



Africa Environment 2023

<https://bit.ly/AfriEnviro23>

Improving Wikipedia's articles on climate change

Su-Laine Brodsky, March 2023



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About me, Su-Laine Brodsky

- Volunteer Wikipedia contributor since 2006 under the name “Clayoquot”
- Major/lead contributor to the Featured article *Sea otter* and *Sustainable energy*
- *Everyone* at Wikipedia is referred to as an “editor”
- Wikipedia volunteers make decisions by consensus



What we'll cover: A systems-oriented approach

- What are the opportunities?
- How do we come to consensus?
- Stories about improving climate change articles
- Roundtable discussion
- Ask questions anytime



Who are Wikipedia's climate editors?

- Anyone can edit Wikipedia, but the number of active climate change editors is very small
- We have a few people who are experts on an aspect of climate change
- Most of us write about topics for which we are enthusiastic non-experts
- Outright climate deniers have very little presence on the English Wikipedia



What about misinformation?

- Climate misinformation is difficult to find in the English Wikipedia (easier in other-language Wikipedias)
- There is little or no evidence of co-ordinated efforts to spread climate misinformation via Wikipedia
- Instances of climate misinformation on Wikipedia can be corrected by any **one** person
- Don't need an army to get changes to stick
- Do need knowledge and skills

Five stages of climate change denial

- 1. Warming isn't happening
- 2. Humans aren't the cause



Rarely a problem in the English Wikipedia

- 3. Warming isn't harmful



Understated or overstated in places. Often framed as a future issue.

- 4. We can't solve it / The cure is worse than the disease
- 5. It's too late



Tremendous opportunity for education via Wikipedia



Help readers understand climate solutions

- Describe effective technologies, strategies, and policies
- Describe co-benefits of climate change mitigation
 - E.g. Articles on air pollution need a lot of work
- Put overhyped climate solutions into perspective
 - E.g. Can't tree-plant our way out of this
 - E.g. CCS for oil and gas development doesn't address most oil and gas emissions
- Describe practices that perpetuate fossil fuel dependency
 - E.g. if cities allow new buildings to use biogas and hydrogen, they will probably use natural gas forever

Active editors on climate change topics have a range of views

Wikipedia is a “big tent” community. Good-faith editors have a wide range of views on, for instance:

- Politics
- Nuclear energy
- Capitalism
- Electric cars
- Billionaires
- Importance of climate change relative to other issues



We agree on the purpose of Wikipedia

- Wikipedia is an encyclopedia
- Articles are reference works, not argumentative essays
- Science articles should reflect scientific consensus
- Articles should present majority points of view as majority and minority points of view as minority



We agree that articles should be based on reliable secondary sources

Sources are the key to getting edits to stick

- If a claim made by someone else doesn't have a good source, you can generally get consensus to remove it
- If a claim made by you doesn't have a good source, others can generally get consensus to remove it



Credit: Tulane University, CC-BY-2.0

Choosing sources for climate articles



Articles should** be based on sources that are :

Reliable:

- Overseen by an editorial board
- Written by experts on the subject
- Reputation for accuracy and fact-checking

Secondary:

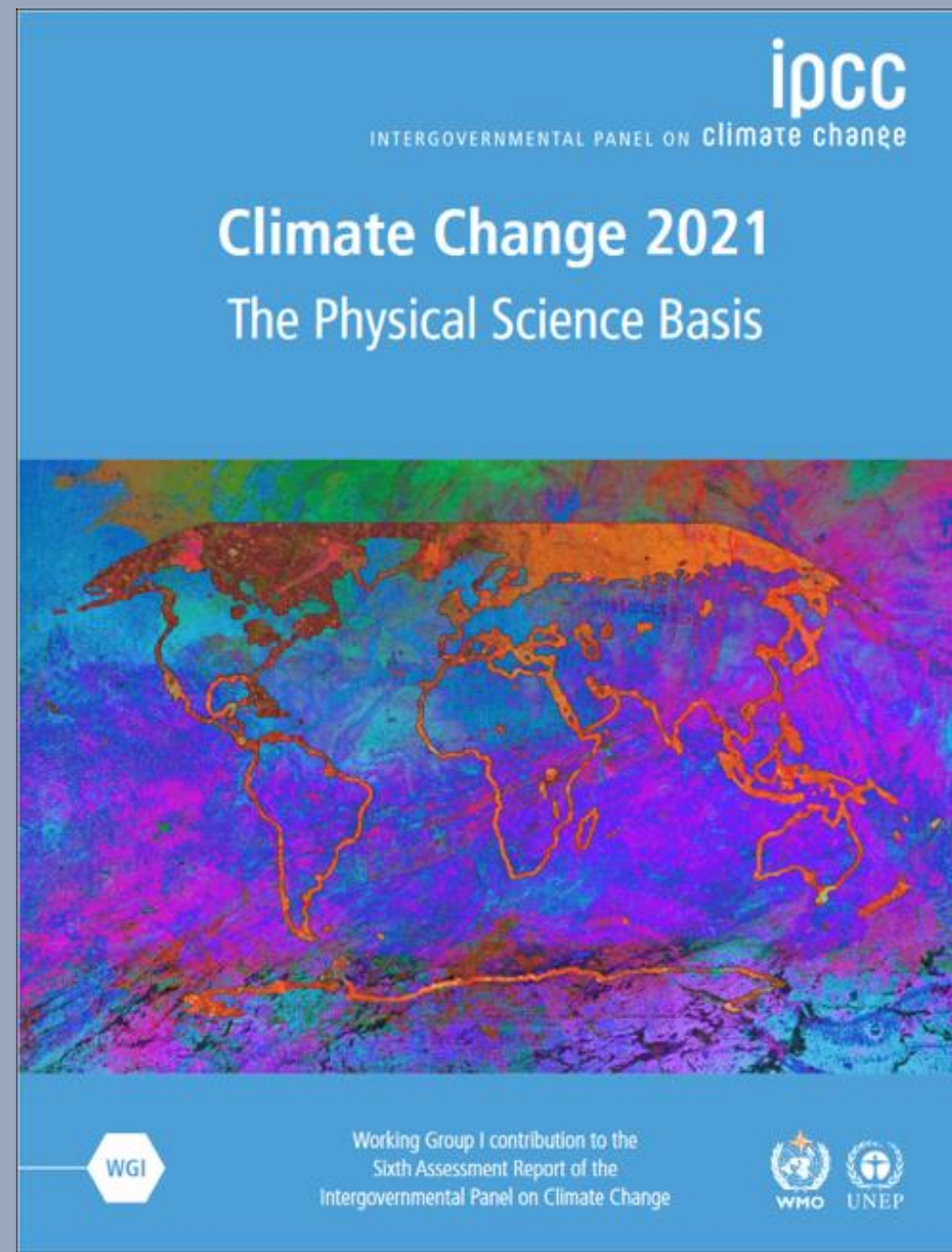
- Not written by someone directly involved in the research or event
- Contain analysis, evaluation, or interpretation of ideas from primary sources

