



Data-first  
**Legislative Drafting**

## Laws as data first: What becomes possible

- Greater drafting/amending efficiency
- Greater transparency
- Connected information
- Standards-based technology
- Greater citizen engagement



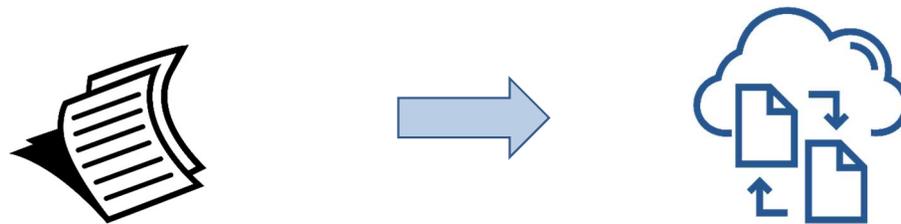
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## Our mission

To drive modernization, efficiency, and transparency in how governments make laws, regulations, and essential documents.

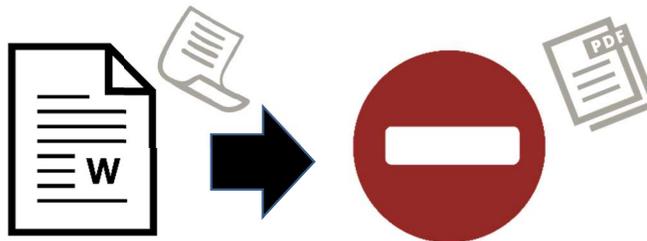
## What we do

Our software platform transforms legacy print-driven processes into connected information systems – browser-based, vastly more efficient for users, and enormously more transparent and accessible for everyone else.



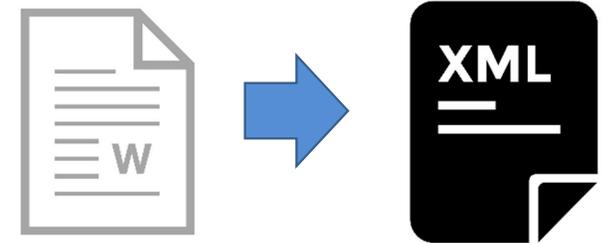
## Many challenges face drafters and ITC staff...

- ✓ Growing workloads – more complex documents to draft – less time
- ✓ More frequent departures from “regular order” – more “crisis to crisis” legislating
  - ✓ Legacy technology reaching its end of life
- ✓ Mismatched tools can’t keep up: WordPerfect & Word aren’t enough
- ✓ High costs to maintain old systems and thousands of custom macros
  - ✓ Drained resources
- ✓ Digital-first world makes your paper/print-driven processes outdated and unsustainable



## To data-first – and XML. So what’s “XML”?

- The rulemaking world is moving away from word processing – and to “data-first” authoring – with XML.
- “Extensible Markup Language”: it’s a **standard, non-proprietary** computer language for encoding documents
- It’s a way to treat information as “marked up” data – which can be stored, retrieved, and **machine read** in fine, granular detail.
- The information is stored separately from formatting or styling. **Styling is applied later**, depending on how the information will be represented – as a web page, a PDF or something else.
- This allows the information to be updated, amended, linked, searched and analyzed with **high efficiency and accuracy**.
- That’s because it’s **data first**.



## Laws as structured data

- Rulemaking documents – policies, laws, regulations, orders and more – have **well-defined structure**. That's ideal content for XML.
- Titles, chapters, sections. Enacting clauses. Parts. Paragraphs. **A hierarchy**. With citations, references to other elements within other documents.
- Think of them as chunks of data – which can be “marked up” – tagged – in XML.
- Those chunks can be easily linked, related, given context and semantic connection.
- With those chunks in a standard structure, **modern, data-driven tools** can be applied to the tasks of authoring, analyzing and publishing these essential documents.

