The CCS-EJ-SJ Database: A Tool for Addressing Justice Challenges in Carbon Capture & Storage

Casey White[1,2]; Maneesh Sharma[3,4]; Casey Cleaveland[1,2]; Dan Amrine[3,4]; Lucy Romeo[1,2]; Kelly Rose[1]; Jennifer Bauer[1]
[1]National Energy Technology Laboratory, 1450 Queen Avenue SW, Albany, OR 97321, USA ; [2]NETL Support Contractor, 1450 Queen Avenue SW, Albany, OR 97321, USA;
[3]National Energy Technology Laboratory, 3610 Collins Ferry Road, Morgantown, WV 26505, USA ; [4]NETL Support Contractor, 3610 Collins Ferry Road, Morgantown, WV 26505, USA

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INTRODUCTION

Environmental justice and social justice (EJ-SJ) factors, including economic and energy justice variables as well as community attitudes, pore space rights, and land distribution, can impact the viability and success of carbon capture and storage (CCS) projects.

However, no integrated authoritative database exists to inform decision makers and stakeholders of EJ-SJ factors to support safe CCS commercial, regulatory, and research efforts. This gap hinders the strategic planning necessary for achieving a net-zero emissions economy by 2050 and aligning with initiatives like Justice40.

OBJECTIVE

The U.S. Department of Energy's (DOE) National Energy Technology Laboratory (NETL) has developed the CCS-EJ-SJ Database targeting specific CCS needs and is accompanied by an interactive visualization dashboard to centralize critical EJ-SJ information and ensure up-to-date access to CCS-focused data.

METHODS

Data Acquisition
- Identify and acquire justice-related datasets from established authorities

Data Processing
- Extract relevant data
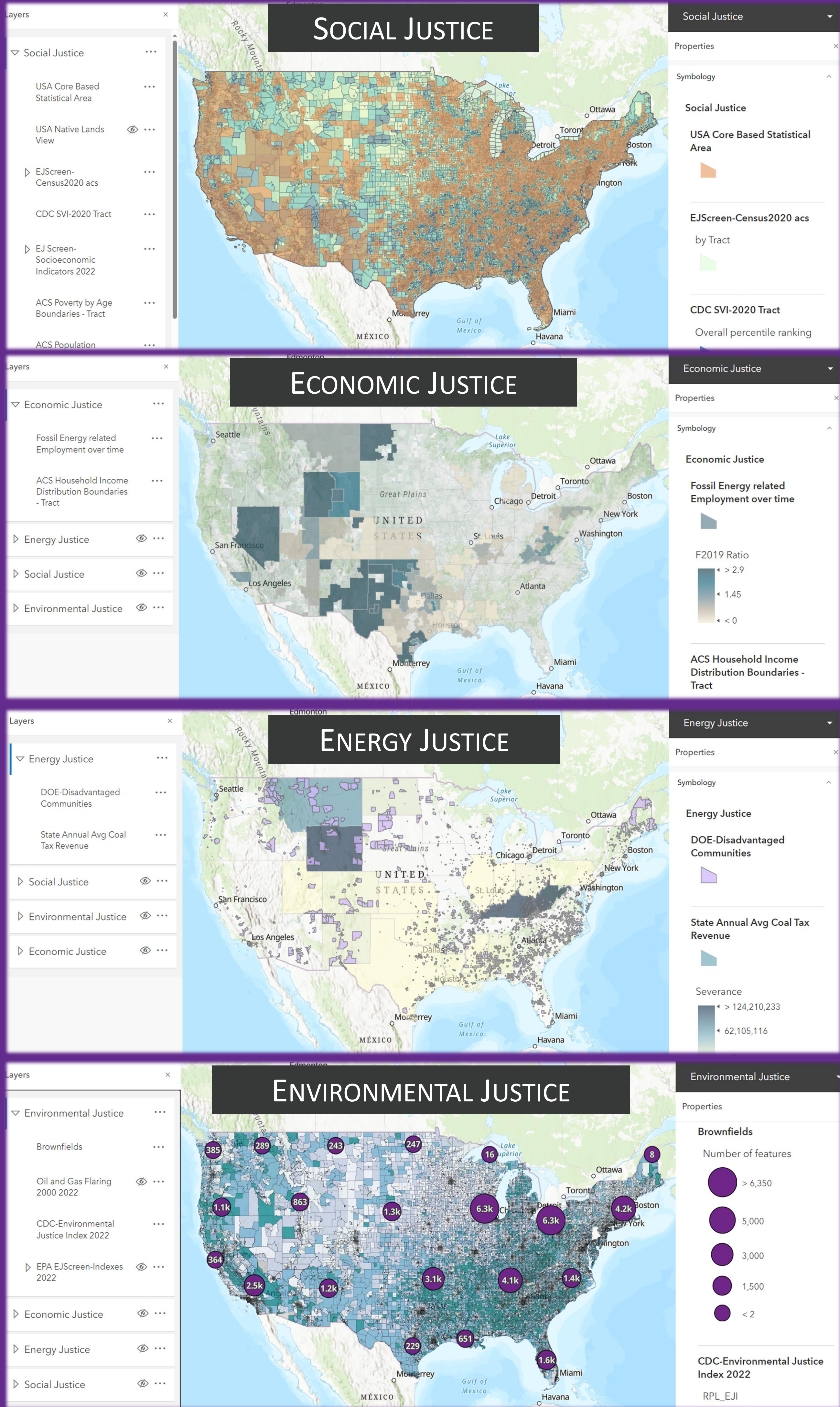- Enrich existing datasets

Dashboard Development
- Design a user-centric dashboard for interactive data visualization

Continuous Update
- Update layers current and relevant
- Acquire additional data types
- Perform analyses to create data layers

A **DYNAMIC DATABASE** FOCUSED ON **CARBON CAPTURE AND STORAGE** THAT ALIGNS WITH REGULATORY AND COMMERCIAL NEEDS FOR **EQUITABLE** DEVELOPMENT OF ENERGY PROJECTS

SOCIAL JUSTICE

ECONOMIC JUSTICE

ENERGY JUSTICE

ENVIRONMENTAL JUSTICE

RESULTS

- Centralizes EJ/SJ factors and resources
- Online mapping tool facilitates quick access and effective visualization of data
- Delivers critical EJ-SJ insights on CCS project feasibility to policy and decision-makers
- Serves as a foundation for other web applications and projects

DISCUSSION

The CCS-EJ-SJ Database offers a detailed view of environmental and social justice aspects crucial for CCS development. Future work includes the integration of community sentiment analysis to further inform CCS viability assessments, as well as continuous updates of layers so the database remains a dynamic and vital resource in achieving equitable energy transitions.

Category	Datasets	Sources
Environmental Justice	18	NETL, IWG, EPA, CDC, BLS, U.S. Census, ACS, USDOT
Social Justice	38	NETL, IWG, EPA, CDC, BLS, U.S. Census, ACS, USDOT
Energy Justice	27	NETL, DOE, EERE, EIA, U.S. Census, MSHA, NREL, HIFLD
Economic Justice	11	NETL, IWG, EPA, CDC, BLS, U.S. Census, ACS

Scan to access the CCS-EJ-SJ Database:

EDX Energy Data eXchange

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