

Visualizing changes to US federal environmental agency websites, 2016–2020

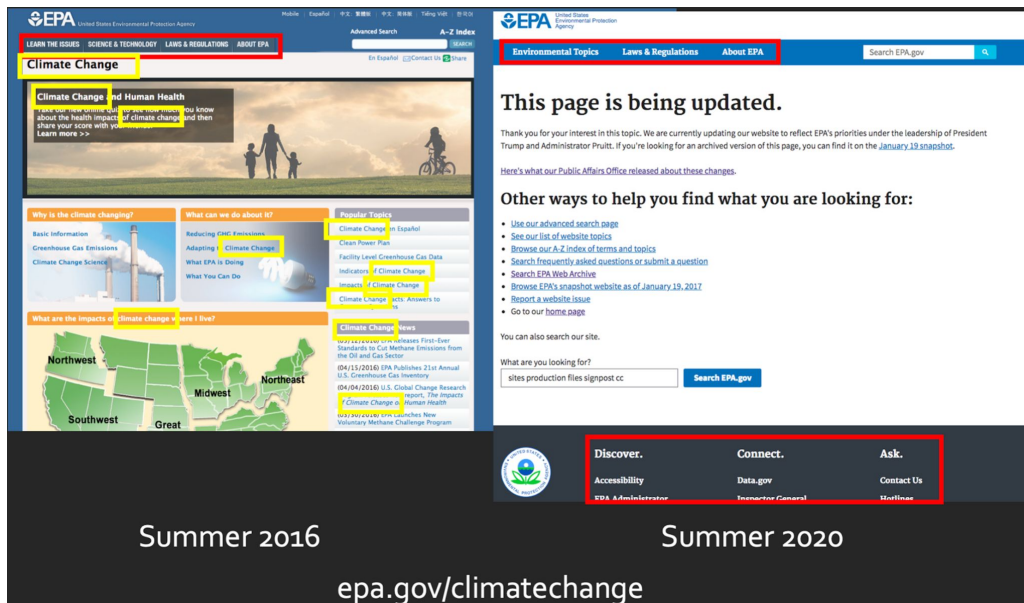
Eric Nost , Gretchen Gehrke, Grace Poudrier, Aaron Lemelin,
Marcy Beck, and Sara Wylie

on behalf of the Environmental Data & Governance Initiative

PLOS One, 2021

Presented by Lesley Frew
October 3, 2022

epa.gov/climatechange was removed during the Trump administration



Nost et al., Visualizing changes to US federal environmental agency websites, Figure 1

Climate change terms were disappearing across multiple agencies' websites

[MIDTERM ELECTIONS](#)[EVEN BETTER](#)[RECODE](#)[THE GOODS](#)[FUTURE PERFECT](#)[THE HIGHLIGHT](#)[MORE ▾](#)

“Climate change” and “global warming” are disappearing from government websites

The deletions follow a pattern of policy changes on climate change under the Trump administration.

By Umair Irfan | Updated Jan 11, 2018, 12:30pm EST

<https://www.vox.com/energy-and-environment/2017/11/9/16619120/trump-administration-removing-climate-change-epa-online-website>

Removing information from government sites was the next step in the climate change denial misinformation campaign

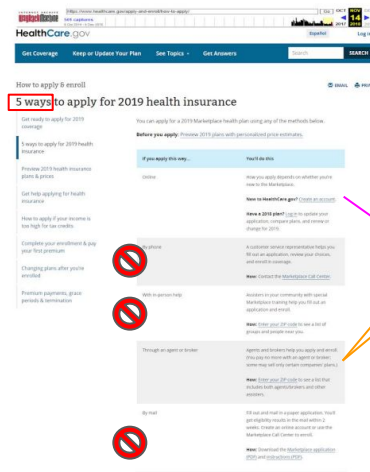
- Lobby (fossil fuel companies)
- Elevate the minority (3%) of scientists who reject climate change
- Create rebuttals to climate change models by using cherry-picked data
- Remove information from government sites

John Cook et al, Quantifying the consensus on anthropogenic global warming in the scientific literature, 2013, <https://iopscience.iop.org/article/10.1088/1748-9326/8/2/024024>
Ellen Knickmeyer, Emails show collaboration among EPA and climate-change deniers, 2018,
<https://www.pbs.org/newshour/nation/emails-show-collaboration-among-epa-and-climate-change-deniers>

