

Evaluating Environmental Justice Concerns at Carbon Capture and Storage Sites



Overview and Application of EJ Guidance

February 28, 2024

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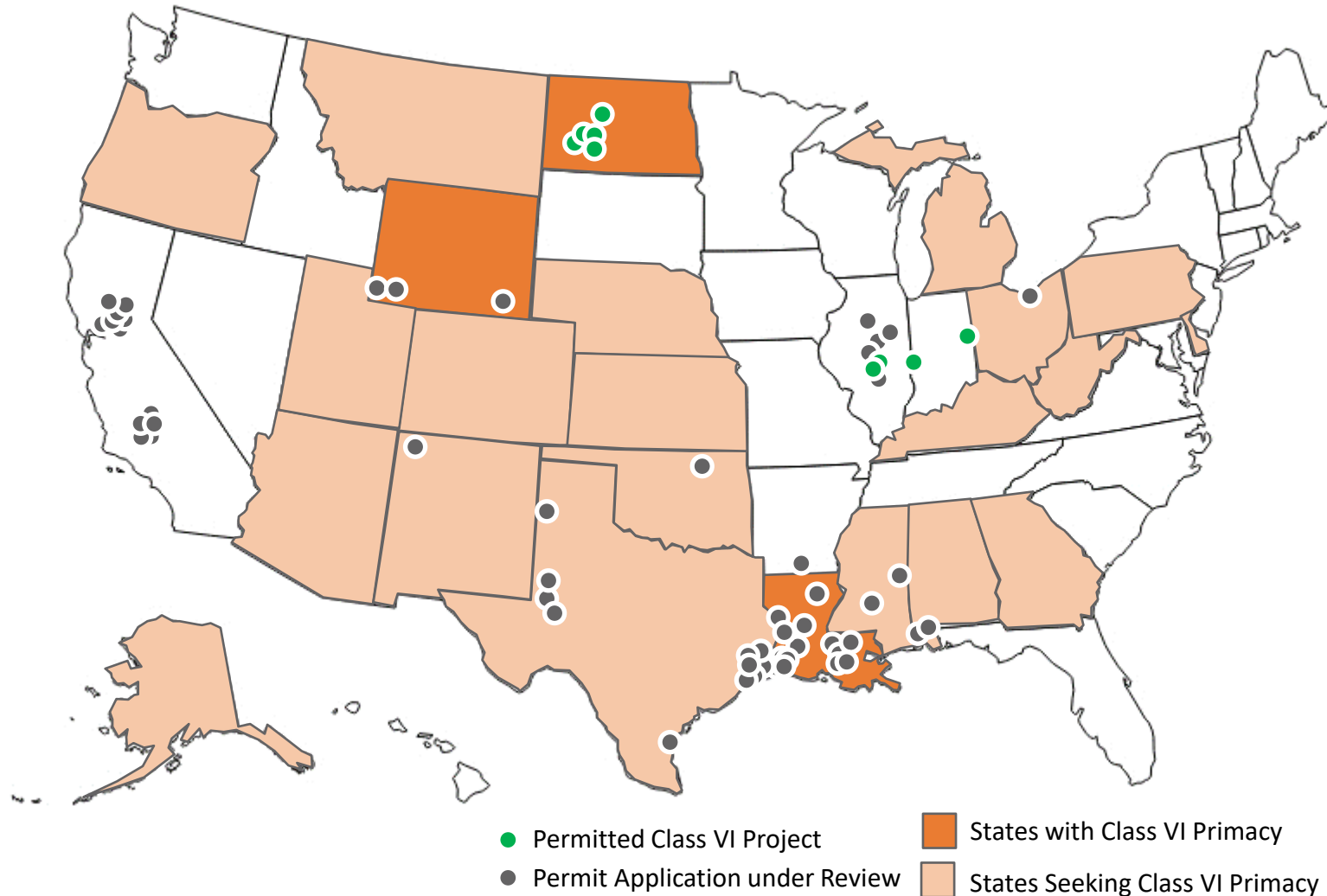
Discussion Topics

- › Current Status of CCS
- › Environmental Justice (EJ) Defined
- › Overview of EJ Guidance
- › How to Conduct an EJ Review