**Wikipedia is not there yet



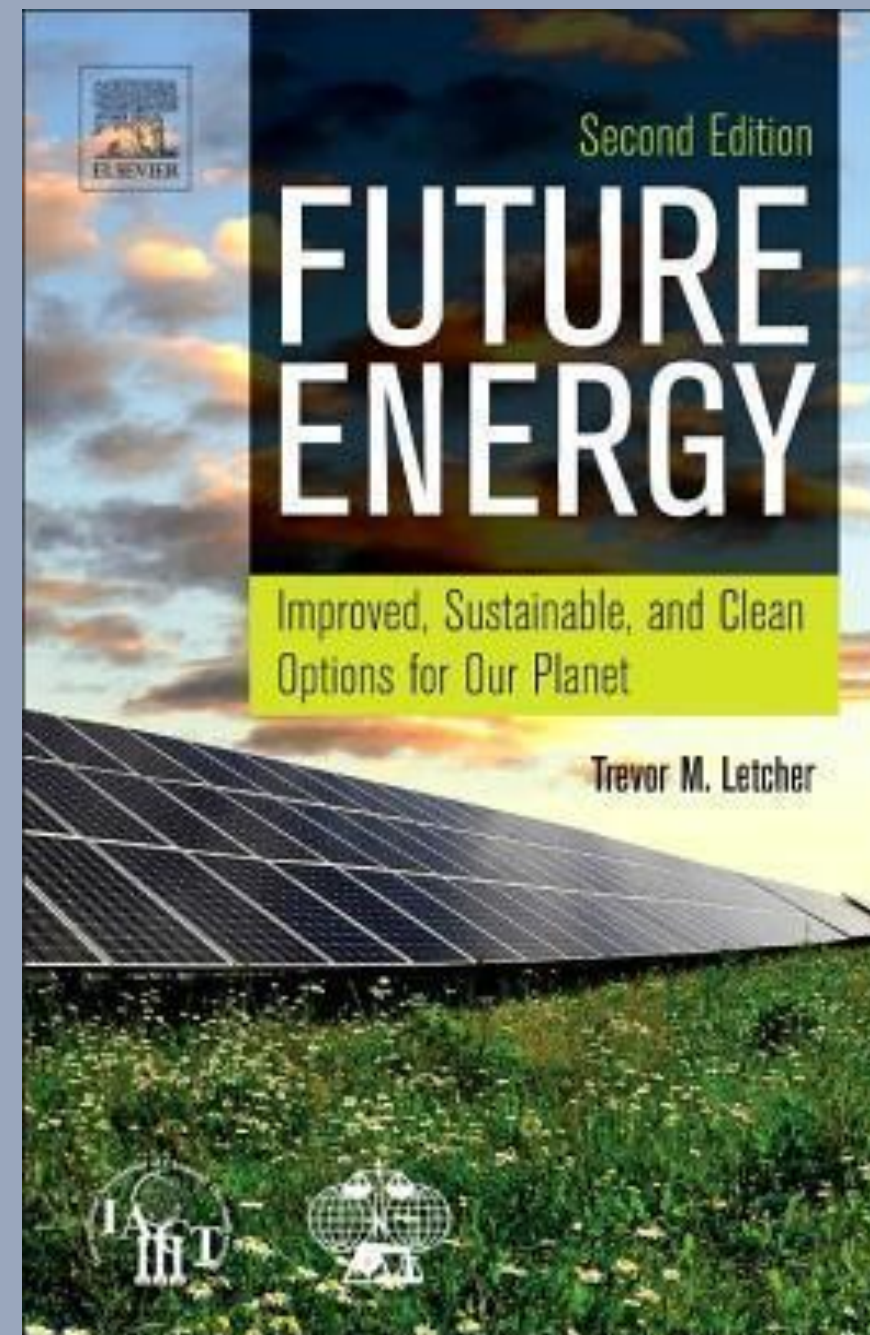
Excellent sources for climate articles

Reports from major scientific organizations or international bodies



E.g. IPCC, International Energy Association, Royal Society, OECD, EU, National Academy of Sciences, World Health Organization

University textbooks or other books by **academic** publishers

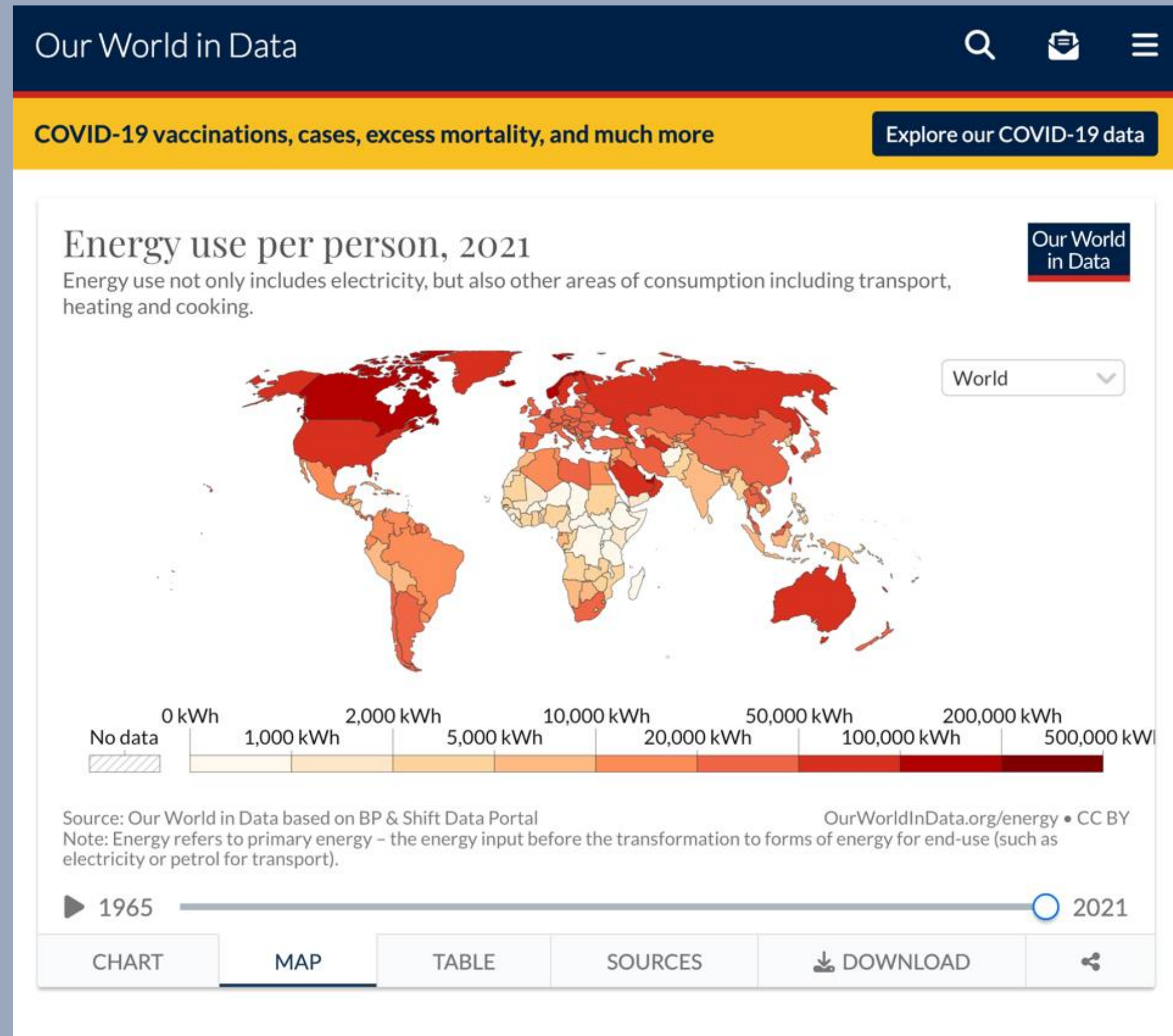


Review articles in scientific journals



Generally accepted sources

Topic overviews from websites with a reputation for accuracy and neutrality



EPA United States Environmental Protection Agency

Search EPA.gov

Renewable Heating And Cooling

Renewable Hot Water Heating

- [About hot water heating](#)
- [How renewable hot water heating works](#)
- [Compatible renewable technologies](#)

