Paving the Way for Stakeholder Use of Carbon Storage & Transport Digital Resources

An Online Tool for Navigating CTS Tools, Data, Models, and More

Abigail C. Martin, M.Sc.
NETL Support Contractor

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Authors and Contact Information

Abigail Martin[1,2]; Devin Justman[1,2]; Casey Cleaveland[1,2]; Paige Morkner[1]

[1]National Energy Technology Laboratory, 1450 Queen Avenue SW, Albany, OR 97321, USA

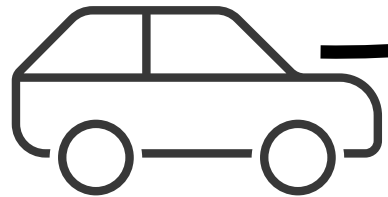*[2]NETL Support Contractor, 1450 Queen Avenue SW, Albany, OR 97321, USA*

Overview

What is the Carbon Storage-Bipartisan Infrastructure Law (CS-BIL) Product Roadmap?

- A "bridging resource" to assist stakeholders in navigating the CS-BIL funded product ecosystem

- The need was voiced and echoed during the Joint NRAP-SMART-EDX4CCS Technical Meeting in May 2023

Goal:

- Create a set of visual and interactive story maps that enable users to explore documentation resources and use-case information for BIL tools and products available to meet their CS project needs

Highlights:

- Provides contextual and use-case information

- Access to methods information and lessons learned

- Detailed information on data input and output formats

- Clarifying potential for workflow interoperability between tools and other BIL-funded products

Ongoing BIL Initiatives

Going on 14 years of resource development…

National Risk Assessment Partnership (NRAP)

- https://edx.netl.doe.gov/sites/nrap/
- Phase I (2010 – 2016) "Risk Assessment"
- Phase II (2017 – 2022) "Risk Management"
- Phase III (2022 – 2027) "Deployment Support"

The Energy Data eXchange for Carbon Capture and Sequestration (EDX4CCS)
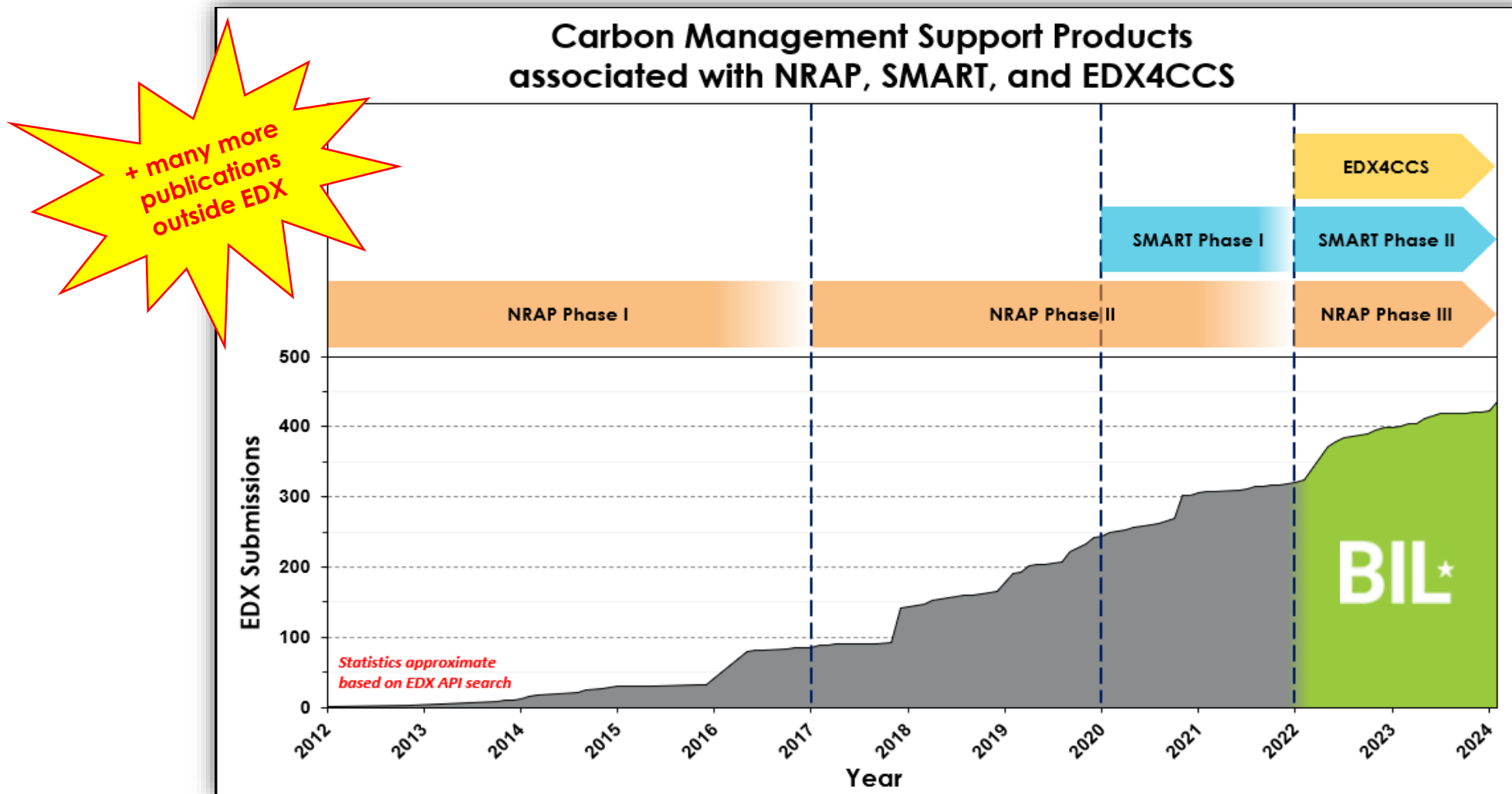
- https://edx.netl.doe.gov
- Ongoing from 2022 – 2027

