



Staff “Surge Call” – Monday, December 18th, 2023: Environmental Justice Mapping Tools

Synopsis:

On December 18, 2023, NARUC facilitated a Staff “Surge Call” on How Public Utility Commissions are Utilizing Environmental Justice Mapping Tools. Several states have used these tools to help reach or evaluate regulatory or policy goals. The tools have several use cases, such as providing data to support evidence-based decision-making, determining baselines, tracking changes in certain communities over time, and showing disparities between communities. Members heard about EJ mapping tools from four speakers. First, the Environmental Protection Agency (EPA) presented the national EJScreen Tool. Then, three NARUC members shared how their public utility commission utilizes state EJ Mapping tools in Michigan, Minnesota, and New York.

EPA- EJScreen Tool

The EPA presented slides on several free tools for state agencies to support their climate and energy goals. The tools have three core functions:

1. Develop inventories and set goals.
2. Design, compare, and evaluate policy.
3. Communicate and support policy implementation.¹

EJScreen is a GIS screening and mapping tool that combines environmental and socioeconomic data to highlight areas where pollution may disproportionately impact vulnerable populations. EJScreen is meant to be a screening level assessment, not a risk-based assessment, and is used for several EPA grant opportunities. The datasets for EJScreen comprise two indexes and five indicators.² Results from EJScreen are ranked as percentiles and allow for comparing different indicators with different units.³ EJScreen can create Threshold Maps that allow the user to visualize defined thresholds and customize how the results are displayed. Maps displaying thresholds based on the Justice40 Initiative and the Inflation Reduction Act Disadvantaged Communities definitions are already built in. In addition to maps, EJScreen can be used to generate a community report for a user-defined area that describes:

1. Community socioeconomics
2. EJ and Supplemental indexes
3. Environmental and Socioeconomic raw data
4. Health, Climate, and Critical Service gaps data

Michigan: MiEJScreen Tool

The MiEJScreen Tool was developed by the Office of EJ Public Advocate within the Michigan Department of Environment, Great Lakes, and Energy (EGLE). One of the EJ Public Advocate’s early directives was to develop an EJ Screening Tool. MiEJScreen is an interactive ArcGIS mapping tool that utilizes US Census Tract data.⁴ MiEJScreen has 26 indicators categorized into environmental effects, environmental exposures, sensitive populations, and socio-economic factors.

¹ For more information on these tools, please see the attached EPA presentation slides.

² Indexes combine demographic data with environmental data; indicators are standalone pieces of data. See the EPA presentation slides for more information on the indexes, indicators, and data included.

³ Comparisons can be done between different states, localities, and regions.

⁴ Census tracts are small, relatively permanent statistical subdivisions of a county or statistically equivalent entity that can be updated by local participants prior to each decennial census. https://www.census.gov/programs-surveys/geography/about/glossary.html#par_textimage_13

Commented [JL1]: What does it mean that the census tract is “updated” by local communities? I’m skeptical that Census lets people change the data on their own.

Commented [RB2R1]: This footnote is here to give the user context about what U.S. Census Tracts are, as it is a specific U.S. Census term. But, to answer your question, this is the definition given by the U.S. Census Bureau. I think the “updated by local communities” piece is referring to when people in a given tract provide data to the Census Bureau every 10 years. The definition can be found on this website, which I added to the footnote https://www.census.gov/programs-surveys/geography/about/glossary.html#par_textimage_13

Commented [JL3]: I was fine with using “indexes” instead of “indices,” but we should be consistent.

Commented [RB4R3]: I think indices was the word Sarah used. But I did some looking into the tool, and the website mentions the 26 “indicators”. I think to stay consistent we should use that wording. I adjusted it here. I will note EPA mentions indicators as well for it’s EJ tool. <https://www.michigan.gov/egle/-/media/Project/Websites/egle/Documents/Maps-Data/MiEJScreen/MiEJScreen-Factsheet.pdf?rev=626af950b12349e499657e243b93af31>

Commented [JL5]: These don’t match the graphic, should they?

Commented [RB6R5]: Good catch, I adjusted them so that they match the graphic.