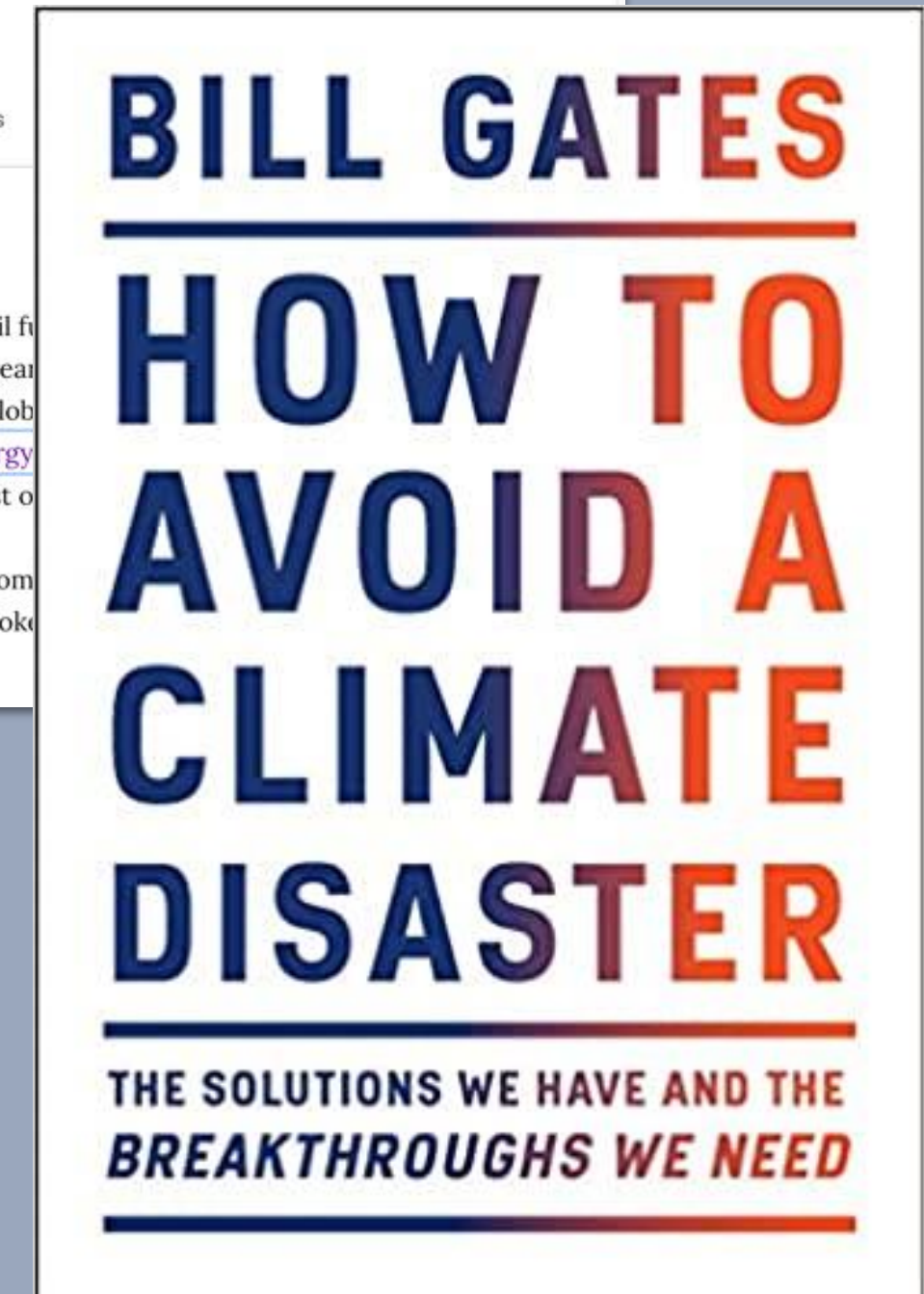
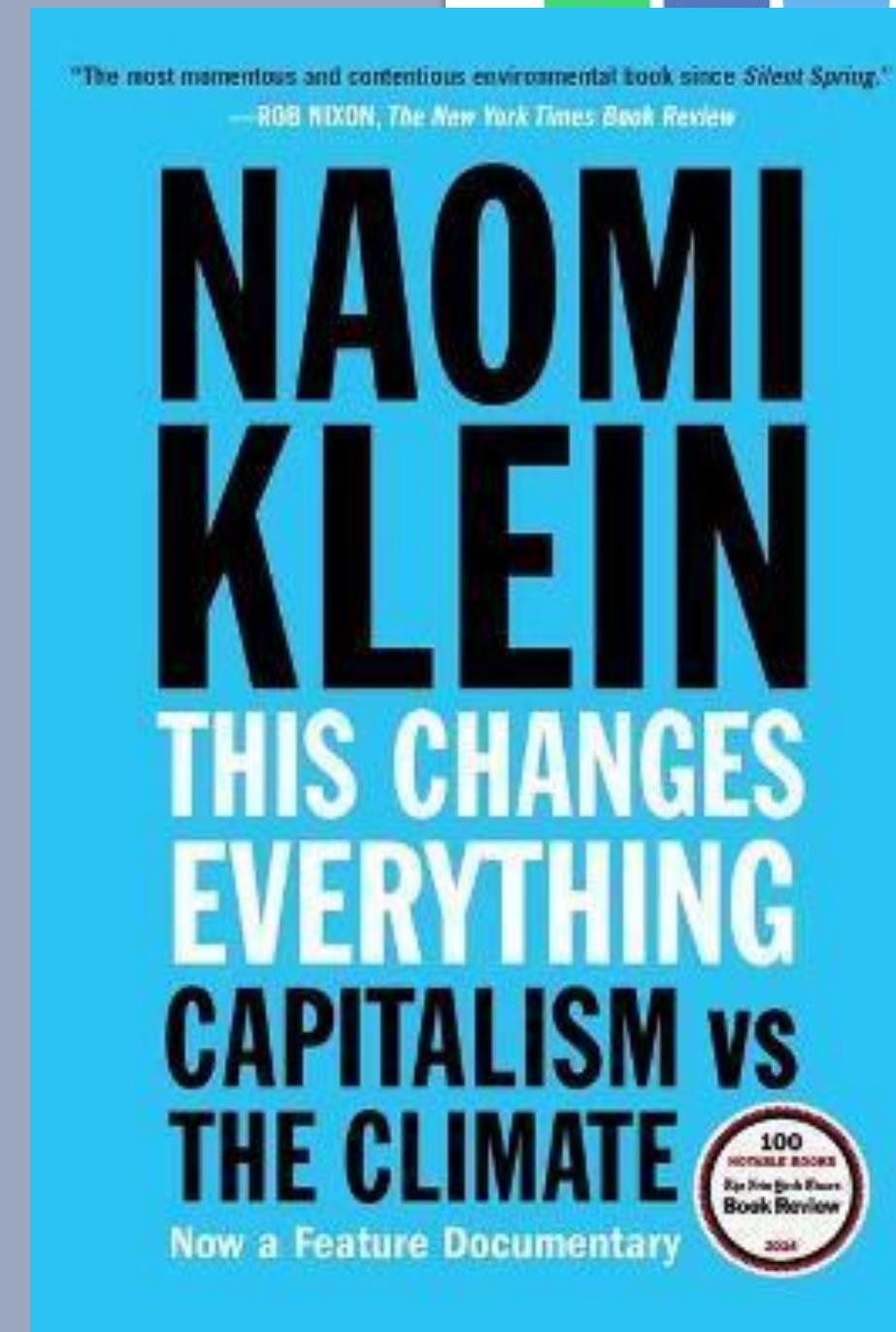
About Hot Water Heating