Science-informed Machine Learning (ML) for Accelerating Real-Time Decisions in Subsurface Applications (SMART) Initiative

- https://edx.netl.doe.gov/sites/smart/
- Phase I (2020 – 2021) "Proof of Concept"
- Phase II (2022 – 2027) "Development and Validation"

Products, Tools, and Resources

… and counting

Carbon Management Support Products associated with NRAP, SMART, and EDX4CCS

+ many more publications outside EDX

Development Priorities
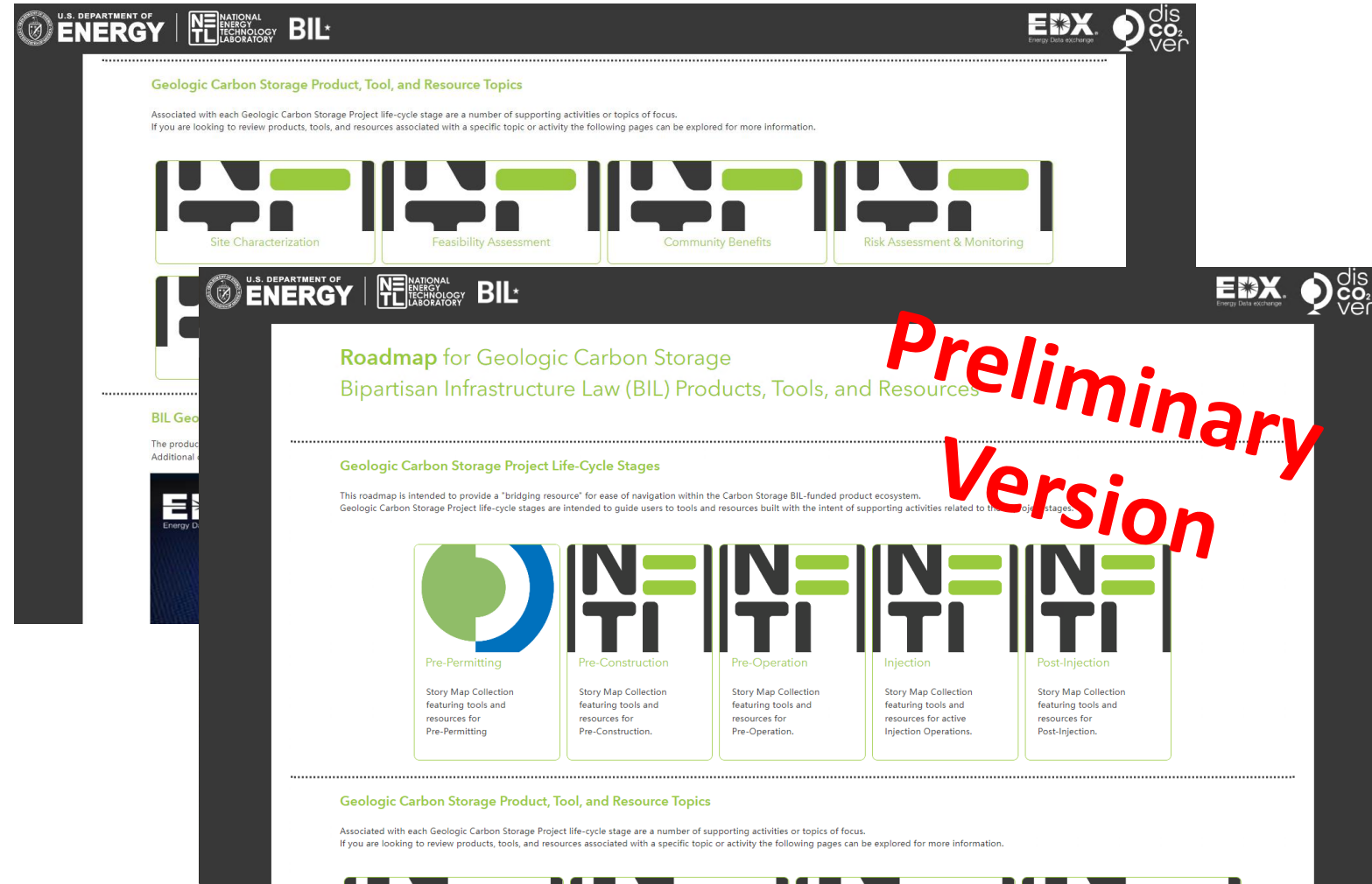

Stakeholder Groups:
- General public
- Lawmakers
- Operators & companies
- CarbonSAFE projects
- Regional initiatives

Organizing products by:
- Topic of interest/relevance
- Technical expertise level
- Data types
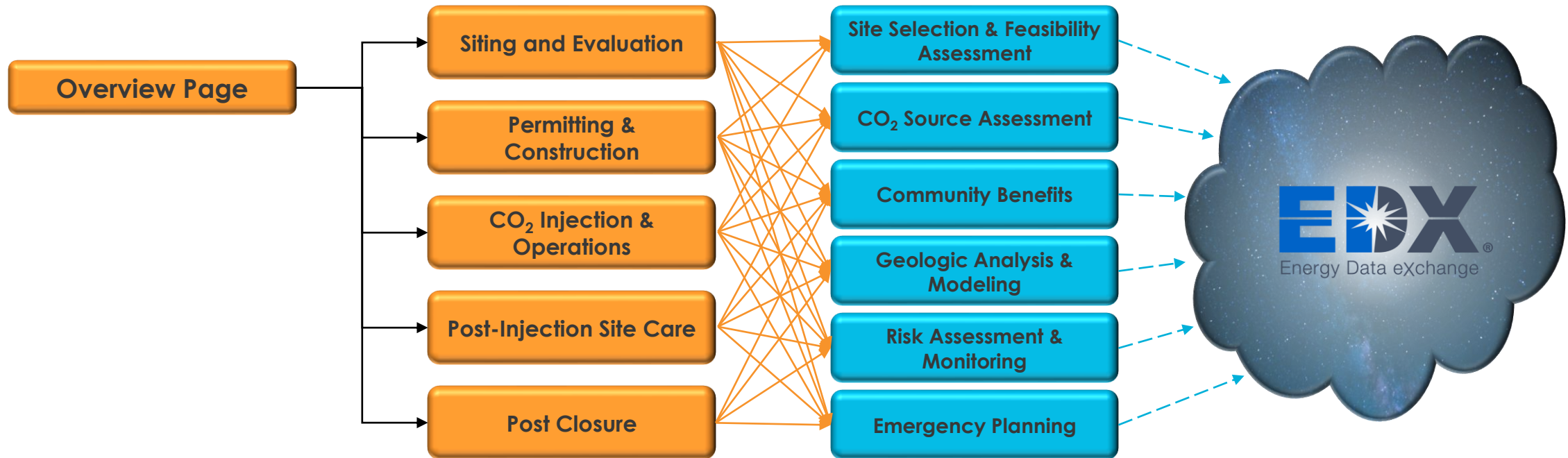- Tool strengths & weaknesses
- Recommended use-cases