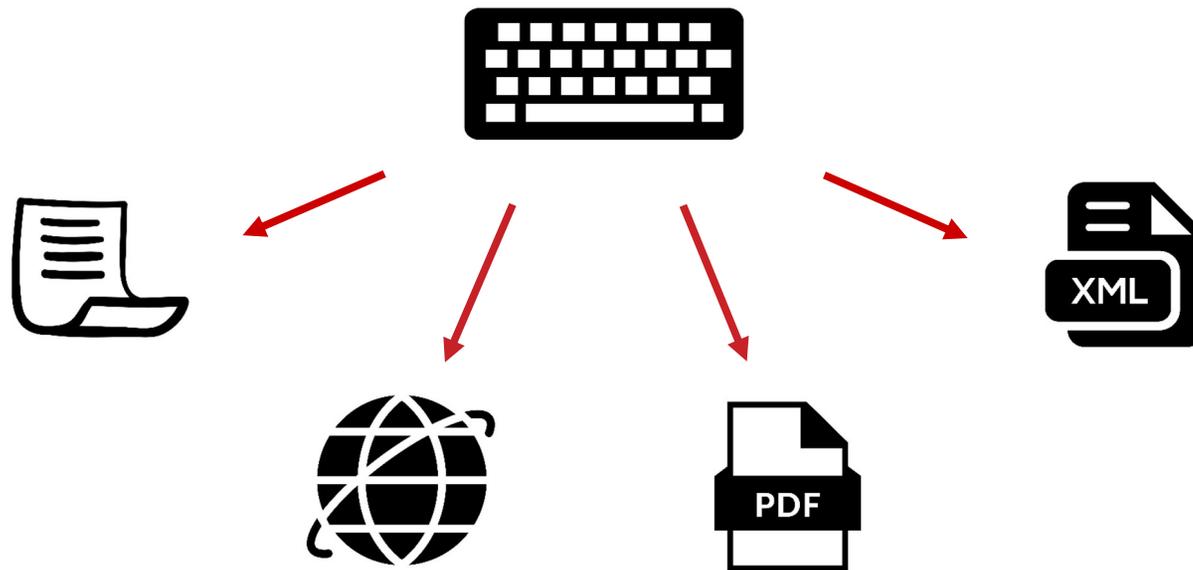
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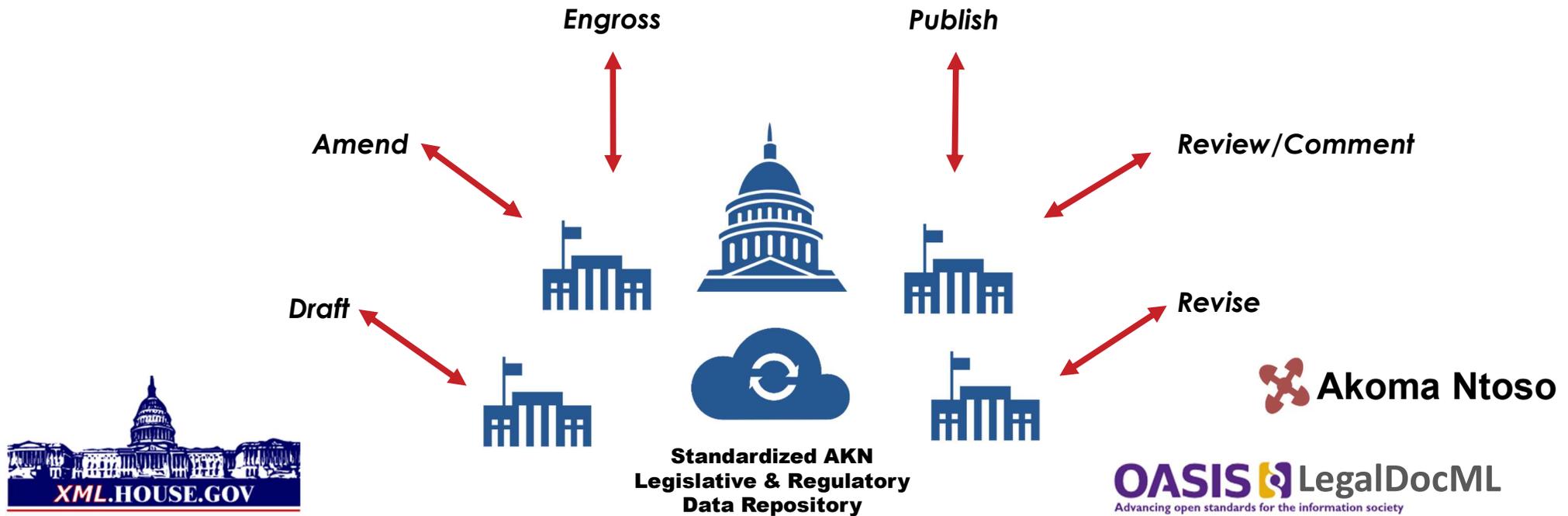
## “Data-first” advantage: Type once



With standards-based, data-first authoring, the formatting comes later. That means no rekeying when you export your content to print, the web, PDF or another database. Much more efficient. That also means your data is “future proofed,” not locked in a proprietary format.