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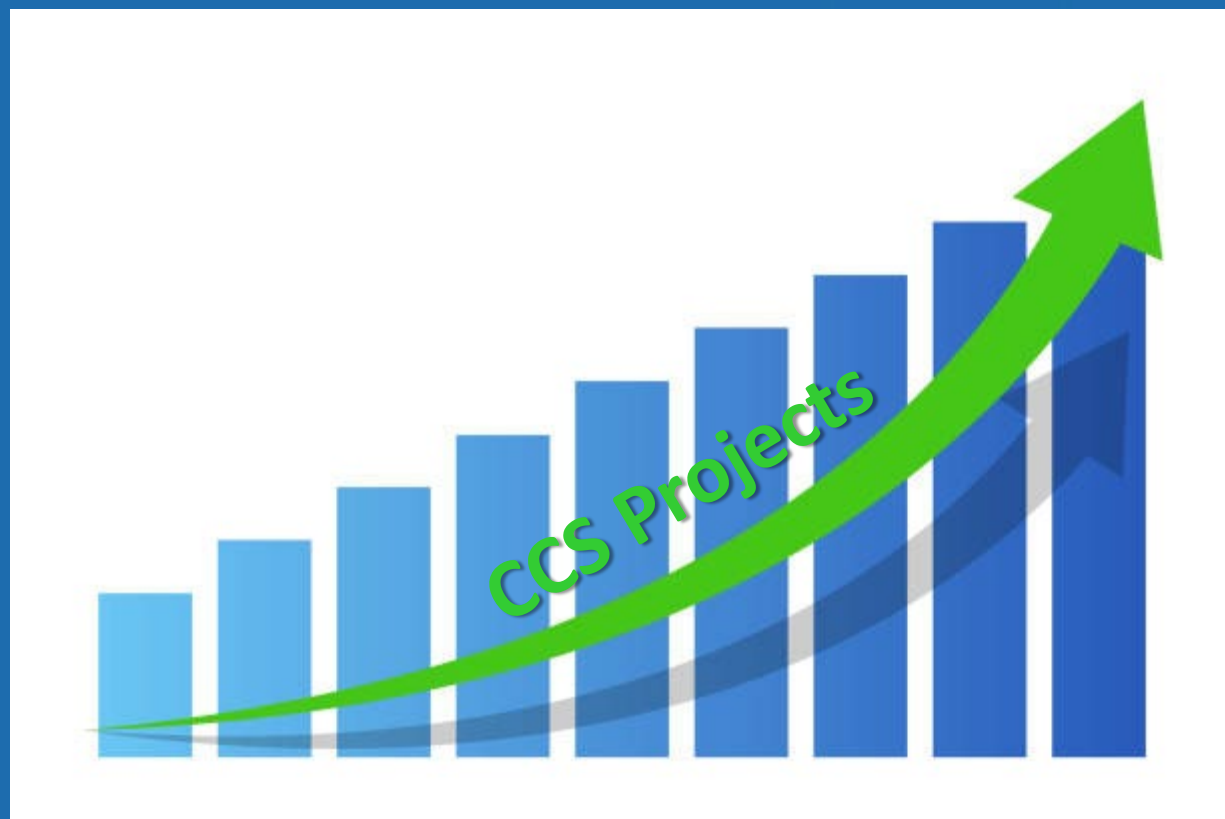
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Status of US Class VI Permits and Primacy



KEY POINTS

- Carbon capture and storage (CCS) is recognized for its critical role in cutting carbon emissions and combatting climate change.
- **Over 100** Class VI permit applications submitted to Federal and State agencies (as of Feb 23, 2024).
- Three states have Class VI primacy: **North Dakota, Wyoming, and Louisiana.** Many more to come.



KEY POINT:

As the number of CCS projects grows...

...so does the necessity for the special consideration of potentially environmentally overburdened communities.

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Environmental Justice: What Does It Mean?



““Environmental justice” means the just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other Federal activities that affect human health and the environment.”

Federal Register

Vol. 88, No. 80

Wednesday, April 26, 2023

25251

Presidential Documents

Title 3—

Executive Order 14096 of April 21, 2023

The President

Revitalizing Our Nation’s Commitment to Environmental Jus-

and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and

(ii) have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices.

meaningful in-
national origin,
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at people:
human health

Environmental Justice: What Does It Mean?



“so that people:
(i) are fully protected from disproportionate and adverse human health and environmental effects...
(ii) have equitable access to a healthy, sustainable, and resilient environment...”

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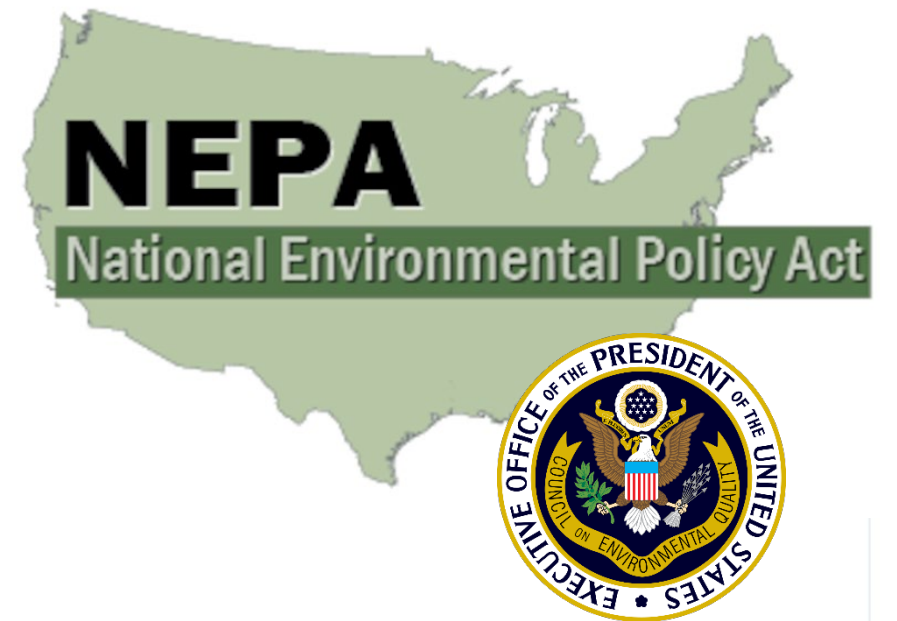
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National Environmental Policy Act (1970)

What is the National Environmental Policy Act?