Hot water is an essential part of everyday life across the United States. In homes, domestic hot water is used for showering, hand-washing, laundry, dish-washing, and other functions. In 2009, delivered energy for residential water heating accounted for nearly 2 quadrillion Btu, or roughly 18 percent of total energy use in U.S. residences.¹ In 2003, commercial settings such as car washes, laundromats, and commercial kitchens used more than 500 trillion Btu for water heating, which was nearly 8 percent of their total fuel consumption.²

Related applications described separately include [pool heating](#) and [hot water for industrial applications](#) such as chemical production.



For climate science and policy, activist sources and non-academic books are generally poor sources



Generally avoid: Single studies and current-events reporting

These sources are usually unsuitable for science content, even if the author and publisher have excellent reputations.

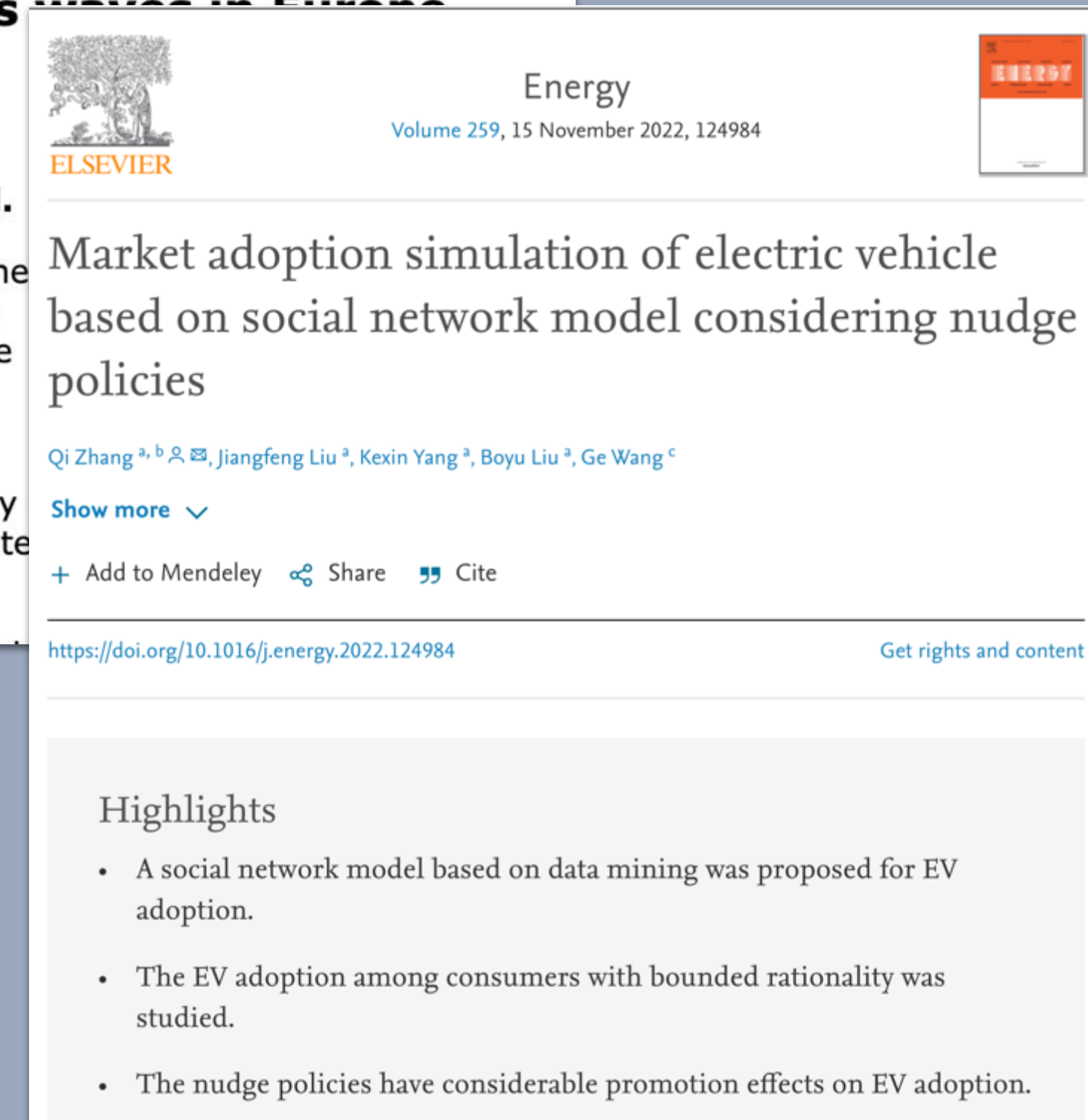
- Exception: Use news reports if the Wikipedia article is about a specific event

Wikipedia is weird:

- It prefers secondary sources over primary
- It prefers accepted science over cutting-edge science
- It loves textbooks



The screenshot shows the BBC News website interface. The top navigation bar includes the BBC News logo, a 'LIVE' indicator, and the 'BBC NEWS CHANNEL' logo. Below the navigation, there is a date and time stamp: 'Last Updated: Wednesday, 15 March 2006, 10:17 GMT'. A sidebar on the left lists various news categories such as 'World', 'UK', 'England', 'Northern Ireland', 'Scotland', 'Wales', 'Business', 'Politics', 'Health', 'Education', 'Science & Environment', 'Technology', and 'Entertainment'. The main content area features a headline: 'Sea machine makes waves in Europe' and a sub-headline: 'A pioneering commercial wave power machine is preparing to leave the Western Isles for Portugal.' The article text begins with: 'A specialist ship will deliver the large, tubular segments from the Camcal factory on the Isle of Lewis to a site off the northern coast of Portugal.' Below the text, there is a mention of a £6m Pelamis wave energy project.



The screenshot shows a page from the journal 'Energy', published by Elsevier. The page title is 'Market adoption simulation of electric vehicle based on social network model considering nudge policies'. The authors listed are Qi Zhang, Jiangfeng Liu, Kexin Yang, Boyu Liu, and Ge Wang. The page includes a 'Show more' dropdown menu, a 'Add to Mendeley' button, a 'Share' button, and a 'Cite' button. The DOI link is provided as <https://doi.org/10.1016/j.energy.2022.124984>. A 'Highlights' section is visible at the bottom, containing three bullet points: 'A social network model based on data mining was proposed for EV adoption.', 'The EV adoption among consumers with bounded rationality was studied.', and 'The nudge policies have considerable promotion effects on EV adoption.'