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The following graphic shows how these indexes are used to create a composite score that is displayed as the default layer of the tool.⁵

Categories	Environmental Exposure	Environmental Effects	Sensitive Populations	Socioeconomic Factors
Indicators	NATA Air Toxics Cancer Risk NATA Respiratory Hazard Index NATA Diesel Particulate Matter Particulate Matter (PM _{2.5}) Ozone Traffic Density	Proximity to Cleanup Sites Proximity to Hazardous Waste Facilities Impaired Water Bodies Proximity to Solid waste Sites and Facilities Lead Paint Indicator Proximity to RMP Sites Wastewater Discharge Indicator	Asthma Cardiovascular Disease Low Birth Weight Infants Blood Lead Level Life Expectancy	Low Income Population Black, Indigenous, People of Color Population Educational Attainment Linguistic Isolation Population Under Age 5 Population Over Age 64 Unemployment Housing Burden
Sub Scores	Environmental Conditions (Average percentile of Environmental Exposure indicators + 0.5 x average percentile of Environmental Effects indicators) <u>1.5</u>		Population Characteristics (Average percentile of Sensitive Population indicators + average percentile of Socioeconomic Factor indicators) <u>2</u>	
Score	Final Composite Score = Environmental Conditions score x Population Characteristics score MiEJScreen Score			

Commented [RB7]: Layer is a specific GIS term for data displayed on a map. I do not want to get rid of that word, but I adjusted the language here.

The tool is meant to be interactive and has the unique ability for users to add their own data sets. For example, the Michigan Public Service Commission allows regulated utilities like DTE to layer in their utility service territory. The Commission has made a concerted effort to ask both utilities and commission staff to use MiEJScreen in rate cases, distribution plans, and integrated resource plans to better understand historical inequities, disinvestments, and the impacts of utility investments. The Commission has ordered utilities to use MiEJScreen in multiple circumstances, such as analyzing grid distribution plans with respect to EJ communities and to inform a more granular equity analysis in a recent rate case.

Despite its use by the Commission, MiEJScreen does have some shortcomings. These include:

1. The tool is still in draft form and needs more peer review; therefore utilities are hesitant to use a tool that might still change.
2. The tool is meant to generate visual output, but the underlying data necessary to do a more detailed analysis are not readily accessible from the tool.
3. Incorporating data is difficult due to a lack of standardization in the shapefiles used by the tool.

⁵ GIS mapping tools display information as a series of “layers” than can be combined, overlaid, and turned on and off.

⁶ For more information on how to use the tool and how it evaluates this score, please see this link. <https://www.michigan.gov/egle/maps-data/miejscreen>

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Minnesota: Xcel Energy’s Electric Service Quality Interactive Map

Xcel Energy has an Electric Service Quality Interactive Map for its Minnesota service territory. The tool was created in 2017 as part of a performance-based ratemaking docket. The map includes Xcel Energy data on electric reliability, service quality data, and low-income program participation data. The data from the utility is combined with demographic data from the US Census Bureau. Users can view map layers that illustrate metrics on service reliability, equity, and demographic data. The Minnesota Public Service Commission led a working group to determine which indicators would show pieces of reliability and equity data. The Interactive Map utilizes indicators that align with the Minnesota Pollution Control Agency’s environmental justice and areas of concern thresholds. The data is publicly available and can be downloaded into a CSV file. Examples of Census block data demographics that can be viewed include households below the federal poverty level, people of color, Indian tribes, and more. The map can also pair this demographic data with electric utility reliability metrics like customers experiencing six or more interruptions per year, number of interruptions longer than twelve hours, low-income energy assistance participation, disconnection rates, and more.

The Minnesota PUC has identified aligning geographic boundaries as a challenge. It is difficult to align displays of reliability metrics at the feeder level with the boundaries of the demographic data. Utilities also have security concerns with displaying details of their distribution system down to the feeder level. This is one of the reasons the tool uses customer-level reliability metrics (e.g., six or more interruptions per year) rather than more traditional metrics like SAIDI and SAIFI. Xcel Energy plans to submit an examination of the performance of its reliability and equity indicators the map can utilize in late 2024 to the Commission.

New York: Potential EJ Areas Tool and Disadvantaged Communities map

The New York Department of Public Service utilizes two EJ Mapping tools. The first is the Potential EJ Areas Tool, developed by New York’s Department of Environmental Conservation and based on US Census block groups. It uses a series of thresholds to determine whether a given block is considered an EJ area. The second tool is the Disadvantaged Communities map created by the Climate Leadership and Community Protection Act (CLCPA) under a climate justice working group. The CLCPA defines disadvantaged communities similar to the EPA’s definition, but with distinct differences. The map shows disadvantaged communities (DACs) and lists 45 indicators, including population or demographic data on vulnerabilities, risks, and climate-affected adverse impact areas.

The Disadvantaged Communities Map displays a composite score for each US Census Tract in New York and identifies tracts with the highest cumulative burdens as disadvantaged communities. The CLCPA instructs the state of New York to prioritize at least 35% of the benefits of clean energy and energy efficiency spending to disadvantaged communities. The map is a tool for state agencies (including the New York Department of Public Safety) to assess whether investments meet the 35% requirement and is a “tiebreaker” when state agencies make policy or regulatory decisions. For example, if a utility invests in distribution pipelines or electric lines, those investments must benefit a designated disadvantaged community. The New York Department of Public Safety uses the tool to:

1. Assess how utilities are investing in DACs.
2. Track utility spending relative to the tracks.
3. Consideration of infrastructure investments

A few challenges have been identified with the Disadvantaged Communities tool. First, the tool does not align exactly with the Justice40 mapping tool developed by the Federal Government⁷. This creates challenges and confusion when the mapping areas do not align. Second, there can be uncertainty regarding which communities will be considered disadvantaged under the mapping tool. This affects potential CLCPA clean energy benefits that communities could receive. Last, the tool and the datasets it uses require continuous updating.