- › Signed into law on January 1, 1970.
- › Requires Federal agencies to:
 - › evaluate the environmental and related social and economic effects of their proposed actions, and
 - › provide opportunities for public review and comment on those evaluations.



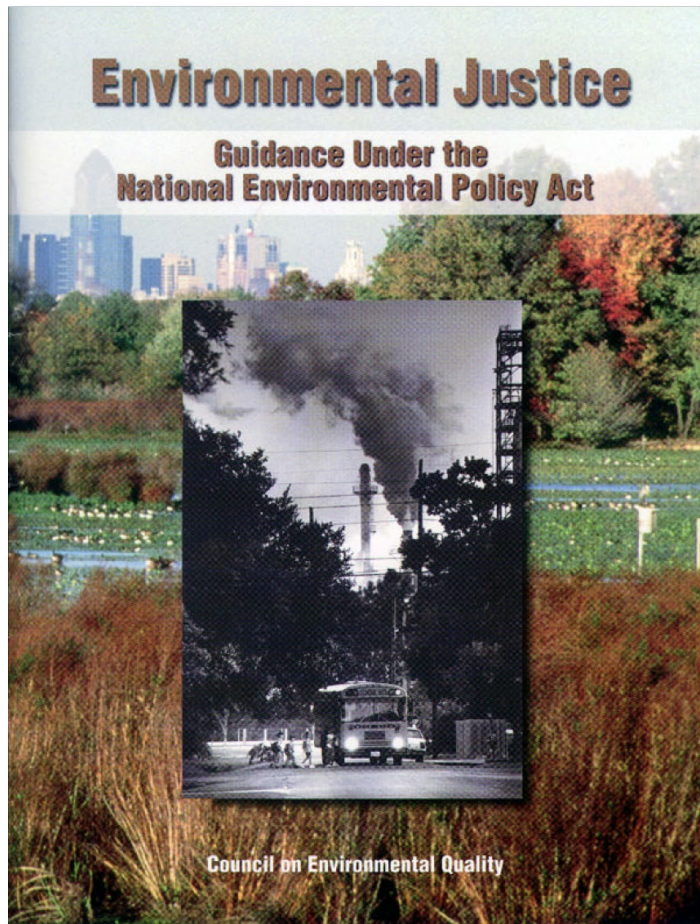
Executive Order 12898 (1994)



Executive Order 12898 directed agencies to:

- › Identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations.
- › Develop a strategy for implementing EJ.
- › Provide minority and low-income communities access to public information and public participation.

Environmental Justice: Guidance Under NEPA (1997)

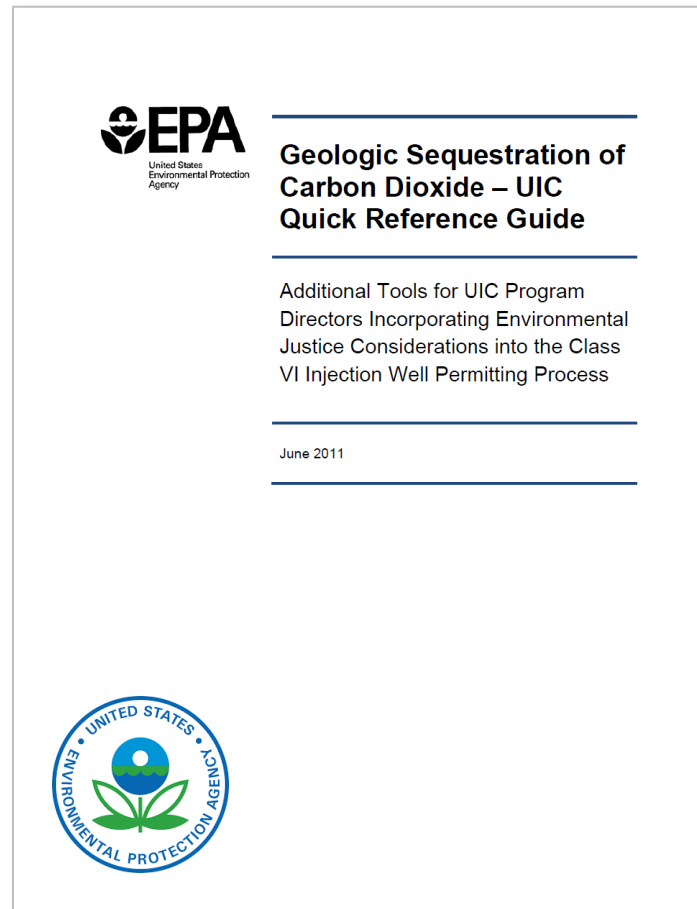


SOURCE: Council on Environmental Quality (CEQ), 1997.

- › CEQ has oversight of the Federal government's compliance with Executive Order 12898 and NEPA so that EJ concerns are effectively identified and addressed.
- › Entails six guiding principles:
 - › Consider the composition of the affected area,
 - › Consider relevant public health data and industry data,
 - › Recognize the interrelated cultural, social, occupational, historical, or economic factors,
 - › Develop effective public participation strategies,
 - › Assure meaningful community representation in the process, and
 - › Seek tribal representation in the process.