Tips on sourcing

- Use caution and transparency if citing papers that were written by you or someone you are close to
 - See Wikipedia Conflict of Interest guidelines,
 - Type WP:COI in the Search bar
- Paywalled and offline sources are fine
- More recent is generally better
 - E.g. from the last 5 years. Slowly-changing areas of knowledge can have older sourcing

Examples of improving climate articles



Adding information with a citation

Article: Kerosene

- In April 2021, article was overly-positive about kerosene
- Made kerosene sound safe to burn
- It did not say that kerosene smoke is associated with higher risks of cancer, respiratory infections, asthma, tuberculosis, cataracts, and adverse pregnancy outcomes

Toxicity

[Ingestion](#) of kerosene is harmful. Kerosene is sometimes recommended as a folk remedy for killing [head lice](#), but health agencies warn against this as it can cause burns and serious illness. A kerosene shampoo can even be fatal if fumes are inhaled.^{[53][54]}

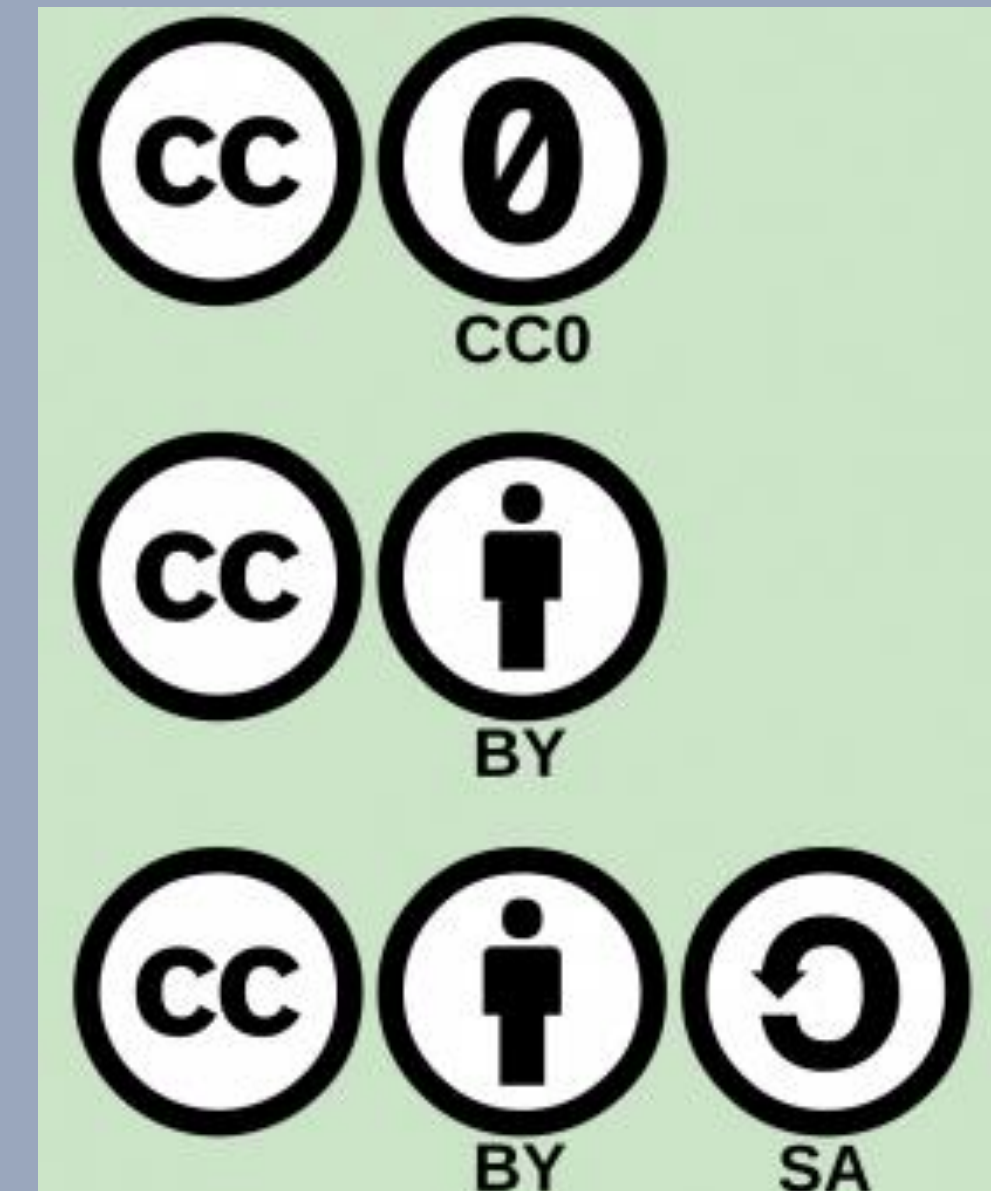
Choosing a high-quality source

- High-quality sources include reports from major scientific organizations or international bodies
- WHO reports are secondary sources - they summarize and comment on the body of research



Summarize sources in your own words

- Wikipedia is very strict about copyright
- Text copied from sources will be reverted, unless:
 - Released under certain Creative Commons licenses
 - CC-0
 - CC-BY
 - CC-BY-SA 3.0 or earlier
 - Released under certain other types of free license or in the public domain



See https://en.wikipedia.org/wiki/Wikipedia:Copying_text_from_other_sources

Example

Source text

Studies that have measured emission rates and pollutant concentrations in households using kerosene find pollution levels that are consistent with substantially increased risks of adverse health outcomes.

A systematic review found that levels of PM2.5 emissions from wick-type kerosene lamps exceed WHO guidelines, and that use of kerosene was associated with elevated risk of cancer, respiratory infections, asthma, tuberculosis, cataract, adverse pregnancy outcomes and ALRI in children (Lam et al., 2012b).

Summarized for Wikipedia

Kerosene smoke contains high levels of harmful [particulate matter](#), and household use of kerosene is associated with higher risks of [cancer](#), respiratory infections, [asthma](#), [tuberculosis](#), [cataract](#), and adverse pregnancy outcomes.

Avoid direct quotations unless describing an *opinion* held by a noteworthy person or organization

Source text

Kerosene is a polluting fuel: WHO recommends that governments and practitioners immediately stop promoting its household use.

Quoted for Wikipedia

The [World Health Organization](#) considers kerosene to be a polluting fuel and recommends that “governments and practitioners immediately stop promoting its household use”.

Steps to add fact + citation

Step 1: Click the Edit button for the section

Toxicity [[edit](#) | [edit source](#)]

Step 2: Add text

The [World Health Organization](#) considers kerosene to be a polluting fuel and recommends that “governments and practitioners immediately stop promoting its household use”.

Step 3: Click the Cite button and add a citation to the WHO report

 Cite

Steps to add fact + citation (cont'd)

Step 3: Click
Publish changes

Publish changes...

Step 4: Explain yourself through
an edit summary

× Save your changes Publish changes

Edit summary (Briefly describe your changes)

Describe what you changed

This is a [minor edit](#)

Watch this page Permanent ▾

By publishing changes, you agree to the [Terms of Use](#), and you irrevocably agree to release your contribution under the [CC BY-SA 3.0 License](#) and the [GFDL](#). You agree that a hyperlink or URL is sufficient attribution under the Creative Commons license.

Review your changes

Text of the edit
summary:

“→*Toxicity*: WHO
recommendations”

Who will notice your change?

