

# An Introduction To KDE Eco



LF Energy  
15 November 2022

 [be4foss@floss.social](mailto:be4foss@floss.social)

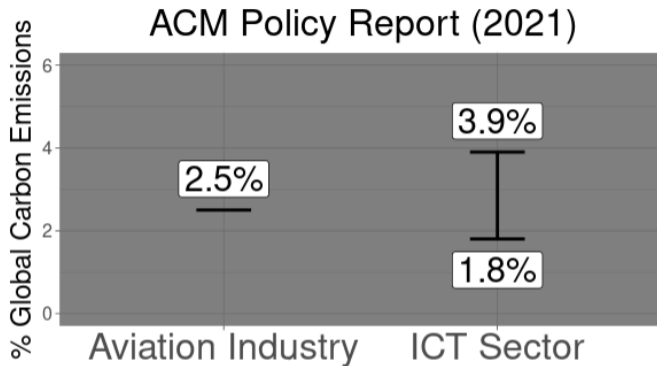


Slides available under "conferences-workshops":

<https://invent.kde.org/teams/eco/be4foss/>

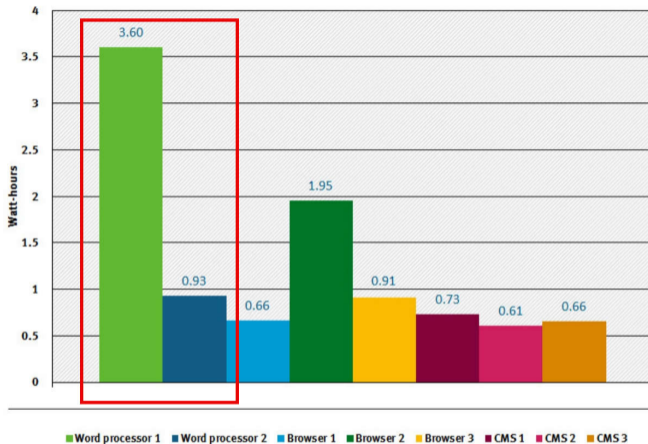


# What Motivates KDE Eco



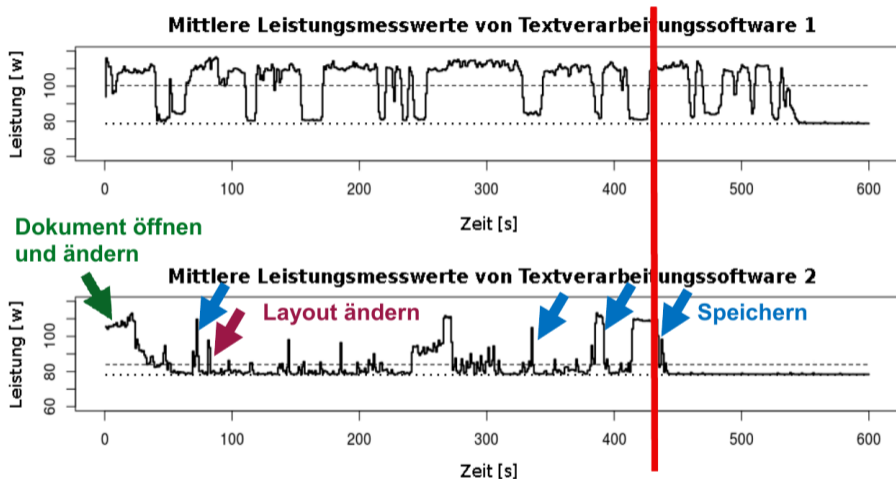
***“Computing can help mitigate climate change  
but must first cease contributing to it.”***

# What Motivates KDE Eco



Modified from: <https://www.umweltbundesamt.de/publikationen/entwicklung-anwendung-von-bewertungsgrundlagen-fuer>

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# What Motivates KDE Eco

Blauer Engel For Desktop Software (2020)

The two pillars of **transparency** and **user autonomy** put FOSS at the forefront of **sustainable software!**