USEPA EJ Guidance (2011): Tools to Incorporate EJ Considerations into UIC Class VI Projects



- › Provides UIC Program Directors with additional tools to incorporate EJ considerations into the Class VI permit application review and approval process.
- › Recognizes that there is no singular approach to conducting an EJ analysis.

SOURCE: USEPA, 2011. Geologic Sequestration of Carbon Dioxide – UIC Quick Reference Guide. Additional Tools for UIC Program Directors Incorporating Environmental Justice Considerations into the Class VI Injection Well Permitting Process. p. 1.

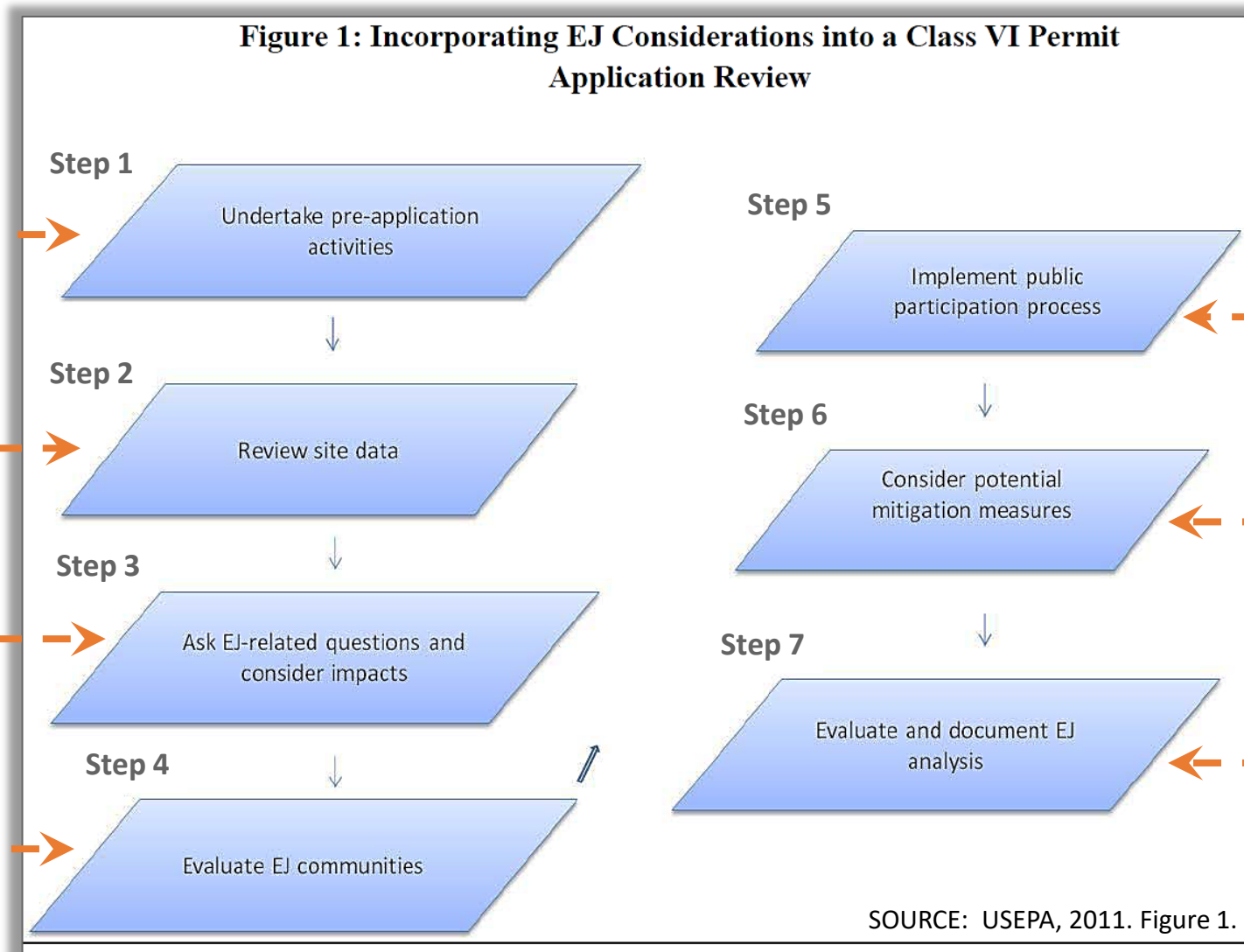
Steps of an EJ Analysis During Permit Review

e.g., Initiate discussions with the public.

Examine permit app data to determine potential EJ concerns.

e.g., What are likely environmental and public health impacts?

Evaluate the demographic composition of surrounding communities (e.g., EJScreen Tool).