## This is where governments are headed

The future of document drafting and reviewing is a smarter, more modern and unified approach to rule-making, enabled by data standardization and data interoperability.



**Data-first enabled**  
**Rulemaking information becomes interoperable –**  
**connected – linked automatically.**

*A bill*

**SEC. 3001. REDUCTION IN CORPORATE TAX RATE.**

(a) IN GENERAL.—Section 11(b) is amended to read as follows:

“(b) AMOUNT OF TAX.—

“(1) IN GENERAL.—Except as otherwise provided in this subsection, the amount of the tax imposed by subsection (a) shall be 20 percent of taxable income.

“(2) SPECIAL RULE FOR PERSONAL SERVICE CORPORATIONS.—

“(A) IN GENERAL.—In the case of a personal service corporation (as defined in section 448(d)(2)), the amount of the tax imposed by subsection (a) shall be 25 percent of taxable income.

*A law to be amended*

**§11. Tax imposed**

**(a) Corporations in general**

A tax is hereby imposed for each taxable year on the taxable income of every corporation.

**(b) Amount of tax**

**(1) In general**

The amount of the tax imposed by subsection (a) shall be the sum of-

- (A) 15 percent of so much of the taxable income as does not exceed \$50,000,
- (B) 25 percent of so much of the taxable income as exceeds \$50,000 but does not exceed \$75,000,
- (C) 34 percent of so much of the taxable income as exceeds \$75,000 but does not exceed \$10,000,000, and
- (D) 35 percent of so much of the taxable income as exceeds \$10,000,000.

*A regulation to change*

**§ 1.11-1 Tax on corporations.**

(a) Every corporation, foreign or domestic, is liable to the tax imposed under section 11 except (1) corporations specifically excepted under such section from such tax; (2) corporations expressly exempt from all taxation under subtitle A of the Code (see section 501); and (3) corporations subject to tax under section 511(a). For taxable years beginning after December 31, 1966, foreign corporations engaged in trade or business in the United States shall be taxable under section 11 only on their taxable income which is effectively connected with the conduct of a trade or business in the United States (see section 882(a)(1)). For definition of the terms “corporations,” “domestic,” and “foreign,” see section 7701(a)(3), (4), and (5), respectively.

# Data-first enabled Document Comparison

Original bill draft

6

1 threatened and endangered salmonids in the Colum-  
2 bia River and its tributaries.

3 **SEC. 3. SENSE OF CONGRESS.**

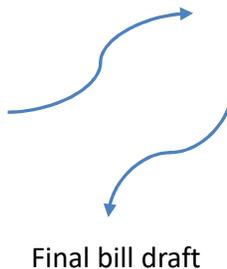
4 It is the sense of the Congress that—

5 (1) preventing predation by sea lions, recovery  
6 of listed salmonid stocks, and preventing future list-  
7 ings of fish stocks in the Columbia River under the  
8 Endangered Species Act of 1973 (16 U.S.C. 1531 et  
9 seq.) is a vital priority; and

10 (2) the Federal Government should continue to  
11 fund lethal and nonlethal removal measures for pre-  
12 venting such predation.

13 **SEC. 4. TAKING OF SEA LIONS ON THE COLUMBIA RIVER  
14 AND ITS TRIBUTARIES TO PROTECT ENDAN-  
15 GERED AND THREATENED SPECIES OF SALM-  
16 ON AND OTHER NONLISTED FISH SPECIES.**

17 Section 120(f) of the Marine Mammal Protection Act



Final bill draft

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Endangered Salmon  
3 and Fisheries Predation Prevention Act”.

