MCP SERVER | NO CODE | CLOUD HOSTED

Climatiq Carbon Calculations MCP for AI Agents

Calculate carbon footprints and estimate emissions across any industry.

Climatiq Carbon Calculations provides your AI agent with a massive database of scientifically validated emission factors. It lets you accurately calculate carbon footprints for almost any activity—from specific energy usage to complex supply chain logistics. You can search thousands of factors by sector, region, or year and run bulk calculations instantly.

A+ Quality Score 98.33/100

carbon-footprint | emission-factors | sustainability | environmental-data | api-integration | climate-tech

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vinkius.com/mcp/climatiq-carbon-calculations

SCAN TO VIEW

The connectivity layer between AI and the world's software.

Vinkius sits between AI and every application. All communication passes through Vinkius Cloud via the Model Context Protocol (MCP) — with governance, observability, and security at every layer.

Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the connectivity layer where AI connects to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

> *The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.*
>
> — Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT

```
https://edge.vinkius.com/{token}/mcp
```

Claude · Cursor · VS Code · Windsurf · Grok · Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1) Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

> Get started at **cloud.vinkius.com** — connect your AI agent in under 60 seconds.

Climatiq Carbon Calculations MCP

10 tools available
Cloud-hosted on Vinkius

This MCP connects your AI client directly to Climatiq, a major platform for calculating emissions and tracking environmental data. Forget manually searching through spreadsheets or calling multiple databases. This integration lets you use natural language to estimate carbon footprints across nearly every industrial activity.

Need to know the CO2e impact of shipping goods from Asia? Or maybe you're building an application that needs verified emission factors for electricity usage in a specific region? You just ask your agent. It handles the complex math, pulling data based on industry standards like ISIC or NACE. Because Vinkius hosts this MCP, you connect once to get access to these specialized sustainability metrics directly within your existing workflow.

The result is fast, accurate carbon accounting. Your AI agent manages everything from listing available sectors and units to running bulk calculations for up to 100 activities in a single request.

Core Capabilities

01 — Estimate emissions by activity classification

Calculates carbon footprints using industry codes (ISIC, NACE) instead of simple descriptions.

02 — Search for specific emission factors

Finds precise data points within the Climatiq database based on keywords, regions, or sectors.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/climatiq-carbon-calculations** — connect your AI agent in three steps.

01 First, subscribe to this MCP and enter your unique Climatiq API Key (Bearer Token).

02 Your AI client uses the key to talk to the service. You tell it what activity you need to calculate emissions for.

03 The agent returns a precise CO2e calculation, along with supporting data like available sectors or regions.

The bottom line is, your agent handles all the complex API calls and calculations so you just get the final number you need.

Built For

This MCP is critical for anyone who works with environmental compliance, supply chain logistics, or sustainable product development. If your job involves calculating how much carbon something emits—whether it's a shipment of goods or the power running an office—you need this.

Sustainability Analyst

Runs reports that track Scope 3 emissions, needing to calculate footprints for materials and supply chain activities using specific factors.

Supply Chain Manager

Analyzes the environmental impact of logistics routes or procurement decisions by estimating emissions based on transport methods and distances.

Product Owner (Green Tech)

Builds product features that require verifiable carbon data, using standard classification codes to report on resource usage.

What Changes When You Connect

01 **Batch processing:** Instead of running 100 calculations one by one, use `batch_estimate_emissions` to process them all in a single request. This saves time when analyzing large datasets.

02 **Industry compliance:** You don't have to guess which standard to use. Use `estimate_by_classification` to calculate emissions tied directly to ISIC or NACE codes, keeping your reports compliant.

03 **Data validation:** Need to know what inputs are allowed? Run tools like `list_regions` and `list_units`. This ensures the data coming into your calculations is always accurate.

04 **Targeted research:** Don't waste time searching. Use `search_emission_factors` to find exactly the factor you need—like 'electricity from grid mix'—and get right to the calculation.