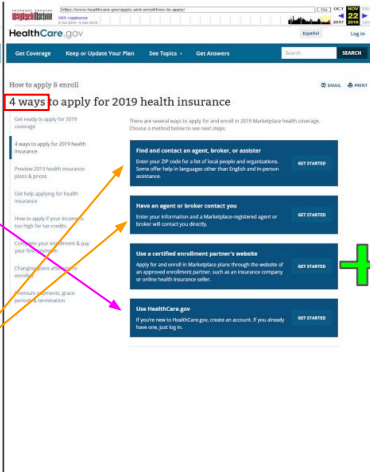
This is not the first time the government has conducted mass removals of content

<https://www.healthcare.gov/apply-and-enroll/how-to-apply/>

2018-11-14



2018-11-22



Lemelin et al., Overhaul of HealthCare.gov's "Apply for Health Insurance" Webpage, 2018,
<https://sunlightfoundation.com/wp-content/uploads/sites/2/2018/12/CCR-16-HealthCare.gov-Ways-to-Apply-Page-181210.pdf>

The US government is not required to keep archived copies of its web pages or track content change

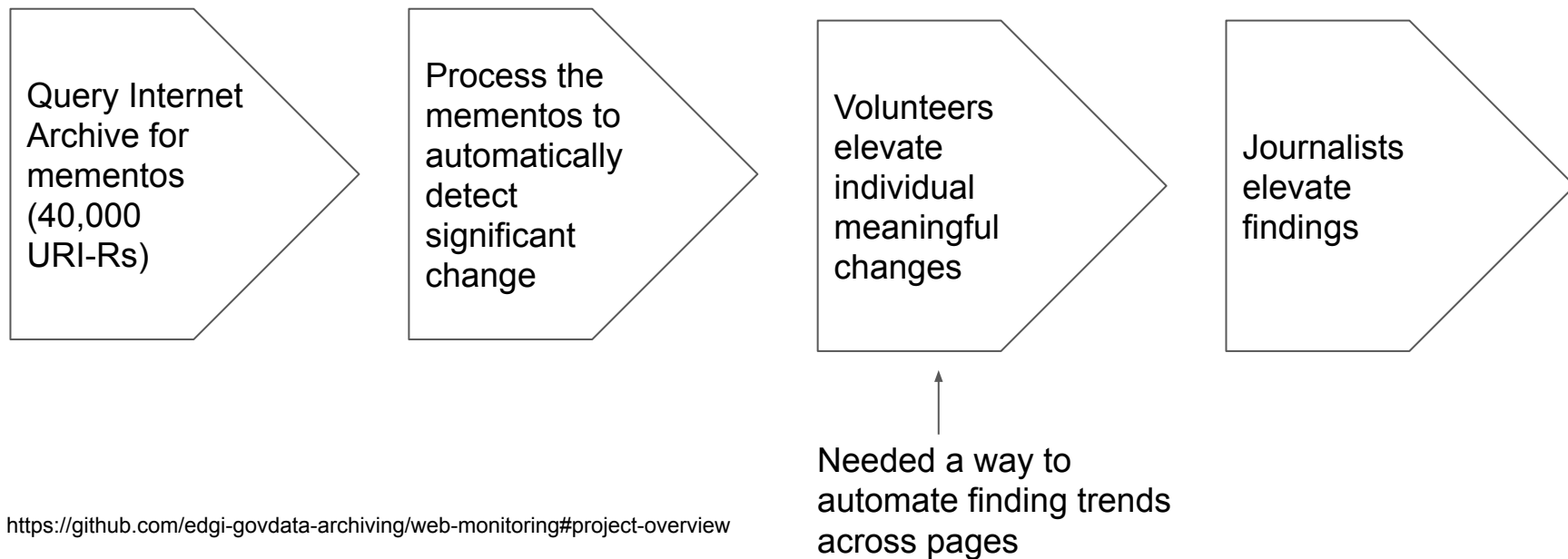
3 Purposes of Act

The purposes of this Act are—

- (a) to provide for the continuation of the repository of public archives called the National Archives with the name Archives New Zealand (Te Rua Mahara o te Kāwanatanga); and
- (b) to provide for the role of the Chief Archivist in developing and supporting government recordkeeping, including making independent determinations on the disposal of public records and certain local authority archives; and
- (c) to enable the Government to be held accountable by—
 - (i) ensuring that full and accurate records of the affairs of central and local government are created and maintained; and
 - (ii) providing for the preservation of, and public access to, records of long-term value; and