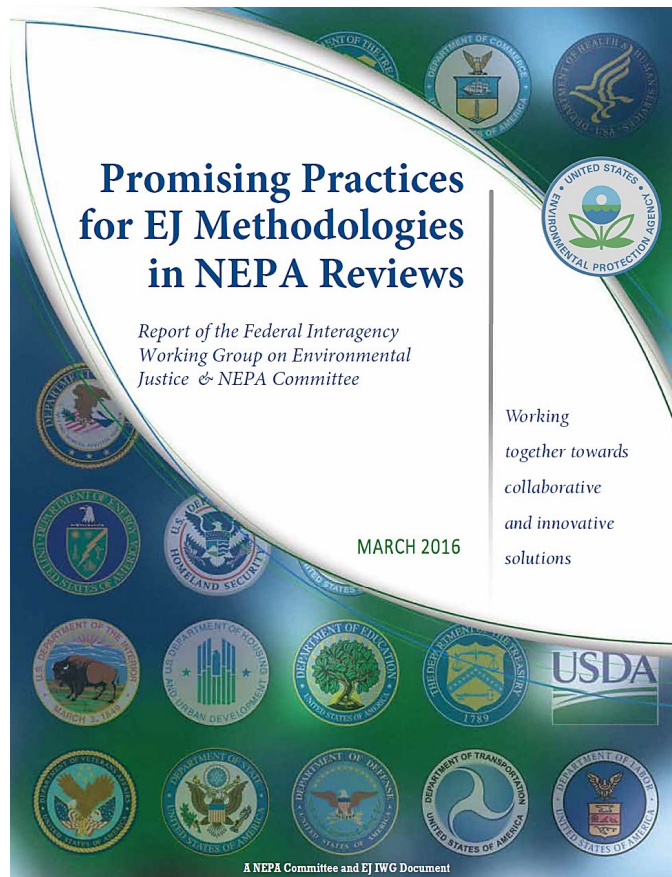
Create opportunities for public participation (40 CFR 124).

Develop appropriate measures to reduce or mitigate potential impacts.

Evaluate any lessons learned throughout the EJ review process.

SOURCE: USEPA, 2011. Figure 1.

Promising Practices for EJ Methodologies in NEPA Reviews (2016)



- › Provides Federal agencies with recommendations for conducting EJ analyses for NEPA reviews:
 - › Consider encompassing adaptive and innovative approaches to both public outreach (e.g., disseminating relevant information) and participation (e.g., receiving community input).
 - › Initiate early and meaningful engagement with disadvantaged communities.
 - › Establish effective lines of communication.

SOURCE: NEPA Committee, 2016. Promising Practices for EJ Methodologies in NEPA Reviews Report of the Federal Interagency Working Group on Environmental Justice & NEPA Committee. pp. 8-9.

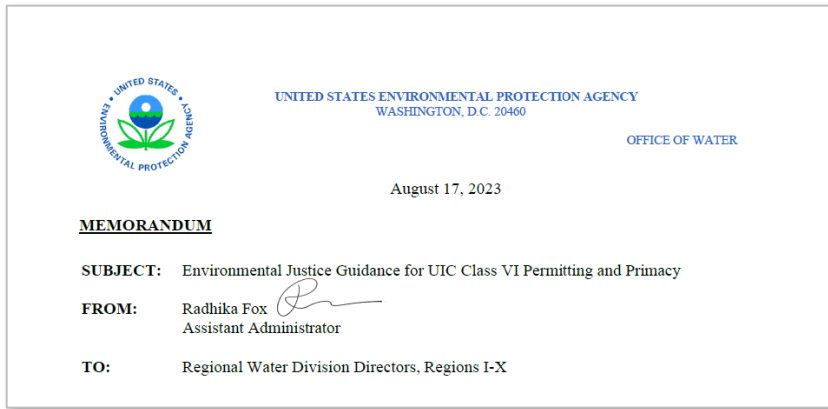
Executive Order 14096 (April 2023)



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- › Directs Federal agencies to strengthen their commitment to deliver EJ to all communities through an approach that is **informed by scientific research, high-quality data, and meaningful Federal engagement.**

USEPA EJ Guidance (August 2023): Considerations and Expectations



Reminder

Check for state and local EJ requirements as well!

- › Entails five main themes to address various aspects of EJ in UIC Class VI permitting:
 - › Identify communities with potential EJ concerns,
 - › Enhance public involvement,
 - › Conduct appropriately scoped EJ assessments,
 - › Enhance transparency throughout the permitting process, and
 - › Minimize adverse effects to USDWs and the communities they may serve.

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UIC Class VI Permitting: Environmental Justice Review

- › To identify EJ concerns, **the applicant shall evaluate EJ indicators** for a defined geographic area (i.e., Area of Review (AoR) plus buffer) including:
 - › *demographic and socioeconomic* (e.g., race, income, unemployment rate), and
 - › *environmental* (e.g., air and diesel particulate matter, ozone, traffic, lead paint).
- › **Results are compared** to those for all other locations in the state or nation.
- › Once potentially affected communities with EJ concerns have been identified, **the applicant shall assess whether the CCS project also will produce impacts** that would disproportionately affect EJ communities.

Environmental Justice Review: EJScreen Tool

EJScreen

Environmental Justice Mapping and Screening Tool

EJScreen Technical Documentation for Version 2.2

July 2023

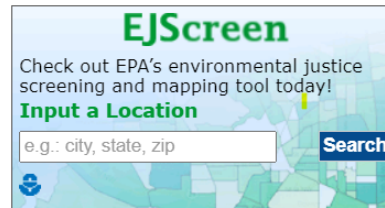
U.S. Environmental Protection Agency
Office of Environmental Justice and External Civil Rights
Washington, D.C. 20460

Suggested citation:

U.S. Environmental Protection Agency (EPA), 2023. EJScreen Technical Documentation.