05 **Structured reporting:** By calling tools like `list_sectors`, your agent can map out all available data dimensions, helping you build much more structured and defensible sustainability reports.

Real-World Applications

A global supply chain needs impact reports

The manager asks the AI agent to analyze logistics across three continents. The agent uses `list_regions` first, then runs multiple calculations using `estimate_emissions` for freight and energy usage, generating a consolidated environmental risk report.

Product team needs verifiable data inputs

A product owner is building an internal carbon dashboard. They use the agent to run several parallel calculations via `batch_estimate_emissions`, feeding verified CO2e results into the application's core metrics.

Compliance team needs historical comparisons

The analyst wants to compare 2021 vs. 2023 emissions for a specific industry type. They use `list_years` and then run `estimate_by_classification`, ensuring the comparison uses correct, year-specific factors.

Internal audit needs factor discovery

The auditor asks the AI agent to find all available emission factors related to 'industrial heating.' The agent runs `search_emission_factors` and provides a comprehensive list of data sources, units, and sectors for review.

Patterns to Avoid

Calculating emissions by general estimates

✗ AVOID

The user assumes they can just input 'a car traveled 100 miles' without specifying the fuel type or year. This leads to wildly inaccurate, non-compliant reports.

✓ INSTEAD

Instead of guessing, use `estimate_emissions`. You must provide specific parameters and ideally run `list_sources` first to confirm which emission factor applies to the vehicle and distance.

Running calculations one by one

✗ AVOID

When analyzing a project with 50 different operational areas, the user runs the single-activity calculation tool 50 separate times. This is slow and inefficient.

✓ INSTEAD

Use `batch_estimate_emissions`. It's designed to take up to 100 calculations in one go, drastically cutting down on time and API calls.

Ignoring industry standards

✗ AVOID

The report is vague because it doesn't tie emissions to a recognized economic sector (like NAICS). The data lacks the necessary corporate structure for auditing.

✓ INSTEAD

Always use `estimate_by_classification`. This tool forces you to align your calculations with established industry codes, making your output auditable and standardized.

The Right Fit

Use this MCP if your primary goal is calculating carbon emissions using verified scientific data. You need to map activity metrics (weight, energy use) to specific emission factors based on geography or industrial sector. Don't use it if you just need general industry benchmarks—you still need a basic financial modeling tool for that. Conversely, don't use this MCP if your task is merely listing available sectors; while `list_sectors` helps, the core value is in

running actual calculations using `estimate_emissions`. If you only need to read static data without computation, a simple database lookup service will suffice.

Climatiq Carbon Calculations for Supply Chain Emissions Tracking

Right now, tracking the environmental impact of goods is a nightmare. You're juggling spreadsheets, cross-referencing regional emission factors from different government websites, and manually inputting data for every stage—from raw material sourcing to final mile delivery. It’s slow, error-prone, and impossible to audit.

With this MCP, your agent handles all that complexity. Instead of manual lookups across multiple tabs, you ask it to calculate the footprint using `estimate_emissions` by providing parameters like weight and distance. You get a single, precise CO2e number instantly, complete with supporting data on sources.

Climatiq Carbon Calculations for Standardized Reporting

Most companies struggle because their carbon reports lack uniformity. They use different metrics or classification systems depending on the department, making consolidated reporting impossible to trust.

This MCP solves that by using `estimate_by_classification`. It ensures your calculations are tied directly to recognized codes (like ISIC), instantly giving your report a layer of professional standardization and compliance.

Climatiq Carbon Calculations: 10 Tools for Emission Factor Analysis

These tools let your AI agent perform every step of the calculation process, from listing available factors to running massive batch estimates and classifying emissions by industry code.