4 **SEC. 2. SENSE OF CONGRESS.**

5 It is the sense of the Congress that—

6 (1) prevention of predation by pinnipeds, recov-  
7 ery of salmonid stocks listed under the Endangered  
8 Species Act of 1973 (16 U.S.C. 1531 et seq.), and  
9 prevention of the future listings of fish stocks in the  
10 Columbia River under such Act are a vital priority;

“Comparative Print”

**Section 1. Short title**  
This Act may be cited as the “Endangered Salmon and Fisheries Predation Prevention Act”.  
**[NOTE-- DELETED : Sec. 2. Findings]**

**Sec. 32. Sense of Congress**  
It is the sense of the Congress that—

(1) preventing on of predation by sea lion pinnipeds, recovery of listed salmonid stocks listed under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), and preventing on of the future listings of fish stocks in the Columbia River under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) is such Act are a vital priority; and

(2) the Federal Government should continue to fund lethal and nonlethal removal of pinnipeds as well as deterrence measures for preventing such predation.

columbia River and its tributaries to protect endangered and threatened  
cies  
Protection Act of 1972 (16 U.S.C. 1389(f)) is amended to read as  
VAL AUTHORITY ON THE WATERS OF THE COLUMBIA RIVER ORAND ITS  
withstanding any other provision of this Act, the Secretary may  
to authorize the intentional lethal taking on the waters of the  
of individually identifiable sea lion pinnipeds that are part of a  
rized under this Act as depleted or strategic for the purpose of  
ad, or eulachon that are listed as endangered species or threatened  
cies Act of 1973 (16 U.S.C. 1531 et seq.); and other  
rgeon that are non listed fish species as endangered or threatened  
n.  
ible entity may apply to the Secretary for a permit under this

“LegisCompare”: U.S. Congress now uses XML technology to compare drafts of legislation

## Data-first enabled Amendment Impact Program

**Amendment Impact Program (AIP)**, developed for U.S. House Office of Legislative Counsel, provides visualization of amendments to legislation as engrossed in the bill. AIP displays an unlimited number of amendments, toggles from engrossed amendment to bill, either direction.

Amendment Impact Program

Prepare Inputs View Results Start Over

Amendments

**Add Amendment(s)** PDF or XML to Apply

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□

Base Document

**Select Base PDF** Select Base PDF to Apply Amendment(s) Against

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□

**Data-first enabled  
Automation of  
amendment  
engrossment**

Now in development at the U.S. House, an NLP application identifies and interprets amendment language, displays the redlined text insertion/deletion, and shows precisely how the amended law will read.

Processed Amendments: 2 115Hr1109enr v0.6.0

Upload Sections Affected Amendments Import

[1.]

**Section 1. Clarification of facility merger authorization**  
 Section 203(a)(1) of the Federal Power Act (16 U.S.C. 824b(a)(1)) is amended by striking subparagraph (B) and inserting the following:

“(B) merge or consolidate, directly or indirectly, its facilities subject to the jurisdiction of the Commission, or any part thereof, with the facilities of any other person, or any part thereof, that are subject to the jurisdiction of the Commission and have a value in excess of \$10,000,000, by any means whatsoever;”.

[2.]

**Sec. 2. Notification for certain transactions**  
 Section 203(a) of the Federal Power Act (16 U.S.C. 824b(a)) is amended by adding at the end the following new paragraph:

“(1) No public utility shall, without first having secured an order of the Commission authorizing it to do so—

(A) sell, lease, or otherwise dispose of the whole of its facilities subject to the jurisdiction of the Commission, or any part thereof of a value in excess of \$10,000,000;

“(B) merge or consolidate, directly or indirectly, its facilities subject to the jurisdiction of the Commission, or any part thereof, with the facilities of any other person, or any part thereof, that are subject to the jurisdiction of the Commission and have a value in excess of \$10,000,000, by any means whatsoever;”.