- Spam filter
- Anti-vandalism algorithms
- Human anti-vandalism patrollers
- People who have the article on their watchlist
 - Probably interested in the topic
 - Could be anyone
- People checking for copyright violations



Usually within seconds



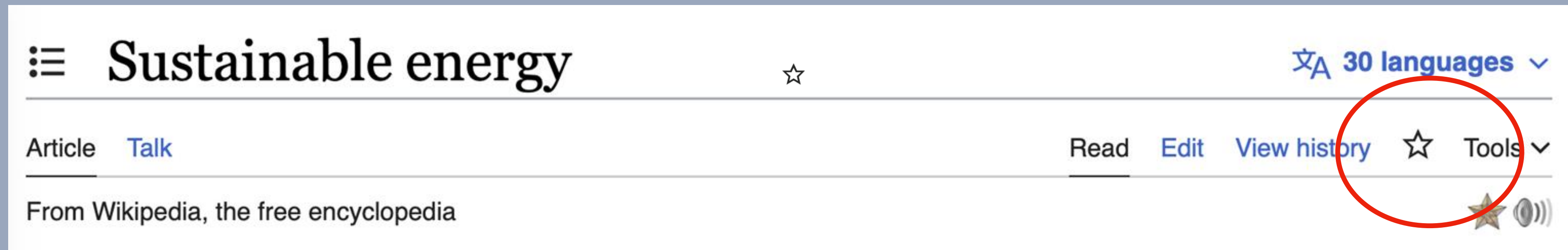
Usually within a few days



Usually within a month

Using watchlists

- If you are logged in, you can *watch* a page by clicking the “Add to Watchlist” button:



- To see recent changes to all pages you're watching, click the “Watchlist” button:



Using watchlists (cont'd)

Click the “diff” link in your watchlist...

19 January 2023 List of abbreviations (help):[show]

- o (diff | hist) . . **m** Sustainable energy; 06:11 . . (-4) . . Clayoquot (talk | contribs) (Reverted 1 edit by 129.126.36.124 (talk) to last revision by Clayoquot) (Tags: Twinkle, Undo) (thank)
- o (diff | hist) . . Sustainable energy; 06:08 . . (+4) . . 129.126.36.124 (talk) (Tag: Reverted)
- o (diff | hist) . . Carbon-neutral fuel; 03:17 . . (+108) . . MrOllie (talk | contribs) (Reverted 2 edits by NisarHussain2001 (talk): Citespam) (Tags: Twinkle, Undo) (thank)
- o (diff | hist) . . **m** Carbon-neutral fuel; 03:13 . . (-125) . . NisarHussain2001 (talk | contribs) (archive-url= is malformed Fixed) (Tag: Reverted) (thank)
- o (diff | hist) . . **m** Carbon-neutral fuel; 03:11 . . (+17) . . NisarHussain2001 (talk | contribs) (fixed and added new reference of Role of Biomass in Achieving Carbon Neutrality with helpful content page) (Tag: Reverted) (thank)

18 January 2023

- o (diff | hist) . . Sustainable energy; 03:26 . . (+40) . . Clayoquot (talk | contribs) (→Energy usage technologies: link to nice new article on non-tailpipe emissions) (Tag: Visual edit) (thank)
- o (diff | hist) . . Sustainable energy; 03:24 . . (+8) . . Clayoquot (talk | contribs) (→Solar: ce, loving all this new IEA content!) (Tag: Visual edit) (thank)

... to see exactly what changed:

[[Fossil fuel]]s provide **85%** of the world's energy consumption and the energy system is responsible for **76%** of global greenhouse gas emissions. Around 790 million people in [[Developing country|developing countries]] lack [[rural electrification|access to electricity]] and 2.**6** billion rely on polluting fuels such as wood or charcoal to

[[Fossil fuel]]s provide **69%** of the world's energy consumption and the energy system is responsible for **69%** of global greenhouse gas emissions. Around 790 million people in [[Developing country|developing countries]] lack [[rural electrification|access to electricity]] and 2.**6969** billion rely on polluting fuels such as wood or charcoal

Tip: Turn off the “Latest revision” filter so you see all changes in your watchlist, not just the latest



How to know if your edit has been accepted?

- Check your watchlist over the next few days
- Usually nothing will happen after a good edit
 - Wikipedia seldom gives positive feedback
- Occasionally, you might see your edit has been reverted
 - We'll talk about this in a few minutes



Problem: Impact of climate change was understated

Article: Heat wave

Original text:

Climate models reveal that future heat waves will have a more intense geographic pattern.^[24] Model results show that areas associated with

Source for original text:

24. ^{^ a b c d} Tebaldi, Claudia; Meehl, Gerald A. (13 August 2004). "More Intense, More Frequent, and Longer Lasting Heat Waves in the 21st Century" [↗](#). *Science*. **305** (5686): 994–997. Bibcode:2004Sci...305..994M [↗](#). doi:10.1126/science.1098704 [↗](#). ISSN 0036-8075 [↗](#). PMID 15310900 [↗](#).


Solution: Replaced text with summary of a newer source

Article: Heat wave

Updated text:

Heatwaves over land have become more frequent and more intense since the 1950s due to [climate change](#) in almost all world regions. Furthermore, heat waves are more likely to occur simultaneously with droughts. [Marine heatwaves](#) have also increased in frequency, with a doubling since 1980.^[24] The intensity of individual heat waves can

Source:

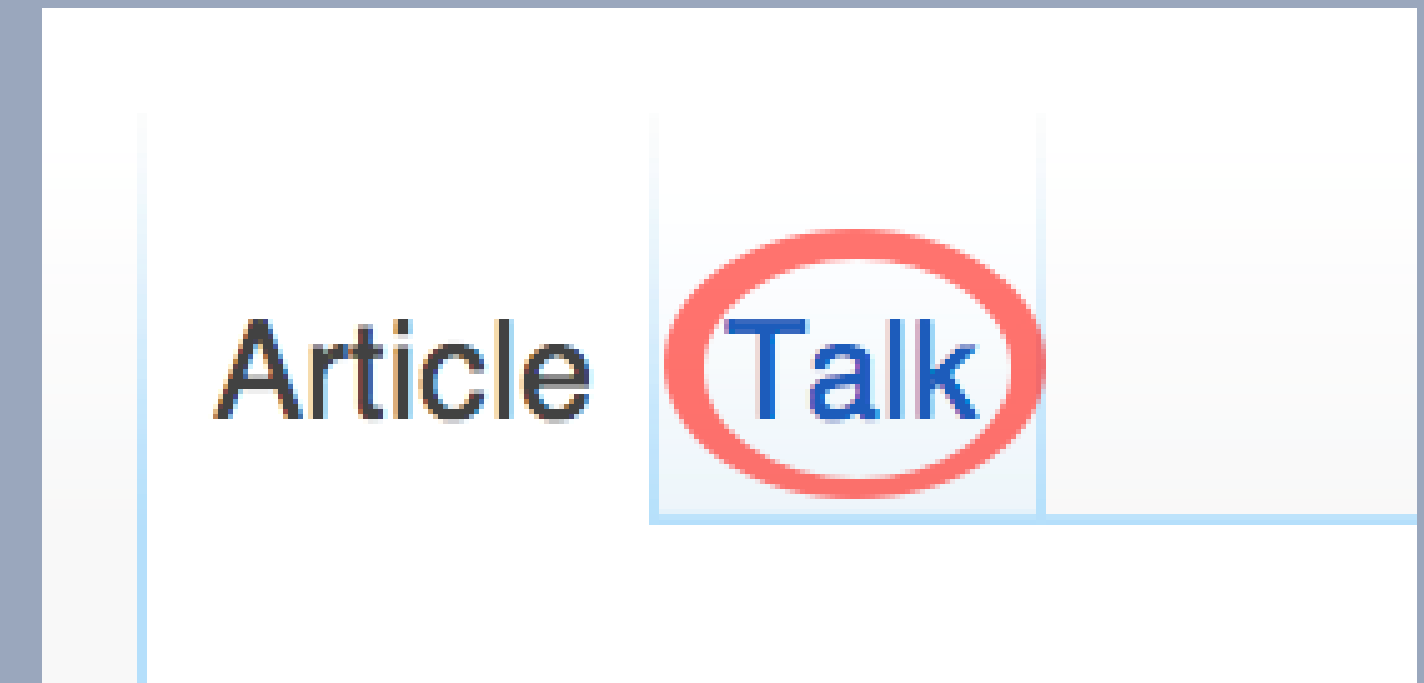
24. [^]  ["Summary for Policymakers"](#)  (PDF). *Climate Change 2021: The Physical Science Basis*. Intergovernmental Panel on Climate Change. 2021. pp. 8–10. [Archived](#)  (PDF) from the original on 4 November 2021.