## ABCs of Award Criteria

**(A) Resource & Energy Efficiency**

*Resource/energy consumption measurements*

**(B) Potential Hardware Operating Life**

*Runs on hardware at least 5 years old*

**(C) User Autonomy**

*Uninstallability / Modularity / Security updates*

*Transparency / Support for open standards*

*Offline capability / Freedom from advertising*

**KDE Eco**    **FEEP** – FOSS Energy Efficiency Project

**BE4FOSS** – Blauer Engel For FOSS

# Energy Consumption Lab at KDAB, Berlin

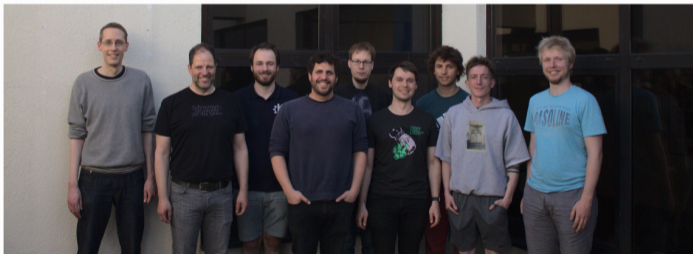
## Energy Consumption Lab Is Ready For FOSS Community! Dispatch From The Sprint

Monday, 30 May 2022 | Joseph P. De Veagh-Geiss

On Saturday 21 May 2022 KDE Eco held the first of several in-person Sprints for the community lab to measure the energy consumption of Free Software. The Sprint had been postponed twice due to Corona, but the third time was a charm.

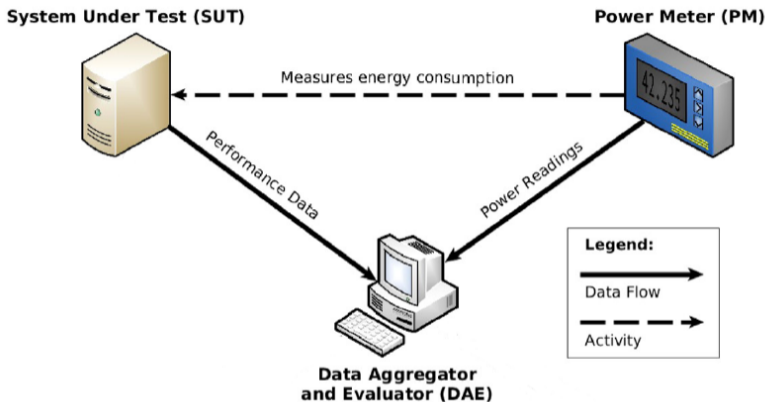
KDAB Berlin was gracious in hosting us. They offered us not only a space to construct the lab, but also donated hardware and a brand-new power meter (!), and they even invited everybody to a delicious lunch. In total there were 11 of us at the Sprint, with two participants travelling across Germany to be there. KDE and [KDAB Berlin](#) were well-represented (Björn, Volker, Nico, Cornelius, Tobias, Joseph), but the event had broad appeal: several Qt [company](#) employees (André, Fabian, Sami) as well as the [Green Coding Berlin](#) project (Arne) and a [Hasso-Plattner-Institut/Universität Potsdam](#) researcher (Sven) joined us.

The community is at the heart of the work of KDE Eco, and without all of you none of this would be possible!



Read more: <https://eco.kde.org/blog/2022-05-30-sprint-lab-setup/>  
<https://eco.kde.org/blog/2022-07-25-sprint-lab-follow-up/>

# Energy Consumption Lab at KDAB, Berlin



## 3 Scenarios To Measure

- (i) **Baseline OS**    (ii) **Idle Mode**    (iii) **Standard Usage Scenario**

Screenshot modified from: Sustainable software products—Towards assessment criteria ... (2018: Fig.4)



## First Ever Eco-Certified Computer Program: KDE's Popular PDF Reader Okular

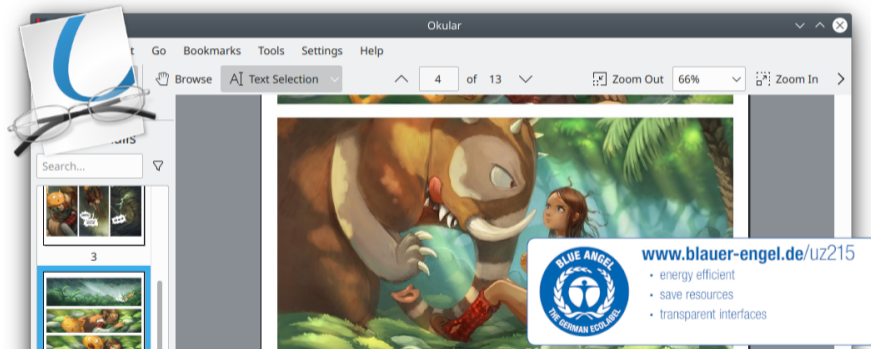


Image from: <https://eco.kde.org/blog/2022-03-16-press-release-okular-blue-angel/>