New Zealand Public Records Act of 2005, <https://www.legislation.govt.nz/act/public/2005/0040/latest/whole.html>

EDGI tracked removals related to climate change during the Trump administration



Goal: detect mass changes as they start occurring

- EDGI developed computational tools to quickly analyze large numbers of mementos for content changes
- Used to swiftly determine if changes noticed on individual pages are part of a larger trend

Goal: reduce future removals

- EDGI designed strong visualizations to show overall trends as well as internal term change patterns
- Strong visualizations lead to policy recommendations and government accountability

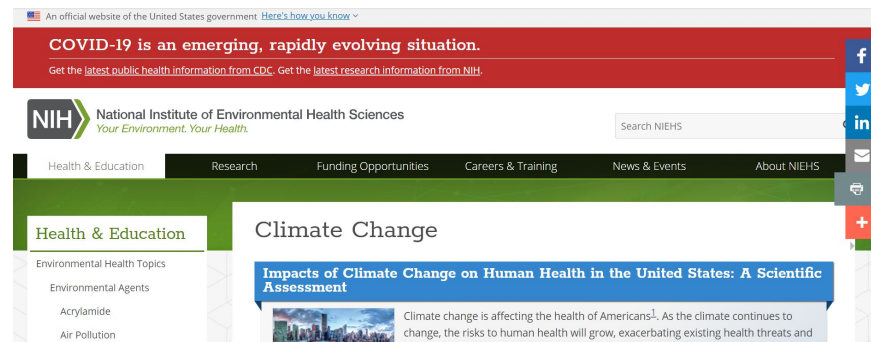
9,144 URI-Rs in EDGI's web monitoring database have paired mementos from the first half of 2016 and 2020

<https://www.niehs.nih.gov/health/topics/agents/climate-change/index.cfm>

2016-04-12

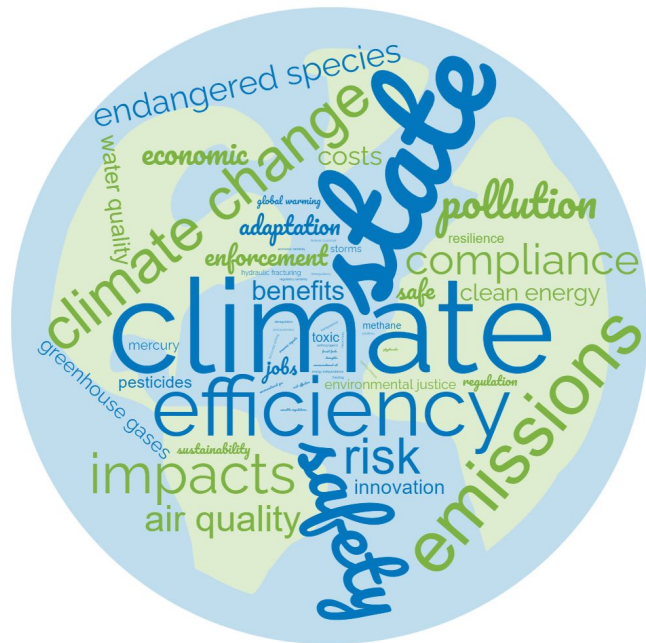


2020-04-30



Anjur-Dietrich et al, Removals of Climate Change Mentions and Links from the National Institute of Environmental Health Sciences Website, Screenshot 4.1, <https://envirodatagov.org/wp-content/uploads/2017/08/WM-CCR-17-NIH-Climate-Change-170820.pdf>

Content change was calculated by counting terms on each URI-R's paired mementos



56 terms/phrases related to climate change, scaled by 2016 use

<https://www.wordclouds.com/>

Climate change terms were deleted from pages that persisted

<http://www.esrl.noaa.gov/gmd/obop/thd/>
2016 By 2020

U.S. Department of Commerce / National Oceanic & Atmospheric Administration / NOAA Research