Edit summary:

"Climate change: update (previous text was biased from outdatedness; climate change is observable now)"

What if you're not feeling that bold?

- You can propose changes on the Talk page of the article
 - Be as specific as possible including the source(s) you plan to use
 - Wait for feedback for at least 2 days
 - If there are no objections, implement the edit in the article
- Proposing changes on Talk is recommended if:
 - The article is a Featured Article
 - You have a conflict of interest
 - You want to make a deep change, such as in the way the article is organized



Removing an unfeasible idea for carbon capture and storage

Article: Carbon-neutral fuel

Unfeasible idea:

geosphere to the atmosphere. Automobile exhaust gas capture has also been seen as economical but would require extensive design changes or retrofiting.^[20] Since carbonic acid in seawater is in

Source of unfeasible idea:

20. [^] Musadi, M.R.; Martin, P.; Garforth, A.; Mann, R. (2011). "Carbon neutral gasoline re-synthesised from on-board sequestered CO₂". *Chemical Engineering Transactions*. **24**: 1525–30. doi:10.3303/CET1124255 [↗](#).

Edit summary:

→*Sources of carbon for recycling*: Rm exceedingly optimistic interpretation of early-stage R&D, see <https://cleantechnica.com/2018/08/27/capturing-co2-from-exhaust-pipes-is-a-bad-idea-that-wont-die/>

Replacing activist claims with widely-accepted facts

Article: Sustainable energy

Activist claim:

of 2010.^[162] In 2020 [Greenpeace](#) estimated worldwide damages from fossil fuel air pollution at \$2.9 trillion annually or \$8 billion a day.^[165]

Replaced with facts from a review in *The Lancet*, UNDP, WHO

The burning of fossil fuels and [biomass](#) is a major source of air pollution,^{[15][16]} which causes an estimated 7 million deaths each year.^[17]

Edit summary:

→*Pollution*: Rm Greenpeace and copying to Talk. Cost estimates of air pollution are health claims and therefore require MEDRS sourcing. I'm also very concerned about using activist sources.

What if you're reverted?

- Find out why:
 - In the article's **View history** tab, look for an edit summary explaining why
 - If you understand the explanation, you can re-edit the article in a way that addresses the reasons
- If you can't find a clear explanation, ask on the Talk page
- Work towards consensus on the Talk page, then implement what is supported by consensus
 - Silence for a few days is an indication of consensus



What if you're reverted? (cont'd)

- Don't re-do your change without discussing first
- Don't recruit others to re-do your change
 - Wikipedia values quality of arguments and is suspicious if a group suddenly arrives to say "+1"
- Communicate **on Wikipedia** for transparency
 - You can ask for more editor involvement by posting a message at the Talk page of Wikiproject Climate Change
(https://en.wikipedia.org/wiki/Wikipedia_talk:WikiProject_Climate_change)
- Email others to ask for advice, not to organize voting
- Do not post on social media with a link to any active Wikipedia dispute

Getting started with easier topics

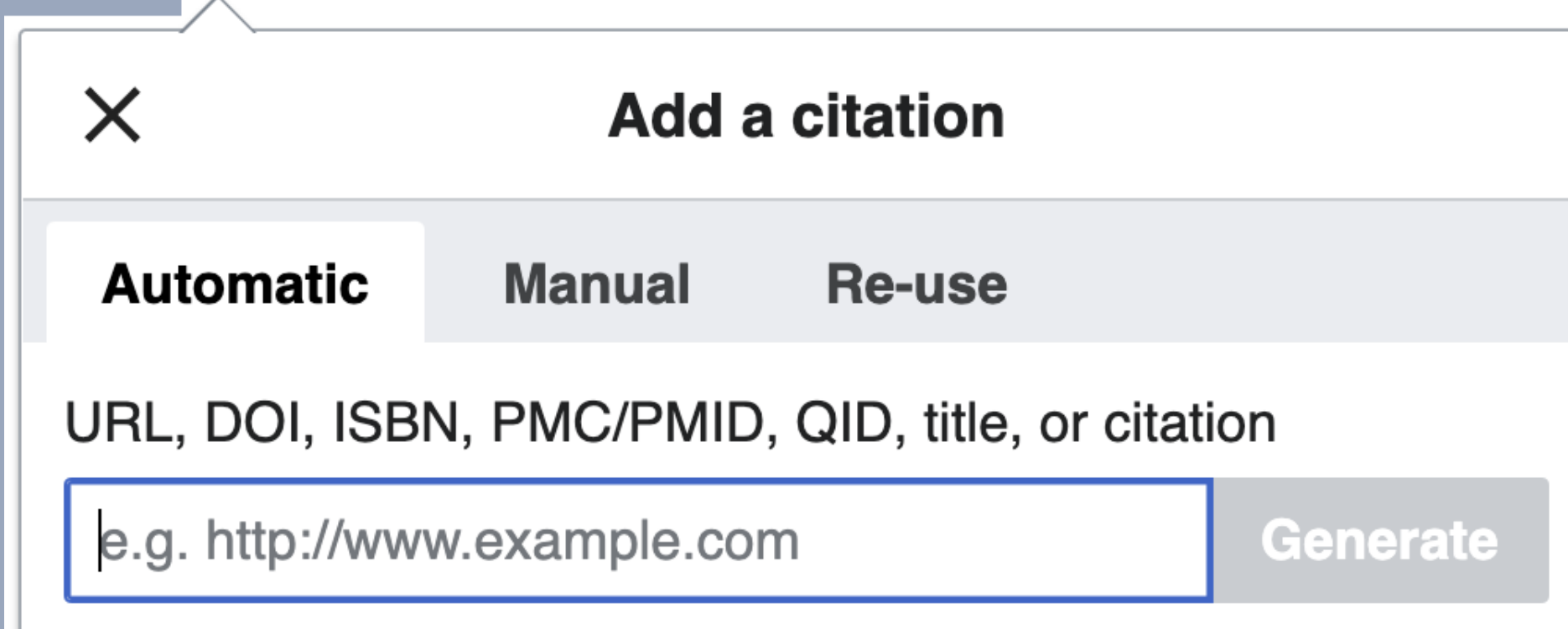
- Editing existing articles is much easier and more fun than starting new ones
 - ~90% of edits to existing articles are accepted
- Articles with “Featured Article” status are generally more difficult to change
 - Particularly the *Climate change* article
- Biographies of living people are tricky. I suggest you avoid:
 - Biographies about people you disagree with until you have experience and are familiar with the Biographies of Living People policy
 - Biographies of people you are close to except to fix obvious mistakes

Getting started with uncontroversial tasks

- Update old statistics
- Replace citations with higher-quality ones
- Add page numbers to existing citations
- Add images with Wikipedia-compatible free licensing
- Translate good-quality articles into other languages
- Common newbie mistakes:
 - When registering an account, don't put the name of an organization in your username.
 - Don't add links to other websites unless they're part of a citation.
 - Don't rush to make large numbers of edits. It's best to focus on quality.