# Public Conversation & Collaborations (I)

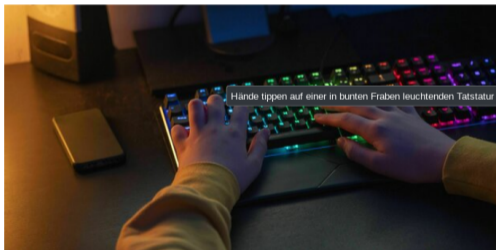
taz 

THEMEN POLITIK ÖKO GESELLSCHAFT KULTUR SPORT BERLIN NORD

Nachhaltige Computerprogramme

## Blauer Engel für Software

Erstmals wird ein Computerprogramm mit dem Nachhaltigkeitsiegel ausgezeichnet. Dessen Energie- und Ressourcenverbrauch wird oft unterschätzt.



Um den Blauen Engel zu erhalten, müssen Programme energieeffizient und ressourcenschonend sein Foto: imago

- [Golem](#) (German)
- [Heise.de](#) (German)
- [Netzpolitik](#) (German)
- [Linux Magazine](#) (German)
- [OpenSource.com](#)
- [FSFE](#)
- [Hacker News](#)
- [Umwelt Campus](#)
- [Blauer Engel website](#) (German)
- [taz](#) (German)
- [RESET](#)
- [Deutschlandfunk Nova](#) (German)
- [Transform](#) (German)

# Public Conversation & Collaborations (II)

## ***Presentations\****

- SFSCon (2021/2022)
- CCC (2021), Grazer Linux Tage (2022)
- COP26, OpenUK Awards (2021)
- Linux App Summit (2022)
- Fedora Nest (2022)
- QtDevCon, Qt World Summit (2022)
- Green Coding Berlin (2022)
- SDIA Hackathon (2022)

## ***Collaborations***

- Umwelt Campus
- Green Coding Berlin
- SDIA
- Green Web Foundation

## ***Community Outreach***

- Qt, GNOME, Fedora  
TDF, Mozilla Firefox,  
LF Energy

\*Presentation slides available at: <https://invent.kde.org/teams/eco/be4foss/-/tree/master/conferences-workshops/presentations>

# KDE Code Improvements

**Keywords:** efficiency, **Status:** REPORTED, CONFIRMED, ASSIGNED, REOPENED

73 bugs found.

ID	Product	Comp	Resolution	Summary
116482	akregato	metakit	---	metakit: akregator crashes at startup
443301	framewor	general	---	GHNS window causes high CPU usage during ~1 m
436148	kdialog	general	---	kdialog hangs for 30 seconds
438203	digikam	Maintena	---	Progress bar stuck on 100%, Digikam won't allow t
441648	digikam	Preview-	---	preview of next/previous HEIF (iPhone) image is v
441163	dolphin	general	---	Hangs on maximizing due to HDD spin up
441384	dolphin	view-eng	---	Dolphin's UI responsiveness becomes slow while

- Nov. 2021 first MR at KDE labelled 'Efficiency', **160+ merged** since!



## **3 Sections**

- (1) Intro: Software-driven energy consumption
- (2) Okular & Blue Angel eco-label for software
- (3) A hands-on measurement guide

## **Details**

- First edition Q4 2022 / Q1 2023
- To be available online and as PDF
- Continuous updates to online edition
- PDF release every 2 years with state of the art

# Further Develop Measurement Tools

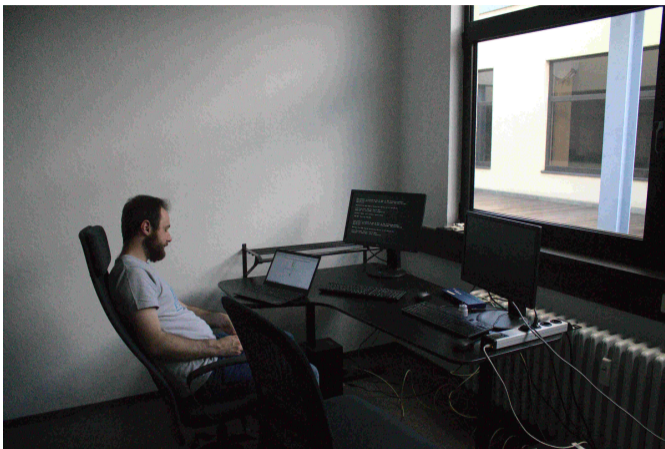
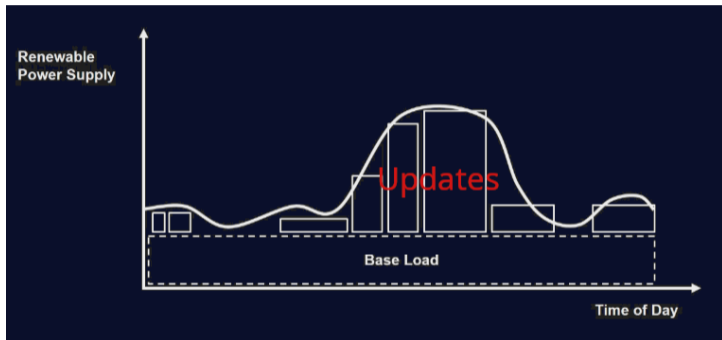