Vital Support Elements:
- EDX point of contact information
- Recommended citations
- Updates from tool developers
- Versioning and update information
- Publications showing real-world insights

Underlying Structure

Access through DisCO$_2$ver → Project Life-Cycle Stage Collections → Topical Focus Story Map Lists → Tools & Resource Story Maps

Overview Page

Project Life-Cycle Stage Collections:
- Siting and Evaluation
- Permitting & Construction
- CO$_2$ Injection & Operations
- Post-Injection Site Care
- Post Closure

Topical Focus Story Map Lists:
- Site Selection & Feasibility Assessment
- CO$_2$ Source Assessment
- Community Benefits
- Geologic Analysis & Modeling
- Risk Assessment & Monitoring
- Emergency Planning

EDX — Energy Data eXchange

Updates and Early Wins

Early Wins

- Working Catalog of BIL datasets and tools (Complete)
  - Includes:
    - Approximate dates for future updates
    - Versioning and hyperlinks
    - Current status (alpha, beta, complete)
    - Product descriptions
    - Prospective end users
    - Associated publications
    - Recommended use-case scales
    - Product dependency information
    - Data input and output formats
  - Will be updated as a living document as new information becomes available
- Story Map wrapper (Complete)
  - Supporting consistent look and feel
  - Close alignment to NETL Publication Standards

Future Efforts

- Framework for Alpha version (Ongoing)
  - Web application is in process
    - Overview page pending internal testing
    - Project life cycle pages are in progress
    - Topical lists of product story maps within each life cycle stage support a user-controlled search
- Buildout of initial product story maps (Ongoing)
  - Includes considerations for variable technical expertise level stakeholders
  - Includes use-case information and citations out to product-related publications
  - Links back to EDX-hosted CS-BIL product tools and resources
  - Aggregating resource information collected during the catalog process

Acknowledgements

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Thank you!

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54 RIC PRESENTATIONS

22 POSTERS

30 TOOL DEMOS

MONDAY

Presentations
(10:30AM – 5:25PM)

- 16 disCO2ver presentations

TUESDAY

Presentations
(10:30AM – 5:45PM)

- 17 SMART presentations
- 2 disCO2ver presentations
- 2 Geographic focus/tool presentations

Posters
(5:45PM – 7:45PM)

- 18 CTS Posters
- 2 PSCC Posters
- 1 CDR Poster
- 1 MLEF Poster

Tool Demos
(5:45PM – 7:45PM)

- 30 Tool Demos
  - SMART
  - NRAP
  - EDX
  - EDX4CCS

WEDNESDAY

Presentations
(2:10PM – 4:30PM)

- 3 transport, research, development, and demonstration activities presentations
- 1 transport modeling presentation
- 1 secure storage (basalts/mafic) presentation

THURSDAY

Presentations
(10:30AM – 5:20PM)

- 8 NRAP presentations
- 2 NETL RIC Presentations
- 2 Offshore presentations

NETL Research Carbon Storage Program

SMART

NRAP
National Risk Assessment Partnership

EDX disCO2ver

https://edx.netl.doe.gov/disco2ver

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CONTACT:

Abigail "Gail" Martin, M.Sc.

Office: +1(541) 918–4509
Abigail.Martin@NETL.DOE.gov

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