Technical tips for citations

- For websites, give the URL of the specific page that supports the claim, not the home page. For instance:
 - Do cite <https://www.iea.org/topics/energy-subsidies>
 - Do *not* cite <https://www.iea.org/>
- You can often generate a citation automatically using an ISBN, DOI, or URL
 - To cite a report that has been published on a website, you generally cannot generate a citation from the website URL. Try the ISBN or Google Books URL
 - To cite a report, if you cannot generate a citation automatically, use the **Book** template in the **Manual** tab
- See Wikipedia's specific cheat sheets for citing the IPCC:
https://en.wikipedia.org/wiki/Wikipedia:IPCC_citation



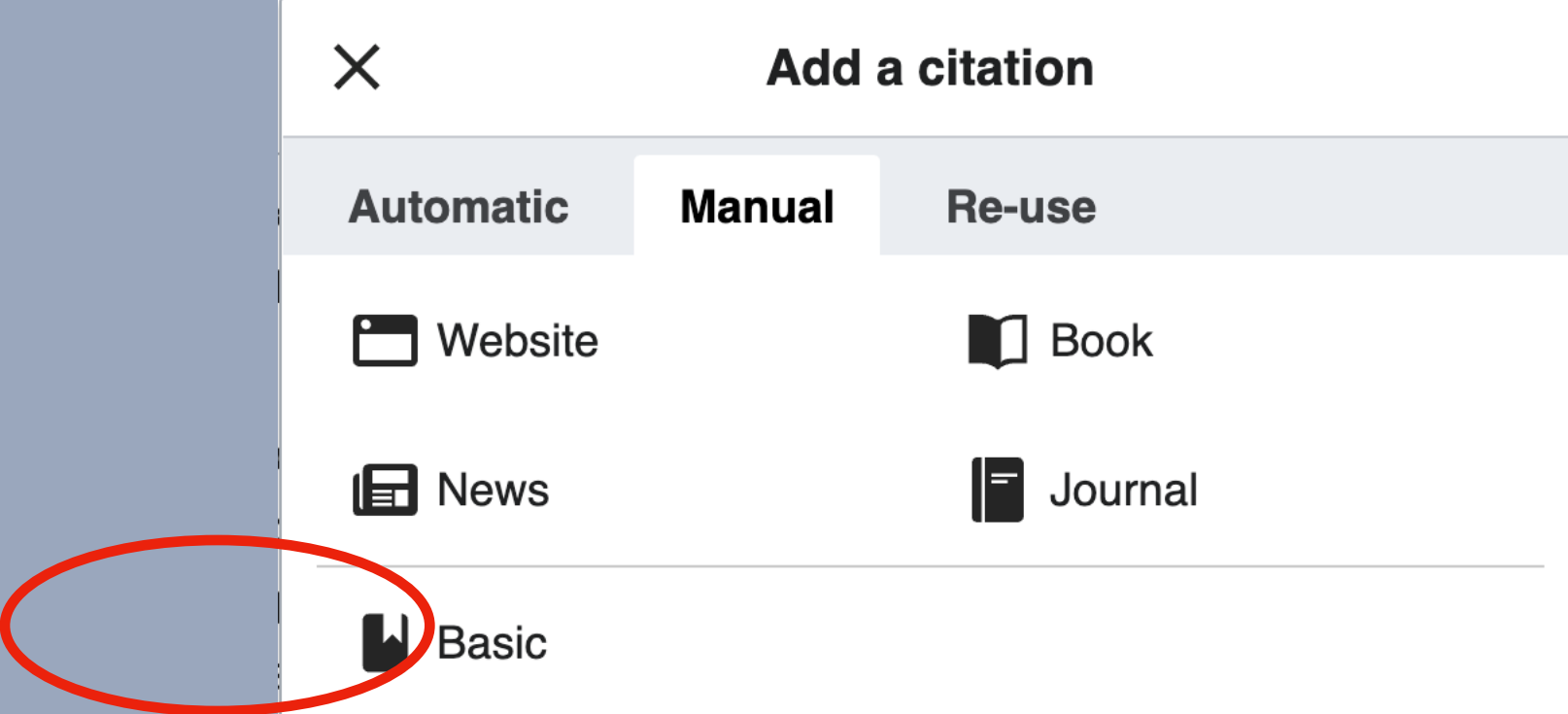
×

Add a citation

Automatic Manual Re-use

URL, DOI, ISBN, PMC/PMID, QID, title, or citation

e.g. <http://www.example.com> Generate



×

Add a citation

Automatic **Manual** Re-use

Website Book

News Journal

Basic

Specify page numbers in citations

When citing a long report or book, always specify the page, page range, or chapter

It's easiest to do this by using a template called **Rp**:

1. Insert a citation for the book or report.
2. Click immediately after the footnote.
3. Click Insert > Template.
4. In the Search field that appears, type Rp, then click Add.

< **Insert: Rp** Insert

Find field

Hide unused

- Singular page number
- Plural pages
- In-source-location
- Quote (in original langua...
- Singular quote page
- Plural quote pages
- Quote location
- Language of quote
- English translation of a q...
- Hide "pp" for AMA?
- Display control
- Wrapping control
- Request page number

Rp

This template is used to refer to specific page numbers when citing a source multiple times within the same article. It should be placed immediately after a reference.

Templates are user-generated and may lack complete descriptions. There might be additional information on this [template's page](#).

Singular page number

If the page number referred to in this reference is singular, specify the single page number using this parameter. Do not add 'Page', 'p.', etc.; just the number.

Example: 26

Plural pages

If there are multiple page numbers referred to in this reference, specify them using this parameter. Do not add 'Pages', 'pp.', etc.; just the numbers.

Example: 26–27

In-source-location

Specify the in-source-location referred to in this reference, if it is not a normal page or number of pages.

Example: sheet 3

 ?

Ongoing learning and engagement

- Watchlist articles
 - To monitor for quality and to learn from other editors
- Watchlist [Wikiproject Climate Change](#)
- Encourage organizations to release content under a Wikipedia-compatible Creative Commons license
- Get help:
 - Wikipedia Teahouse for technical or general Wikipedia questions
 - Me: [User talk:Clayoquot](#) or sulaine@sulainebrodsky.com

Roundtable discussion and Q&A

- What has your experience with editing Wikipedia been like so far?
- What have the challenges been?
- Any other questions?