Earth System Research Laboratory
Global Monitoring Division

Search ESRL: [input] [button]

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GMD Home About Research Data & Products Observatories Information Site Map Intranet

Trinidad Head Observatory

About Trinidad Head Site Information Data

Trinidad Head Observatory (THD) is located on a point jutting into the ocean along the remote northern coast of California approximately 40 km (25 miles) north of Eureka, California, the main regional population center. The coastal climate is dominated by maritime influences, with moderate year-round temperatures and moderate-to-high humidity. To the immediate west of Trinidad Head is the unobstructed Pacific Ocean and to the east are redwood dominated forest lands. The town of Trinidad represents the primary community in the immediate vicinity and supports approximately 400 year-round residents. The Telsonicher Marine Laboratory (TML), a satellite facility of Humboldt State University (HSU), is also located in Trinidad.

Because of the characteristics of a relatively remote coastal location (insignificant anthropogenic influences and prevailing maritime airflow) the Trinidad Head site is an important location, providing an opportunity to observe and monitor both regional and global influences. An instrument trailer was installed in April 2002 allowing measurements of aerosols, surface ozone, radiation, and flask sampling for halocarbons and carbon cycle gases. Bi-weekly airborne vertical profile measurements will provide a continuous baseline of pollution and climate forcing agents in air entering the U.S. Further plans include installing a GCMS for measuring PAN, hydrocarbons, and certain halocarbons. Additional measurements will be included as the Observatory matures. Already, at this site, there are two in situ instruments, one as part of the Advanced Global Atmospheric

Examples of Data:

Methane

Surface Ozone

Global Monitoring Laboratory
Earth System Research Laboratories

Search GML: [input] [button]

About Research Data & Products Observatories News & Events Information

Trinidad Head Observatory

Trinidad Head Observatory

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NOAA established an atmospheric baseline observatory at Trinidad Head in 2002. Because of its relatively remote coastal location and prevailing maritime airflow, NOAA felt the site would provide scientists with an opportunity to observe and monitor both regional and global atmospheric conditions reasonably free from local influences.

Examples of Data:

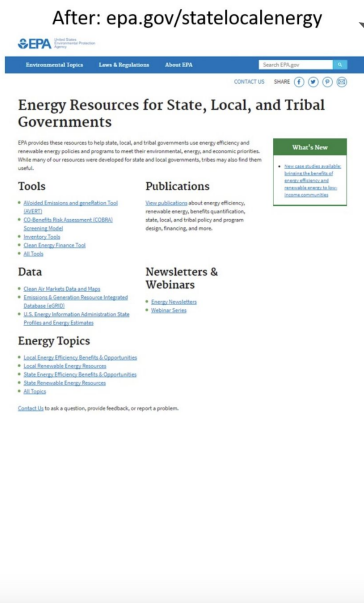
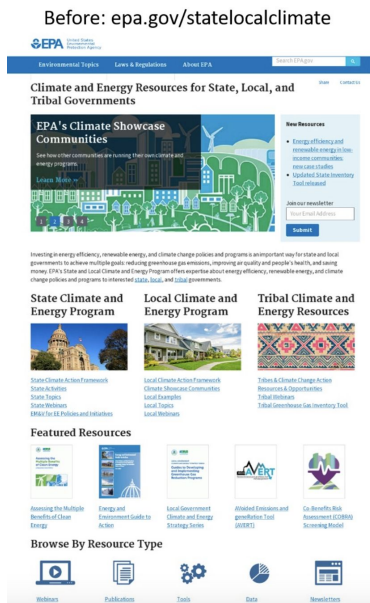
Methane

Surface Ozone

Memgator memento request at 20160430000000 and 20200430000000 for <http://www.esrl.noaa.gov/gmd/obop/thd/>:
<https://web.archive.org/web/20160423153343/http://www.esrl.noaa.gov/gmd/obop/thd/>
<https://web.archive.org/web/20200430005031/https://www.esrl.noaa.gov/gmd/obop/thd/>

Climate change terms were replaced with pro-energy terms: significant content removal from subdirectories

