

# RECC IRP Documents, resources, and links

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## Report

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The main report is available on the [UNEP IRP website](#) as well as on the [UNEP website](#).

The [UNEP IRP website](#) also holds the following documents, some available in multiple languages:

- Full Report [EN](#)
- Appendix Model description [EN](#)
- Appendix Information on policies [EN](#)
- Summary for Policymakers [EN](#) | [AR](#) | [CN](#) | [FR](#) | [JP](#) | [RU](#) | [SP](#)
- Factsheet: [EN](#) | [AR](#) | [CH](#) | [FR](#) | [JP](#) | [RU](#) | [SP](#)
- Implications for Business Leaders: [EN](#)

## Report supplements

In addition to the official documents provided by the UNEP IRP, the following documents are available.

- Documentation of the transport-sector model within the RECC model framework v1.0 – by Paul Wolfram, Qingshi Tu, Edgar G. Hertwich, and Stefan Pauliuk. Jan 31, 2020. DOI: [10.5281/zenodo.3631938](https://doi.org/10.5281/zenodo.3631938)
- Documentation of part III of the RECC model framework: Open Dynamic Material Systems Model for the Resource Efficiency-Climate Change Nexus (ODYM-RECC), v2.2. by Pauliuk, Stefan. Freiburg (Germany), Dec. 2019. DOI: [10.31235/osf.io/y4xcv](https://doi.org/10.31235/osf.io/y4xcv)

## Related publications

- Bridging the gap: enhancing material efficiency in residential buildings and cars. Edgar Hertwich, Reid Lifset, Stefan Pauliuk, Niko Heeren. United Nations Environment Programme (2019). Chapter 7 in Emissions Gap Report 2019. UNEP, Nairobi. <https://www.unenvironment.org/resources/emissions-gap-report-2019>.

## Academic Journal publications

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- Material efficiency strategies to reducing greenhouse gas emissions associated with buildings, vehicles, and electronics – A review. by Edgar Hertwich, Saleem Ali, Luca Ciacci, Tomer Fishman, Niko Heeren, Eric Masanet, Asghari Farnaz Nojavan, Elsa Olivetti, Stefan Pauliuk, Qingshi Tu, Paul Wolfram. Environmental Research Letters. 2019. DOI: [10.1088/1748-9326/ab0fe3](https://doi.org/10.1088/1748-9326/ab0fe3).
- ODYM – An Open Software Framework for Studying Dynamic Material Systems - Principles, Implementation, and Data Structures. Stefan Pauliuk, Niko Heeren. Journal of Industrial Ecology. 2019. DOI: [10.1111/jiec.12952](https://doi.org/10.1111/jiec.12952).
- Material efficiency for immediate climate change mitigation of passenger vehicles by Paul Wolfram, Qingshi Tu, Niko Heeren, Stefan Pauliuk and Edgar Hertwich, Journal of Industrial Ecology. 2020. DOI: [10.1111/jiec.13067](https://doi.org/10.1111/jiec.13067).

- Linking Service Provision to Material Cycles – A New Scenario and Model Framework for Studying the Resource Efficiency-Climate Change Nexus. Stefan Pauliuk, Tomer Fishman, Niko Heeren, Peter Berrill, Qingshi Tu, Paul Wolfram, Edgar G. Hertwich. 2020. DOI: [10.1111/jiec.13023](https://doi.org/10.1111/jiec.13023)
- A comprehensive set of global scenarios of housing, mobility, and material efficiency for material cycles and energy systems modelling. Tomer Fishman, Niko Heeren, Stefan Pauliuk, Peter Berrill, Qingshi Tu, Paul Wolfram, Edgar Hertwich. 2021. DOI: [10.1111/jiec.13122](https://doi.org/10.1111/jiec.13122)
- Material efficiency and its contribution to climate change mitigation in Germany: A deep decarbonization scenario analysis until 2060. Stefan Pauliuk, Niko Heeren. 2020. DOI: [10.1111/jiec.13091](https://doi.org/10.1111/jiec.13091)
- Stefan Pauliuk, Niko Heeren, Peter Berrill, Tomer Fishman, Andrea Nistad, Qingshi Tu, Paul Wolfram, Edgar G. Hertwich. Global Scenarios of Resource and Emissions Savings from Systemic Material Efficiency in Buildings and Cars. *In review*. Preprint DOI: [10.21203/rs.3.rs-93217/v1](https://doi.org/10.21203/rs.3.rs-93217/v1)

## Code

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- ODYM-RECC model for UN IRP project final results. This version was used to calculate the final results of the UN IRP / G7 report. <https://github.com/YaleCIE/RECC-ODYM/releases/tag/v2.2>
- Repository for the scenario target tables template & interpolation code: <https://github.com/TomerFishman/RECC-scenarios/tree/v1.0>. Zenodo archive: <https://doi.org/10.5281/zenodo.3631878>.
- ODYM MFA software. <https://github.com/IndEcol/ODYM>
- ODYM-RECC model code: <https://github.com/YaleCIE/RECC-ODYM>. ODYM commit for final model run <https://github.com/YaleCIE/RECC-ODYM/commit/a124ae2499126f0c864a036733f4f0a327b4e9e9>
- Building material & energy model: <https://github.com/nheeren/BuildME>
- Supporting information for Wolfram et al.: <https://github.com/PaulWolfram/MatEff>

## Data

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- RECC-IRP input database. DOI: 10.5281/zenodo.3566864. <https://zenodo.org/record/3566864>.
- IRP results. DOI 10.5281/zenodo.3566859. <https://zenodo.org/record/3566859>.
- Scenario target tables: <https://doi.org/10.5281/zenodo.3631878>

## Miscellaneous

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- Webinar on the RECC model: <https://youtu.be/-1wQaHCTbgc>
- Webinar on the policy part: <https://youtu.be/aGUGzjJaLyQ>
- Blog entry on the motivation behind the ODYM-RECC model framework: <http://www.blog.industrialecology.uni-freiburg.de/index.php/2019/12/11/introducing-odym-recc-a-community-model-for-circular-economy-and-material-efficiency-assessments/>
- Youtube video on how to use the ODYM-RECC model on your own machine: <https://youtu.be/zOfo1WTk7d8>
- Researchgate project: <https://www.researchgate.net/project/Resource-Efficiency-Climate-Change>

## Mentions

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This work has been mentioned in the following reports and policy initiatives:

- EU Circular Economy Action Plan, [https://ec.europa.eu/environment/pdf/circular-economy/new\\_circular\\_economy\\_action\\_plan.pdf](https://ec.europa.eu/environment/pdf/circular-economy/new_circular_economy_action_plan.pdf)

- German Environment Agency, <https://www.lag21.de/files/default/pdf/Portal%20Nachhaltigkeit/europa/portal-n-uberarbeitung/uba-2021-egd.pdf>
- European Green Deal
- Renovation Wave Strategy
- Paving the Way: EU Policy Action for Automotive Circularity <https://www.weforum.org/reports/paving-the-way-eu-policy-action-for-automotive-circularity>