~~“(B) merge or consolidate, directly or indirectly, such facilities or any part thereof with those of any other person, by any~~

DOCUMENT 1 DOCUMENT 2 DIFF

(1) No public utility shall, without first having secured an order of the Commission authorizing it to do so—

(A) sell, lease, or otherwise dispose of the whole of its facilities subject to the jurisdiction of the Commission, or any part thereof of a value in excess of \$10,000,000;

(B) merge or consolidate, directly or indirectly, such its facilities subject to the jurisdiction of the Commission, or any part thereof, with these facilities of any other person, or any part thereof, that are subject to the jurisdiction of the Commission and have a value in excess of \$10,000,000, by any means whatsoever;

(C) purchase, acquire, or take any security with a value in excess of \$10,000,000 of any other public utility; or

(D) purchase, lease, or otherwise acquire an existing generation facility—

(i) that has a value in excess of \$10,000,000; and

(ii) that is used for interstate wholesale sales and over which the Commission has jurisdiction for ratemaking purposes.

## Data-first enabled Point-in-time search

Search with data and status of a law as parameters.

Information organized to allow documents to be generated based on date and status.

Works with past dates, current date and future dates of effectivity.

Hong Kong legislative & regulatory point-in-time search tool: [elegislation.gov.hk](http://elegislation.gov.hk).

The screenshot shows the Hong Kong e-Legislation website interface. The browser address bar displays the URL <https://www.elegislation.gov.hk/cap614>. The page title is 'Cap. 614 Legislation Publication Ordinance'. The main navigation bar includes 'Home', 'Search', 'Browse', 'Gazette', 'Editorial Records', and 'Useful Information'. A search bar is present with a dropdown menu set to 'All' and a 'Go To' button with radio buttons for 'Title', 'Content', and 'Cap. No.'. The page content is organized into sections: 'View Legislation', 'Main', 'Other Information', and 'Cap. 614 Legislation Publication Ordinance'. A 'Timeline' section is visible, and a search filter 'Point in Time:' is set to '24/02/2017\*'. The search results show a list of dates: 24/02/2017\*, 30/06/2011, 16/01/2012, 09/02/2012, 27/07/2012, and 24/02/2017\*. The selected date is 09/02/2012. The search results display the text of the ordinance: 'An Ordinance to provide for the establishment of an electronic database of legislation and approval of a website on which the information in the database may be published and accessed; to give legal status to copies of the legislation published on an approved website; to provide for powers to make editorial amendments and revisions to Ordinances; to provide for additional editorial powers for preparation of the loose-leaf edition of the Laws of Hong Kong; to provide for related matters; and to make consequential amendments.' The date '[30 June 2011]' is shown below the text. The page also includes options for 'Match case', 'Enable word stemming', 'Show highlight for: Matched Keywords', 'Cross Reference(s)', and 'Source Note(s)'. The footer of the page contains the text '(Enacting provision omitted—E.R. 1 of 2012)' and '(Format changes—E.R. 1 of 2012)'. The page is displayed in 'Monolingual Mode: Eng' and 'Bilingual Mode: Eng / 繁 / 簡'.

## Data-first enabled Drafting, amending, codification, publishing

Modern, browser-based XML editor applications look and feel like the Word or WordPerfect tools drafters are familiar with – but enable them to do so much more, and with greater efficiency and accuracy.

## Data-first enabled Drafting, amending, codification, publishing

Modern, browser-based XML editor applications look and feel like the Word or WordPerfect tools drafters are familiar with – but enable them to do so much more, and with greater efficiency and accuracy.

The screenshot displays the LegisPro software interface. On the left is a sidebar with a tree view of document sections under 'PARIS AGREEMENT', including Article 1 through Article 10. Below the sidebar is a 'Text Selector' area showing the United Nations logo and the title 'The UN Charter'. The main editor area features a ribbon with tabs for File, Home, Insert, Find/Replace, Symbols, Hierarchy, Amending, Tagging, and Attributes. The 'Home' tab is active, showing options for Font (Bold, Italic, Underline, Subscript, Superscript), Alignment (Left, Center, Right, Full), and Modes (Spelling, Structure, Toggle XML). The main text area contains the following content:

**Article 1**  
[Purpose and Definition]

For the purpose of this Agreement, the definitions contained in Article 1 of the Convention shall apply. In addition:

- (a) "Convention" means the United Nations Framework Convention on Climate Change, adopted in New York on 9 May 1992;
- (b) "Conference of the Parties" means the Conference of the Parties to the Convention;
- (c) "Party" means a Party to this Agreement.