2016
Over 380 pages in this
subdirectory

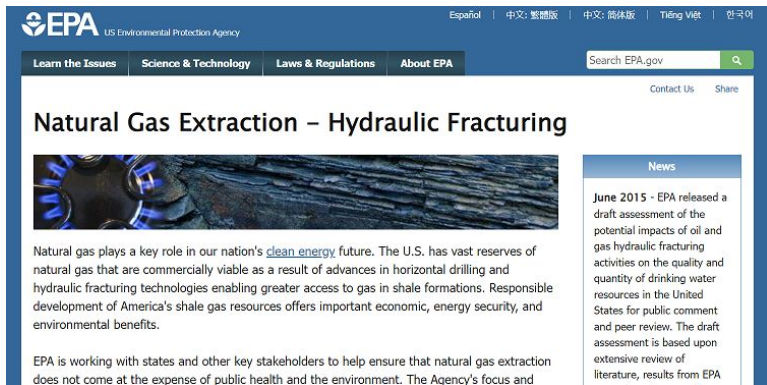


By 2020
Over 200 pages removed

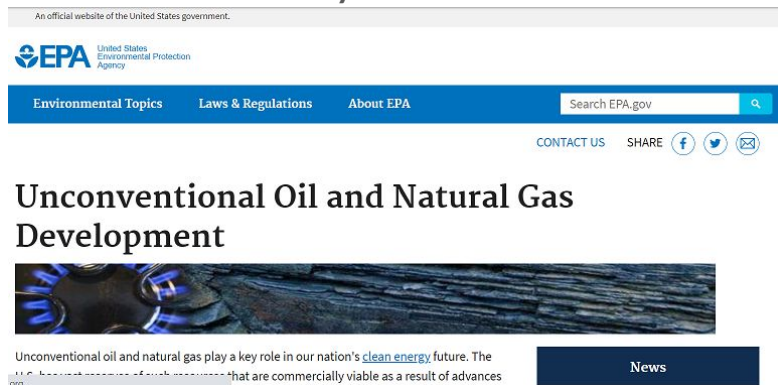
"5 Photos That Show Just How Much The EPA Website Has Censored Climate Change", <https://www.sciencealert.com/epa-climate-change-science-censored-website>

Climate change terms were replaced with pro-energy terms: entire subdirectories were deleted and redirected

<https://www.epa.gov/hydraulicfracturing>
2016



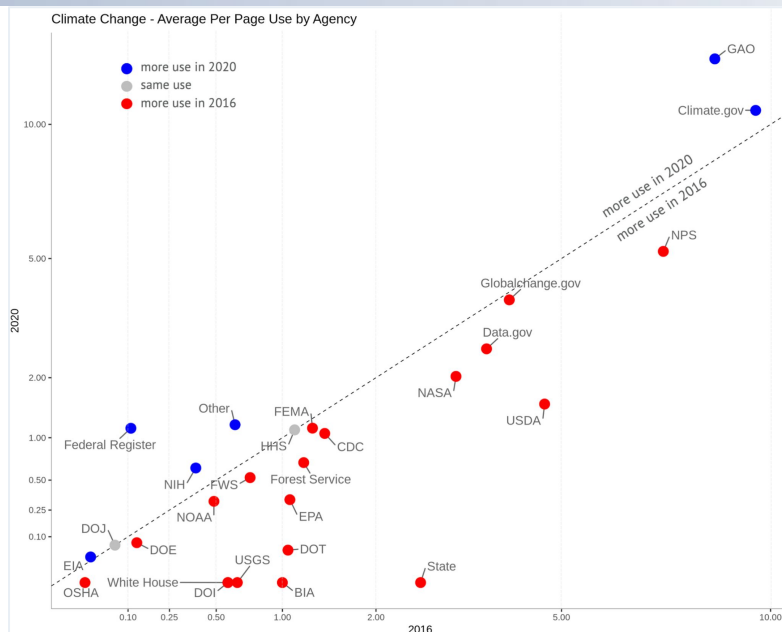
→ <https://www.epa.gov/uog>
By 2020



Internet Archive memento request at 20160430000000 and 20200430000000 for <https://www.epa.gov/hydraulicfracturing>:
<https://web.archive.org/web/20160429134513/https://www.epa.gov/hydraulicfracturing>
<https://web.archive.org/web/20200430000725/https://www.epa.gov/uog>