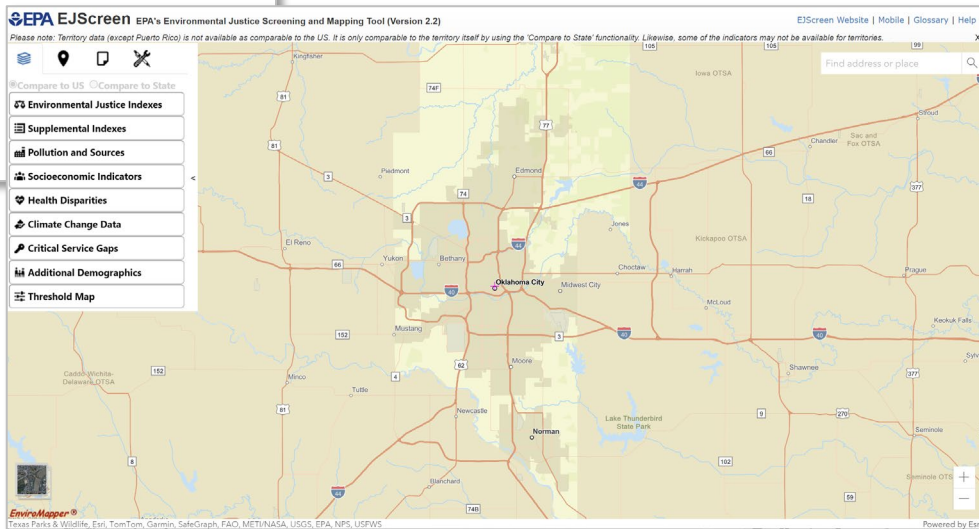
For more information:
www.epa.gov/ejscreen

Launch the Tool



- [Launch the EJScreen Tool](#)

- › EJScreen is a screening and mapping tool that *“utilizes standard and nationally-consistent data to highlight places that may have higher environmental burdens and vulnerable populations.”*
- › Considers a combination of *demographic, socioeconomic,* and *environmental* indicators (i.e., EJ Indexes and Supplemental Indexes), compared to state and national values.



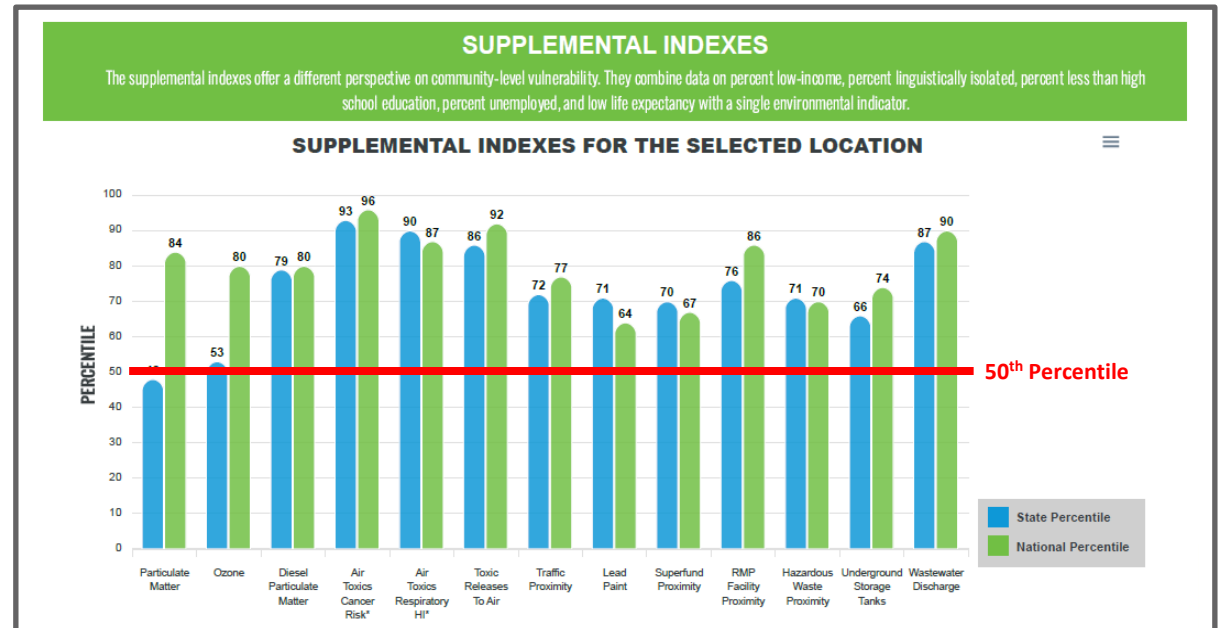
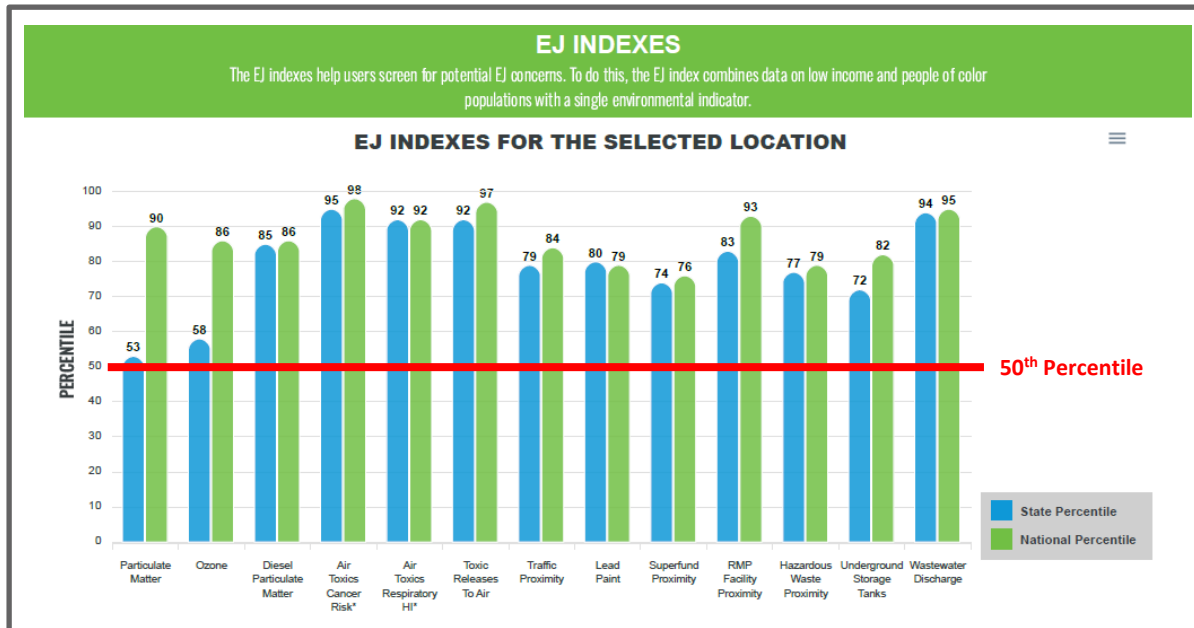
Environmental Justice Review: EJScreen Tool

