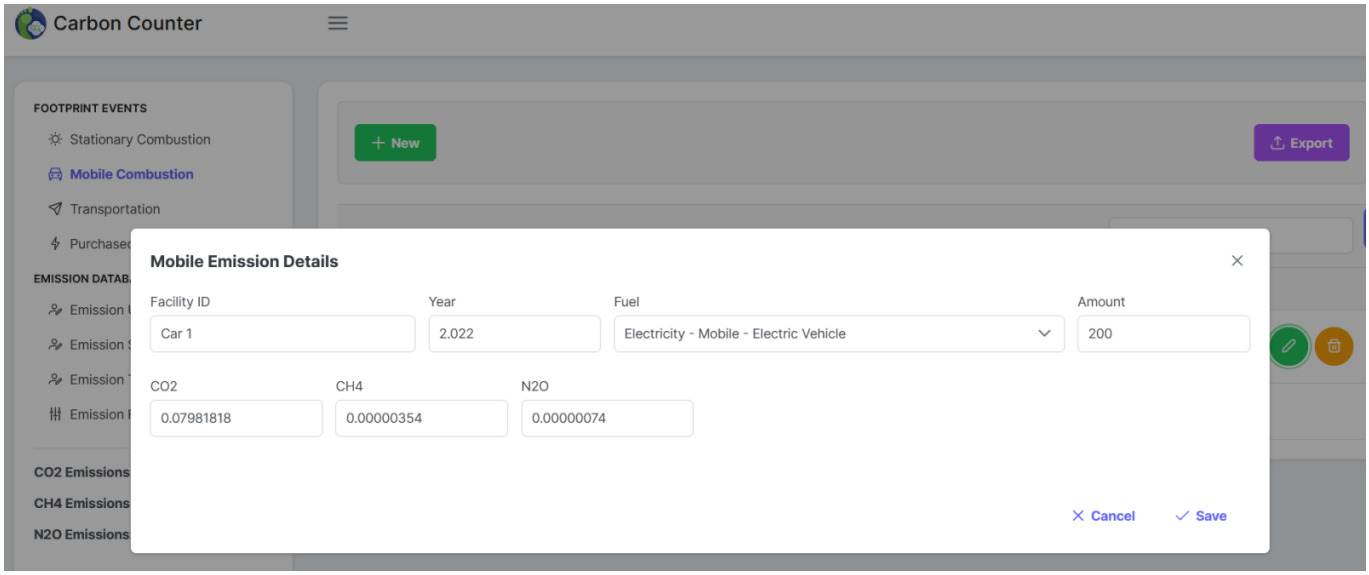
Stationary Emissions

The GHG Protocol defines stationary as fuel consumption at a facility to produce electricity, steam, heat, or power. The combustion of fossil fuels by natural gas boilers, diesel generators and other equipment emits carbon dioxide, methane, and nitrous oxide into the atmosphere. You can register your stationary emissions on Stationary Combustion menu and UI:



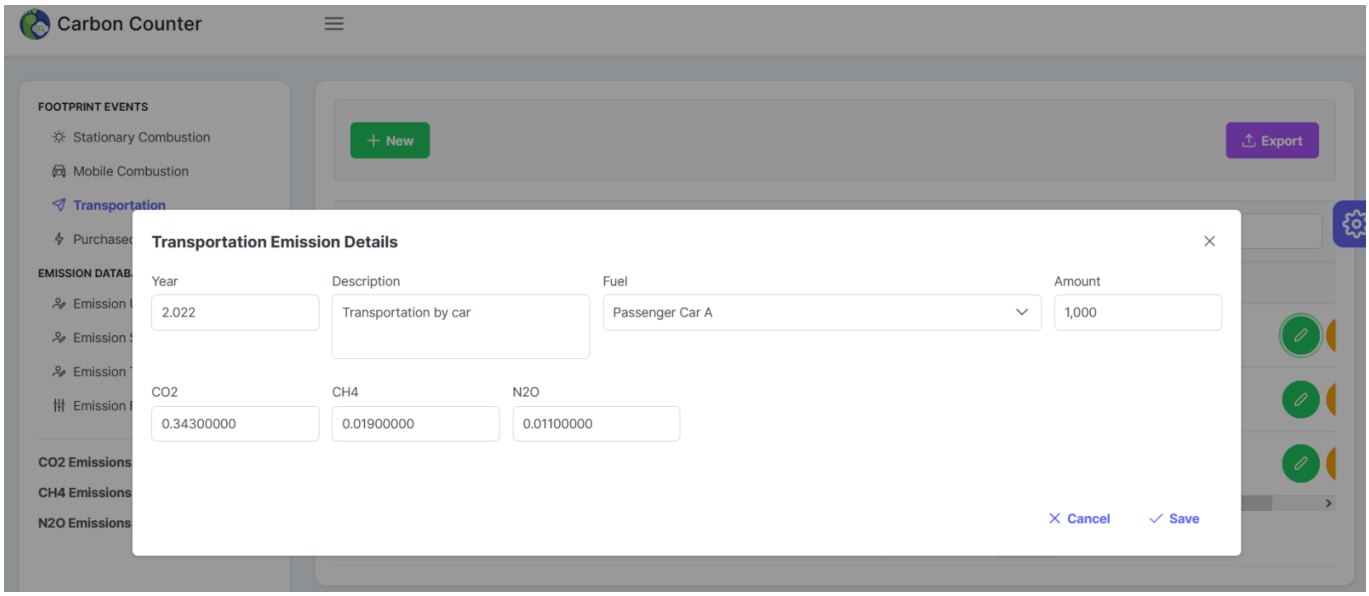
Mobile combustion emissions

The GHG Protocol defines mobile combustion as fuel consumption by vehicles that are owned or leased by the company. Combustion of fossil fuels in vehicles (including cars, trucks, planes, and boats) emits carbon dioxide, methane, and nitrous oxide into the atmosphere. You can register your mobile emissions on Mobile Combustion emissions menu and UI:



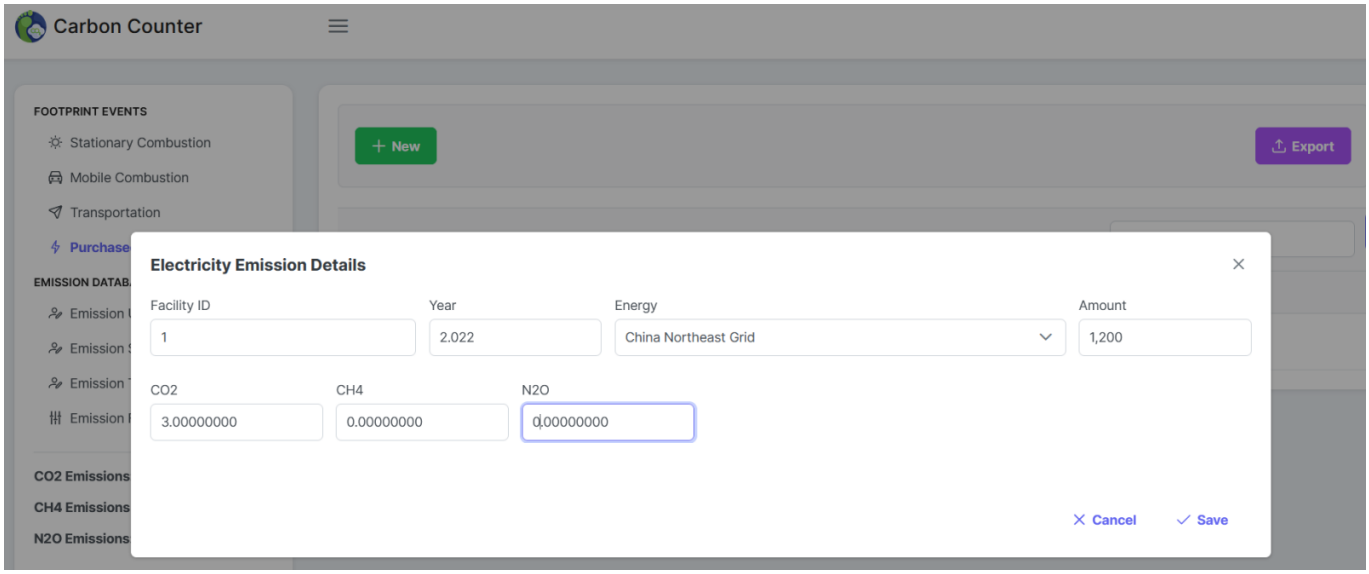
Transportation emissions

The GHG Protocol defines transportation as Fuel consumption by vehicles used to conduct company-financed travel. Examples include commercial air travel and use of rented vehicles during business trips (travel using company-owned/leased vehicles. You can register your transportation emissions on Transportation emissions menu and UI:



Electricity emissions

The GHG Protocol defines Electricity emissions as energy purchased from your local utility (that is not combusted on-site). Examples include electricity, steam, and chilled or hot water. To generate this energy, utilities combust coal, natural gas, and other fossil fuels, emitting carbon dioxide, methane, and nitrous oxide in the process. You can register your transportation emissions on Electricity emissions menu and UI:



Calculation of total carbon emissions

The application computes all emissions registered:

Take action

Now, your company can get your annual carbon emissions and take actions to compensate your emissions. Buy carbon credits, make donations to WWF, Greenpeace and other institutes. Calculate now using https://openexchange.intersystems.com/package/Carbon-Footprint-Counter.

#Angular #REST API #InterSystems IRIS
Check the related application on InterSystems Open Exchange