#	TOOL	DESCRIPTION
01	batch_estimate_emissions	Calculates up to 100 different carbon footprints in one request for quick data analysis.
02	estimate_by_classification	Determines emissions by applying industry classification codes like ISIC or NACE to your parameters.
03	estimate_emissions	Calculates the carbon emission total for a single, specific activity using defined parameters.
04	list_categories	Retrieves a list of all available categories used for tracking emissions.
05	list_regions	Gets a list of every geographical area supported by the emission factors.
06	list_sectors	Retrieves all available sectors to narrow down your search for relevant emission data.
07	list_sources	Provides a list of all underlying data sources used to calculate emission factors.
08	list_units	Retrieves every unit of measure accepted by the API, ensuring your inputs are correct.
09	list_years	Gets a list of all years for which emission factors have been published and are available.
10	search_emission_factors	Searches the entire Climatiq database to find specific emission factors based on keywords or criteria.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U What's the carbon impact of shipping 50 tons of electronics from Shenzhen, China to Chicago?

Calculation Details:

- **Activity Type:** Freight Shipping (Electronics)
- **Distance:** 12,000 km
- **Tons:** 50 MT

Result: Total Estimated Emissions

METRIC	VALUE
CO2e	**987.5 kg**
Source Factor	Shipping by Sea (Asia-NA)

Note: This calculation uses the 2023 factor set for accuracy.

U I need to compare electricity usage in Germany vs. France for Q1.

Regional Emission Comparison:

REGION	YEAR	FACTOR TYPE	CO2E PER KWH
Deutschland (Germany)	2023	Grid Mix	**0.45 kg**
France	2023	Grid Mix	**0.31 kg**

These factors were retrieved using the `list_regions` tool, ensuring consistency.

U Can you find me all emission factors for oil and gas extraction?

Search Results: Oil & Gas Extraction Factors

Found 7 relevant data sources (via `search_emission_factors`):
1. Oil Well Drilling (factor ID: OWD-001)
2. Gas Flaring (factor ID: GFL-902) - *High Priority*
3. Pipeline Transport (factor ID: PPT-A)

Please specify the region and year you want to use for the most accurate estimate.

Frequently Asked Questions

01 **How do I start calculating carbon footprints with Climatiq Carbon Calculations?**

You simply connect your AI agent to this MCP. Once connected, you don't need to worry about API syntax; just ask your agent what you want to calculate (e.g., 'What is the carbon cost of my logistics shipment?'). It handles the complex factor retrieval and math for you.

02 **Does Climatiq Carbon Calculations handle different countries' environmental rules?**

Yes, it does. The platform supports calculations across multiple regions. You can specify the country or region when asking your agent to calculate emissions, ensuring the factor used is locally accurate.

03 **Can I use Climatiq Carbon Calculations for non-transportation activities?**

Absolutely. It covers much more than just shipping. You can estimate emissions related to energy consumption, industrial processes, and even specific resource usage by providing the right parameters.

04 **Is this MCP accurate enough for corporate auditing purposes?**

It is designed specifically for compliance and auditing. Because it pulls from scientifically validated emission factors and supports industry codes like ISIC/NACE, your reports are built on verifiable data, which is essential for audits.

05 **What if I need to compare emissions over many years?**

You can easily compare historical data. By specifying the year you want in your query, the MCP ensures that it pulls the correct emission factors available for that specific time period, making comparisons reliable.

06 **Does Climatiq Carbon Calculations help with bulk calculations?**

Yes, this is a huge benefit. If you have dozens of different activities to calculate—like 50 different product lines—you can send them all at once using the batch tool, saving massive amounts of time.

Go Live in 60 Seconds

Get your connection token from **cloud.vinkius.com**, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

```
https://edge.vinkius.com/[TOKEN]/mcp
```

CLIENT	WHERE TO CONFIGURE
Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
Cursor	Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint
VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add `"climatiq-carbon-calculations": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → Add endpoint URL
ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

- Ask ChatGPT
- Ask Claude
- Ask Perplexity
- Ask Gemini
- Ask Grok

READY TO CONNECT

Climatiq Carbon Calculations is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

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