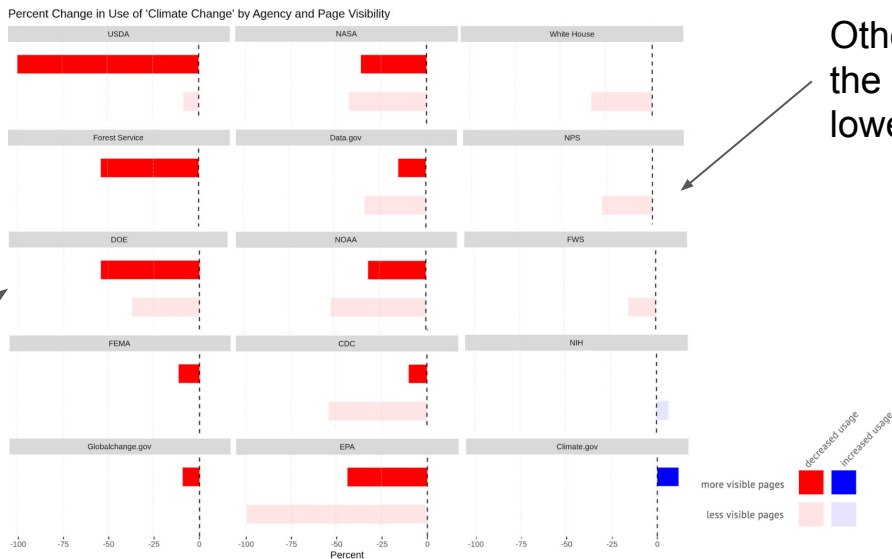
Most agencies used “climate change” on web pages more in 2016 than in 2020

Overall, 38%
reduction from
2016 to 2020!



Nost et al., Visualizing changes to US federal environmental agency websites,, Figure 5

Climate term usage decreased on federal pages at all depths during the Trump administration



Some agencies saw the most removals on higher-level pages

Other agencies saw the most removals on lower-level pages

Nost et al., Visualizing changes to US federal environmental agency websites,, Figure 9 rearranged

There is correlation between the amount of climate term website change and the type of agency

Cabinet

(departments)