Image from: <https://eco.kde.org/blog/2022-07-25-sprint-lab-follow-up/>

## Aspirations

- **Online** portal for remote access
- Measurement **automation**
- Robust **emulation tools** that also work on Wayland (e.g., Selenium)

# Carbon-Aware Updates



## Shiftable Tasks

- **Renewable energy** supply higher at some times of day
- Can we **integrate** this information into KDE Discover / other tools?

See: <https://eco.kde.org/blog/2022-07-25-sprint-lab-follow-up/>

# Extending Outreach

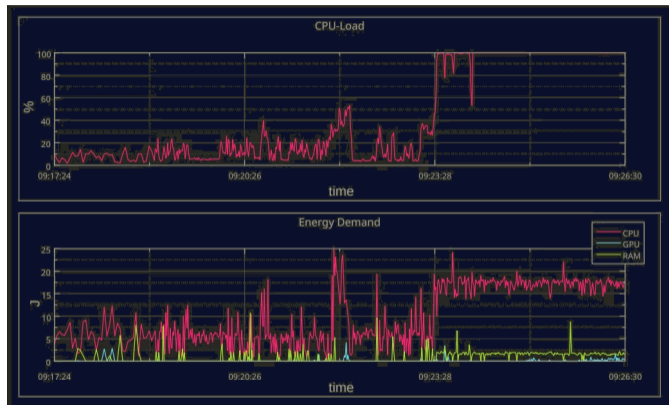


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## Next Steps

- User outreach via **awareness raising**
- **Upcycling** workshops to keep unsupported hardware in use with up-to-date software
- **Best practice** guides
- Eco Plasma **widget**



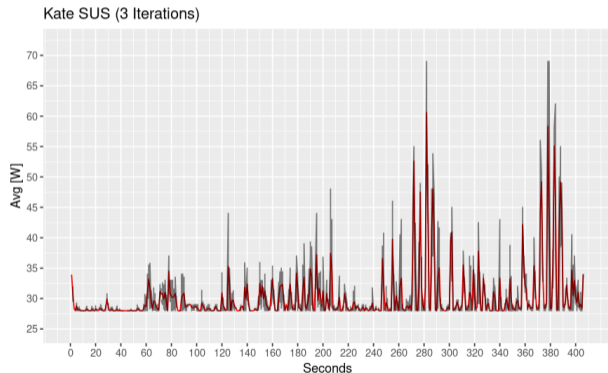
# KDE Goal: Sustainable Software

KDE is a huge and diverse community working on hundreds of projects. To guide our work, we select 3 **overarching goals** to focus on. In 2022 Sustainable Software was voted one of them.

[https://community.kde.org/Goals/Sustainable\\_Software](https://community.kde.org/Goals/Sustainable_Software)

With this goal, we want to ...

- Highlight where KDE software is **already sustainable**
- **Measure more** KDE software for energy efficiency
- Contribute to overall software sustainability & play our part in **necessary transitions**



(Preliminary data, for presentational purposes only.)

# Get Involved – <https://eco.kde.org>

## Contact

- **Email:** [joseph@kde.org](mailto:joseph@kde.org) **Mastodon:** <https://floss.social/@be4foss>

## Discuss

- **BigBlueButton:** Monthly meet-ups, 2nd Wed. 19:00 CET/CEST
- **Energy Efficiency Mailing List:**  
<https://mail.kde.org/cgi-bin/mailman/listinfo/energy-efficiency>
- **Matrix Room:** <https://webchat.kde.org/#/room/#energy-efficiency:kde.org>

# Resources

Past presentations available under "conferences-workshops":

<https://invent.kde.org/teams/eco/be4foss/>

FEEP, BE4FOSS, *Blauer Engel* Applications

- <https://invent.kde.org/teams/eco/>

# Funding Notice

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Federal Ministry  
for the Environment, Nature Conservation,  
Nuclear Safety and Consumer Protection



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