**Article 2**  
[Goals]

- 1 This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:
  - (a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;
  - (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and
  - (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.
- 2 This Agreement will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national

## Data-first enabled Drafting, amending, codification, publishing

Modern, browser-based XML editor applications look and feel like the Word or WordPerfect tools drafters are familiar with – but enable them to do so much more, and with greater efficiency and accuracy.

The screenshot displays the LegisPro by Xcential - Sunrise Edition interface. The top navigation bar includes 'File', 'Home', 'Insert', 'Find/Replace', 'Symbols', 'Hierarchy', 'Amending', 'Tagging', and 'Attributes'. Below this is a 'Change Management' section with icons for 'Text', 'Structure', 'Mode', 'Pagination', 'Change Set', 'Track', 'Reject', 'Accept', and 'Amendments'. A 'Resources' sidebar on the left shows a tree view of document sections under 'Source: Active Doc', including 'PART 1. — GENERAL PROVISIONS' through 'PART 7. — Miscellaneous Provisions'. The main editing area shows a document with line numbers (37-51) and text including '(g) After January 1, 2011, the state board may revise regulations adopted pursuant to this section and adopt additional regulations to further the provisions of this division.' and 'PART 5. MARKET-BASED COMPLIANCE MECHANISMS'. A 'Text Selector' window at the bottom left shows a document header for the 'General Assembly' and a resolution adopted on June 3, 2009, titled 'Climate change and its possible security implications'. The Windows taskbar at the bottom shows the search bar, taskbar icons, and system tray with a date of 11/29/2018 and time of 11:43 AM.

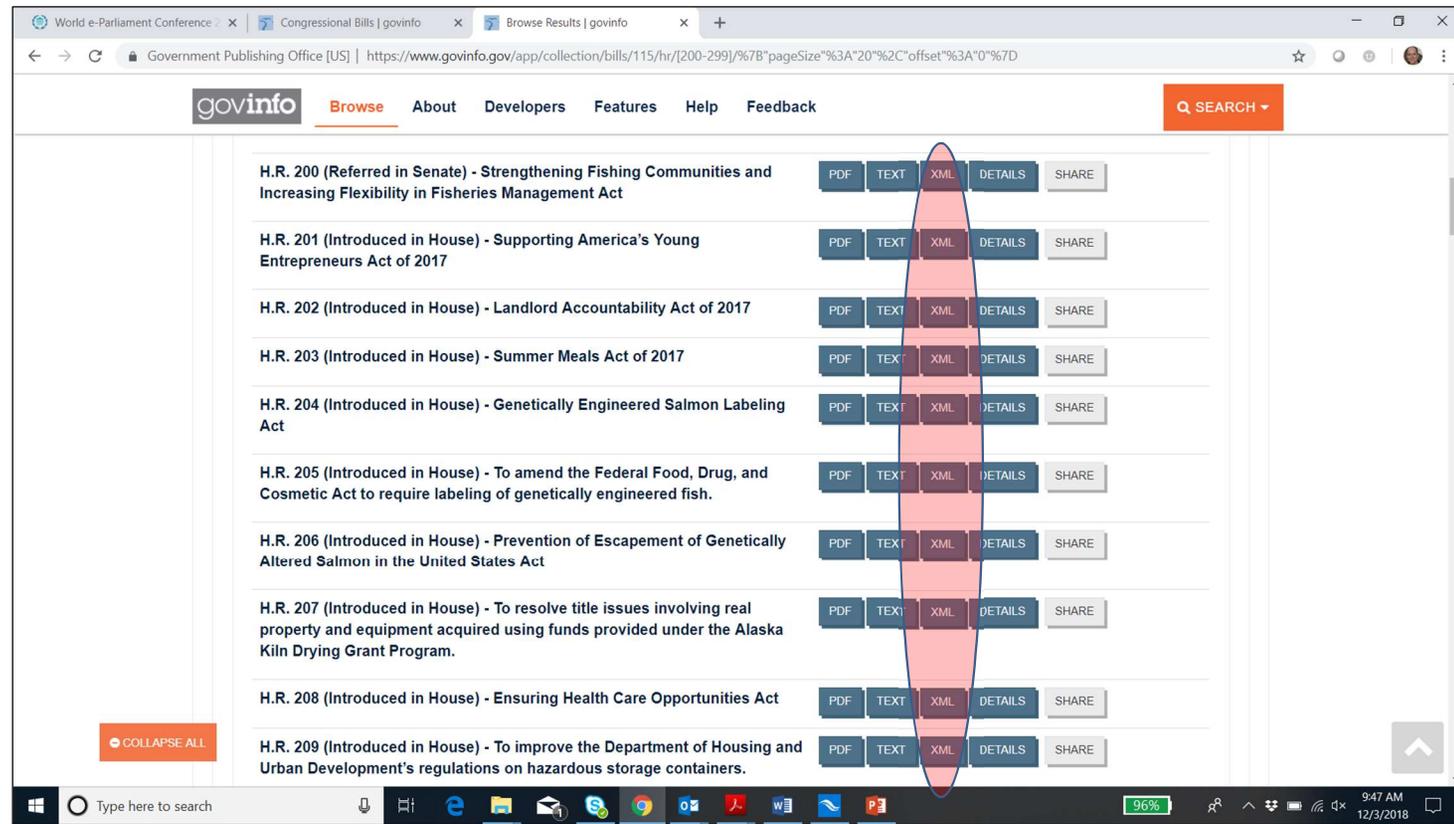
## Data-first enabled Behind the scenes, it's data-first XML