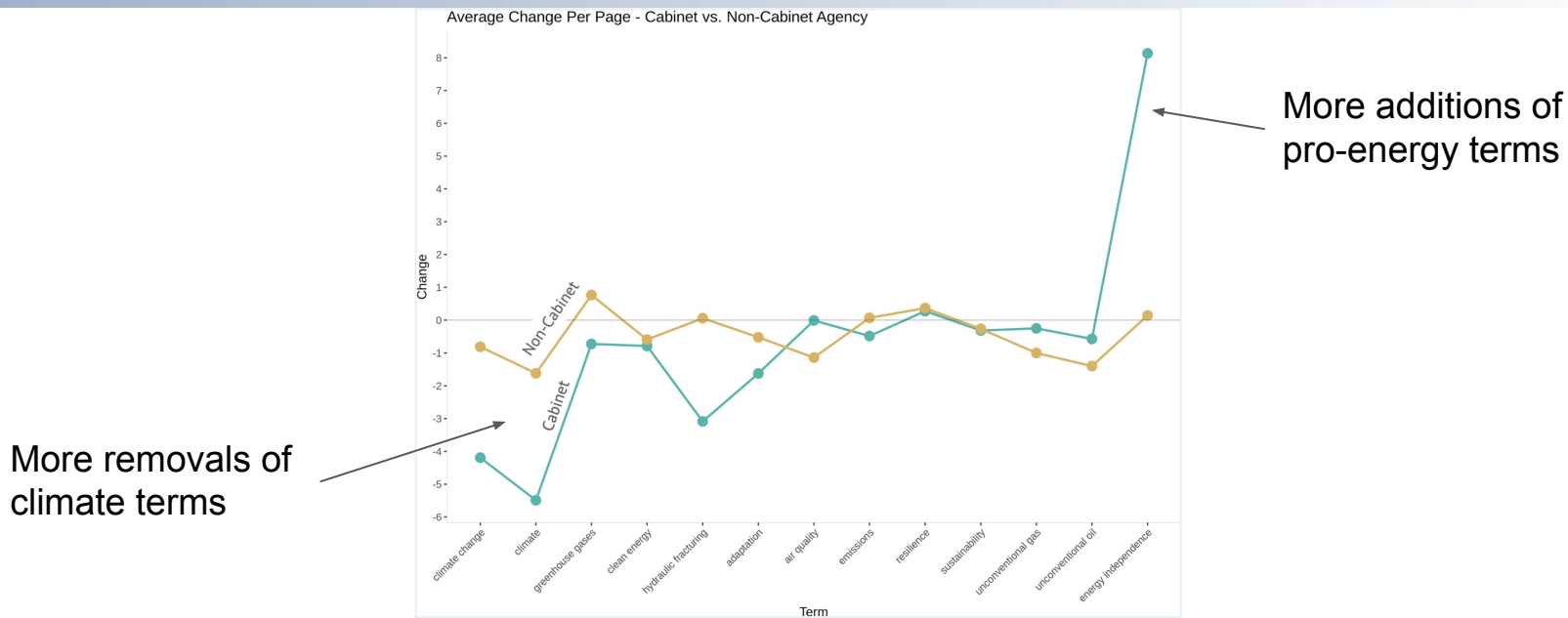


Non-Cabinet

(agencies within departments)

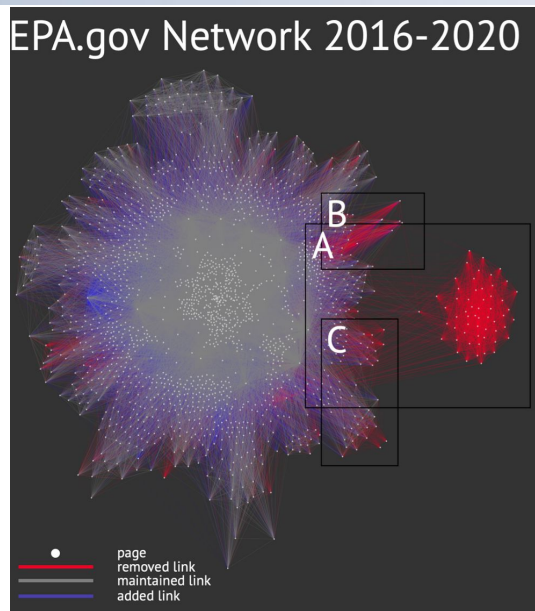


On average, cabinet agencies experienced more extreme term change than non-cabinet agencies



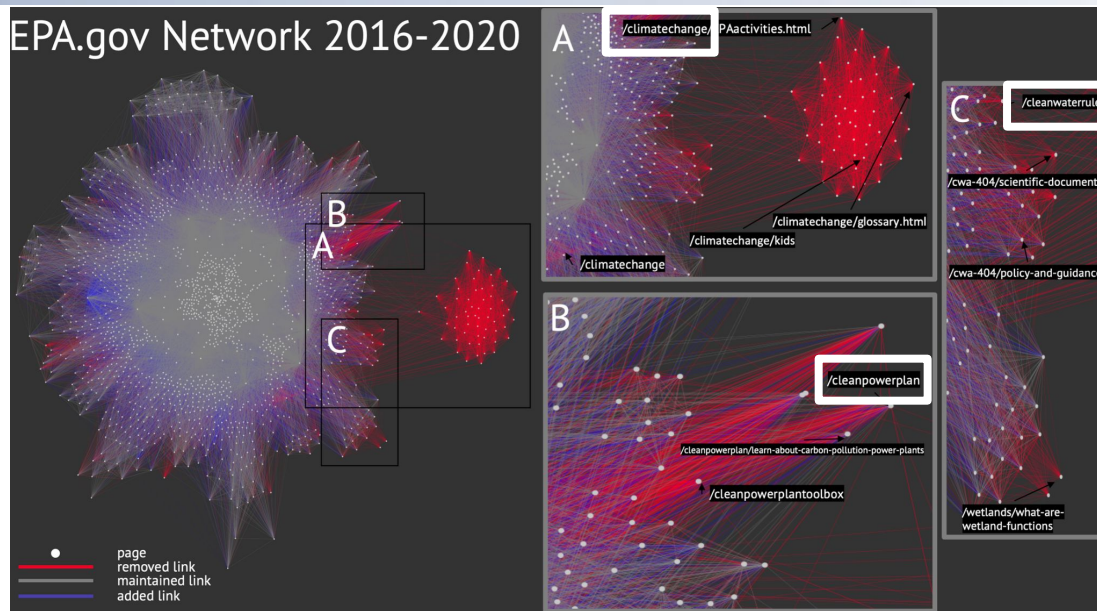
Nost et al., Visualizing changes to US federal environmental agency websites,, Figure 6