SELECTED VARIABLES
POLLUTION AND SOURCES
Particulate Matter ($\mu\text{g}/\text{m}^3$)
Ozone (ppb)
Diesel Particulate Matter ($\mu\text{g}/\text{m}^3$)
Air Toxics Cancer Risk* (lifetime risk per million)
Air Toxics Respiratory HI*
Toxic Releases to Air
Traffic Proximity (daily traffic count/distance to road)
Lead Paint (% Pre-1960 Housing)
Superfund Proximity (site count/km distance)
RMP Facility Proximity (facility count/km distance)
Hazardous Waste Proximity (facility count/km distance)
Underground Storage Tanks (count/km ²)
Wastewater Discharge (toxicity-weighted concentration/m distance)
SOCIOECONOMIC INDICATORS
Demographic Index
Supplemental Demographic Index
People of Color
Low Income
Unemployment Rate
Limited English Speaking Households
Less Than High School Education
Under Age 5
Over Age 64
Low Life Expectancy

- EJ Indexes:** Combine data on low income and people of color populations with single environmental indicators.
- Supplemental Indexes:** Combine data on percent low-income, linguistically isolated, less than high school education, unemployed, and low life expectancy with single environmental indicators.
- 13 Single Environmental Indicators:** air and diesel particulate matter, ozone, air toxics (3), traffic, lead paint, superfund proximity, industrial facility proximity, haz waste proximity, USTs, and wastewater discharge.

SOURCE: USEPA, July 2023. EJScreen Environmental Justice Mapping and Screening Tool.

Example EJScreen Tool Results: EJ Indexes and Supp Indexes



Key Results

- EJ Indexes and Supplemental Indexes for single environmental indicators **exceed** the 50th percentile compared to both the State and Nation.
- The results indicate the presence of potentially economically, environmentally, and/or socially disadvantaged populations.

Environmental Justice Review: US Census Bureau American Community Survey

American Community Survey Data



Selected Social Characteristics

Disability Status, Educational Attainment, Language Spoken at Home, Veteran...



Selected Economic Characteristics

Commuting (Journey to Work), Health Insurance Coverage, Income and...



Selected Housing Characteristics

Computer and Internet Use, House Heating Fuel, Owner/Renter (Tenure),...



Demographic and Housing Estimates

Age and Sex, Group Quarters Population, Hispanic or Latino Origin, Race, and more



- › Provides data on demographic and socioeconomic metrics for cities and counties.
- › Provides summary tables and maps.

SOURCE: <https://www.census.gov/programs-surveys/acs/data.html>.

Environmental Justice Review:

Evaluation of Project-Related Impacts and Benefits



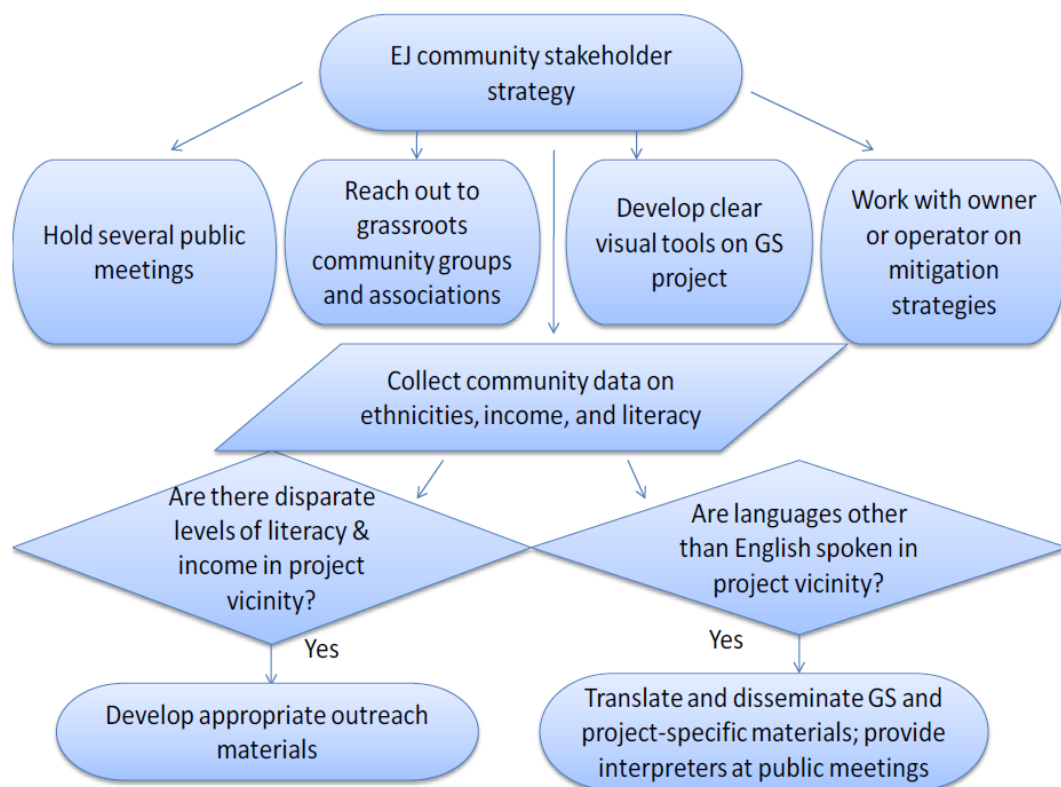
- › If an EJ community is identified, **the applicant shall evaluate the potential environmental health impacts and benefits** of the Class VI project **to determine if the project will place undue burden** on an already disadvantaged community.
- › **Example Impacts:** increased noise, air emissions, and traffic; impacts to drinking water sources (USDWs).
- › **Example Benefits:** reduction of greenhouse gas emissions; new employment opportunities; higher wages; local business support; improved cell and internet.

Key Questions

- What does the community consider to be impacts/benefits?
- What are the community needs?
- Do the project *benefits* outweigh the project *impacts*?
- Does the community agree with your results?

Public Engagement Strategies

Figure 4: Example GS EJ Community Stakeholder Strategy



SOURCE: USEPA, 2011. Figure 4.

- › Enhance community engagement and implement an inclusive public participation process. **START EARLY!**
- › Make community outreach an ongoing process, even during operations.
- › Consider having a dedicated community engagement person.
- › **Identify Challenges:** language barriers, lack of technical resources or transportation, cultural barriers, or inability to attend public meetings.

Public Engagement Strategies

Examples of Outreach Measures and Groups:

- | | |
|---|---|
| <ul style="list-style-type: none"> • Religious organizations (e.g., churches, temples, ministerial associations); | <ul style="list-style-type: none"> • Rural cooperatives; |
| <ul style="list-style-type: none"> • Newspapers, radio and other media, particularly media targeted to low-income populations, minority populations, or Indian tribes; | <ul style="list-style-type: none"> • Business and trade organizations; |
| <ul style="list-style-type: none"> • Civic associations; | <ul style="list-style-type: none"> • Community and social service organizations; |
| <ul style="list-style-type: none"> • Minority business associations; | <ul style="list-style-type: none"> • Universities, colleges, vocational and other schools; |
| <ul style="list-style-type: none"> • Environmental and environmental justice organizations; | <ul style="list-style-type: none"> • Labor organizations; |
| <ul style="list-style-type: none"> • Legal aid providers; | <ul style="list-style-type: none"> • Civil rights organizations; |
| <ul style="list-style-type: none"> • Homeowners', tenants', and neighborhood watch groups; | <ul style="list-style-type: none"> • Local schools and libraries; |
| <ul style="list-style-type: none"> • Federal, state, local, and tribal governments; | <ul style="list-style-type: none"> • Senior citizens' groups; |
| | <ul style="list-style-type: none"> • Public health agencies and clinics; and |
| | <ul style="list-style-type: none"> • The Internet and other electronic media . |

SOURCE: Council on Environmental Quality (CEQ), 1997, p. 11.

- › Identify resources that will facilitate the understanding of potential impacts:
 - › Site visits, visual tools, communication materials in multiple languages, newspaper advertisements, radio, mailings, emails, posted flyers, social media, community meetings.
- › The participation of diverse groups in the permitting process is necessary for full consideration of the potential impacts of a proposed Class VI project.
- › USDOJ EJ Training Modules:

<https://www.doi.gov/oepc/resources/environmental-justice/training>

Key Take-Aways

- › As the number of CCS projects grows, so does the necessity for EJ consideration and review.
- › USEPA and others provide tools to UIC Program Directors and permit applicants to better incorporate EJ considerations in the Class VI permitting process.
- › Requires understanding of potential impacts and benefits of Class VI project.
- › No EJ Review fits all – very site-specific and community-specific!
- › **Public engagement is critical. START EARLY!**



Questions?



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