Here's the XML data that's been created automatically as drafters work. This is the standards-based, structured data that enables greater automation, accuracy and transparency

The screenshot displays the LegisPro software interface. The top navigation bar shows the path: bill > part > section > amending language > quoted structure > article > paragraph > intro. text > organization. The main window is divided into three sections: a left-hand navigation tree, a central XML editor, and a right-hand toolbar. The navigation tree on the left is titled 'Taxonomy: Climate Change' and lists various categories such as '1. Dedicated climate laws and governance', '2. Energy production and renewable energy laws', and '4. Energy market regulation'. The central XML editor shows a snippet of XML code, including elements like <docJurisdiction>, <docType>, <docNumber>, <shortTitle>, and <longTitle>. The right-hand toolbar contains icons for 'Structure' and 'Toggle XML', which are circled in red. A blue arrow points from the text on the left towards the XML editor.

**Data-first enabled  
Improved access  
to legislative data**

U.S. House and U.S. Government Publishing Office now provide downloads of bills as they're introduced in standard XML format. This "levels the playing field" for public access to legislative information.



**Data-first enabled  
Increased  
accountability,  
citizen  
engagement,**

Machine-processable  
access to federal  
legislative data has  
sparked an explosion  
of services for citizens  
and businesses –  
some free, others by  
subscription –  
tracking and deeply  
analyzing rulemaking  
measures.

**govtrack** Home Congress Track About Us Log In Search Select Language

We're now in a "lame duck" session, the period between an election and when the elected members of Congress take office, which will occur on January 3, 2019 at noon.

### Bills and Resolutions

Coming Up & Trending Find a Bill Get Alerts All Bills

**Coming Up**

### Congress Tracker

The BGOV Congress Tracker is your eyes and ears on the Hill, with a team of floor watchers delivering live coverage of House and Senate floor activity. Congress Tracker monitor every vote tallies, and

### Legislative

Find the federal updates through the BGOV Legislative the updates a

### Bill summary

To fully understand produce detailed understanding of the time

**Quorum** About Stakeholder Engagement

## Easy-to-Use Bill Tracking System

Bring Order To Your Bill Tracking

Easily manage your legislative tracking across Congress, all 50 state legislatures, all US territory assemblies, and the EU with modern dashboards customized by issue area, keyword, region, and priority so your team can collaborate and stay on top of every bill impacting your organization.

Modernize Your Legislative Tracking

**CQ Federal**  
Congressional Bill Tracker

Powerful, intelligent tools to help policy professionals track and understand bills in Congress

START YOUR TRIAL

H.B. 1307: Appropriate Money For T...  
H.B. 79: CAMIBUS WORK...  
S.B.410: Updating captive insuranc...  
H.B. 1063: Dealer services...  
H.B. 2593: Sales tax exemption for fr...  
H.B. 1258: Revise Certai...

## Thank you

For more information:

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President  
Xcential Legislative Technologies  
mark@xcential.com