⁷ EPA’s EJScreen tool has a threshold map for Justice40 communities. However, the federal government created another mapping tool, [the Climate and Economic Justice Screening Tool \(CEJST\)](#) to identify disadvantaged communities as part of the Biden-Harris Administration’s Justice40 Initiative.

Commented [JL8]: Should this be “electric energy”

Commented [RB9R8]: I think it should be just electric reliability. I adjusted that here.

Commented [RB10]: Hanna mentioned a few acronyms to describe what they did to help alleviate this issue, but I do not understand them. We may need to reach out to her to clarify.

Commented [JL11R10]: SAIDI = System Average Interruption Duration Index. It is the minutes of non-momentary electric interruptions, per year, the average customer experienced.
SAIFI = System Average Interruption Frequency Index. It is the number of non-momentary electric interruptions, per year, the average customer experienced.
https://www.eia.gov/electricity/annual/html/epa_11_01.html

Commented [JL12]: Should this be “affected?”

Commented [RB13R12]: He pronounced it as inflected, but I think you are right, this should be affected.

Commented [JL14]: Probably should use numbered bullets here for consistency with the other lists. Or make them all bullets instead of numbers.

Commented [RB15R14]: I changed the formatting to numbers.

Commented [JL16]: Is this different from EPA’s EJScreen tool? If so, should it be defined briefly in a footnote?

Commented [RB17R16]: Good catch, yes it is, I included a footnote that explains it, and a link to the J40 tool as well

Commented [JL18]: What does it create? Problems?

Commented [RB19R18]: He said “headaches,” but I added the word “challenges” here instead. I also added a little more context.

Commented [JL20]: What is the basis for this uncertainty? Is it the difference from the federal J40 definition?

Commented [RB21R20]: No, it is the uncertainty regarding clean energy benefits under CLCPA. I added language to clarify this.

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Questions asked from the audience:

Regarding the EPA EJScreen tool, what tools exist for utilities to conduct localized emissions assessments to determine the efficacy of environmental improvement activities?

Any changes in emissions are shown on a regional basis. Data can be put into other tools, such as COBRA (see slide 2 below). There is an energy burden module for EPA’s Energy Savings and Impact Scenario Tool that can measure specific utility energy burden impacts for low-income customers.

When are the respective Commissions required to use these mapping tools?

Michigan requires the tool to be used in integrated resource plans, referenced in DSP, and it can also be utilized in rate cases. It may be expanded to other use cases in the future. These maps are used by Commission order, not executive order.

Minnesota’s map was created by a Commission order on performance-based ratemaking. Xcel Energy is not required to use it for any other plan. However, new legislation requires consideration of EJ thresholds in resource siting. Minnesota believes the map, its format, and the demographic indicators could be incorporated into similar maps for other utilities and for use in other regulatory proceedings.

New York’s CLCPA law calls for map designations in its decision-making. There must be evaluations for GHG emission reductions and EJ communities in climate law. Agencies must consider the impacts of policy decisions that will be borne by DACs.

How do commissions make communities aware of the mapping, and is there any outreach done to the communities, i.e., is it done for outreach or planning?

Michigan and New York stated they have not yet done much work to inform or reach out to the communities. Non-governmental organizations have used the maps in Minnesota to help with the Energy Assistance Program and other low-income program outreach and enrollment. Minnesota mentioned that a regression analysis may help to locate which low-income utility customers have been missed by low-income energy assistance programs.

Are there concerns about regionality or borders of the respective tools? How do communities determine those borders?

Only Xcel Energy uses this tool in Minnesota, so users cannot see outside utility service territory. No formal measures exist for New York or Michigan to interact across state or regional boundaries.

Links to the EJ Mapping Tools:

1. [EPA EJScreen Tool](#)
2. [Michigan MiEJScreen Tool](#)
3. [Xcel Energy Minnesota Electric Service Quality Interactive Map](#)
4. [New York Disadvantaged Communities Map](#)

The following pages contain the presentation from the [Environmental Protection Agency on EJScreen](#).

Commented [JL22]: Missed by what? Low-income program assistance?

Commented [RB23R22]: Yes, I added language to reflect that here.

Commented [RB24]: @Jeff, can you merge the final summary once it is in pdf format, and the EPA slides into one single PDF?