Most links on government pages stayed the same between 2016 and 2020



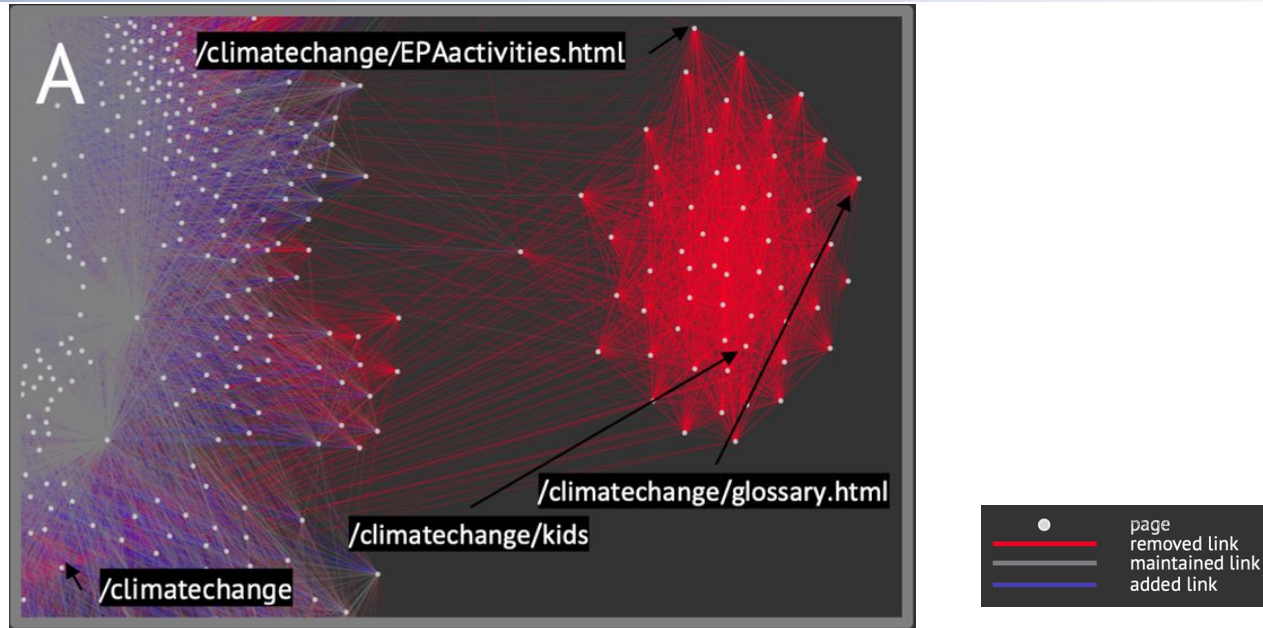
Nost et al., Visualizing changes to US federal environmental agency websites,, Figure 2

Clusters of pages with removed links are climate change subdirectories



Nost et al., Visualizing changes to US federal environmental agency websites., Figure 2

The Trump administration removed the entire subdirectory epa.gov/climatechange in April 2017



Nost et al., Visualizing changes to US federal environmental agency websites,, Figure 2A

Conclusion: Web monitoring can be used to hold the government accountable for website changes

- Climate change content was removed from federal sites during the Trump administration
- Web monitoring using web archives can rapidly detect removals as they occur
- Visualizations such as bar charts and network graphs aid in analyzing website change trends for large data sets

https://github.com/edgi-govdata-archiving/web_monitoring_research