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Why We Want To Implement~~ed~~ ISO Metadata:

Energy Industry Profile of ISO 19115-1:2014 ("EIP") v1.0

Energy Industry Metadata Work Group
Scott Hills (Chevron)

FGDC ISO Metadata Implementation Forum
12 Feb. 2014

Outline

Background:

- *Opportunity & Vision*
- *Why ISO?*

EIP v1.0 Status

EIP Implementations

- *2012 Prototype based on Release Candidate*
- *2013 Reference Implementation*

Other 2013 Activities

2014 Plans

Initiative Background: *Business Driver & Goal State*

Business Driver

- 40% of staff time devoted to finding, retrieving, and verifying information, while data volume is growing at 60-80%/yr and need for integrating distributed, diverse resources is increasing.

Goal State:

Realize metadata standards and guidelines which enable stakeholders in the energy industry ("the community") to effectively and efficiently **discover, evaluate, and retrieve the diverse, distributed** information resources needed to support their work processes.

Support both proprietary data management needs, and **exchange of data between and within organizations**.

Leverage existing open standards to encourage adoption within the community and integration into the business, **and exploit existing organizational resources needed for governance and long-term maintenance.**

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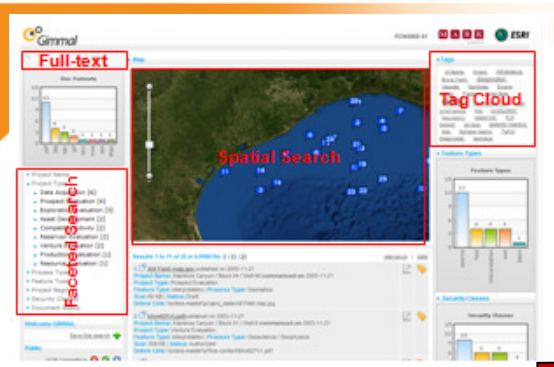
The Vision:

Enabling Discovery of Distributed Information Resources



Internal resources

External Metadata Catalog

Externally Harvested

(Commercial, Gov't & Academic: e.g., AAPG, EGI, USGIN, USGS)

Partner & Subscription Delivered

(e.g., CoreLogic, IHS Energy, Neftex, Wood Mackenzie)

External resources

Application Managed

(e.g., EPOS, Gocad, Petrel)

EIP-compliant Catalog

Legend:

Metadata exchange via EIP standard

Structured resources

(e.g., OpenWorks, RESQML, WITSML)

Unstructured resources

Internally Harvested

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Initiative Participants

Work Group

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Lisa Derenthal, Gimmal
Scott Hills, Chevron[1]
Jay Hollingsworth, Energistics
John Kozimor, U. of CO/CIRES
Steve Richard, USGIN, AZ Geol Survey[1]
Christine White, Esri

Active Participants (SMEs)

AAPG
Apache
Boise State Univ.
Carbon Lifecycle Technology
ConocoPhillips
DCP Midstream
Deloitte Services LP
Devon Energy
ETL Solutions
Exprodat
ExxonMobil[1]
First American Spatial Solutions
Flare Solutions
Fugro Robertson
Geoscience Australia
Geosoft
Ies Brazil Consulting & Services[1]
IHS Energy
Maersk Oil[1]
New Century Software
North West Geomatics
Oracle[1]
ORNL
P2 Energy Solutions
PEMEX
PennWell
PetroWEB
Pioneer Natural Resources[1]
PPDM[1]
Priemere Consulting Group
SAS Global Oil & Gas
Schlumberger[1]
Shell[1]
Univ. of Auckland, NZ
Virginia Dept of MM&E
Wood Mackenzie

[1] Energistics member; **Bold**: Contributed initial EIP requirements, Feedback about v1.0 Release Candidate

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Why ISO?

Proposed ISO to community in 2009 (workshops, whitepaper) based on

- Neutral standard considered critical for realizing the vision involving multiple organizations
- ISO has demonstrated widespread international adoption
  - *many companies are multi-national*
  - *partner with each other and with national companies of a host country*
- ISO 19115 can document a broad range of resource types
  - *structured & unstructured digital, data & services, physical assets*
- A demonstrated ("profile") mechanism exists for tailoring a subset of the full standard to a specific community
  - *Requirement for mandatory "Use Constraints" identified by community*
  - *Allows future integration of additional ISO 191xx standards to capture additional metadata identified as important to the community (e.g., 19115-2, 19157)*

Core Deliverable - *EIP Specification*

Leverage existing standards

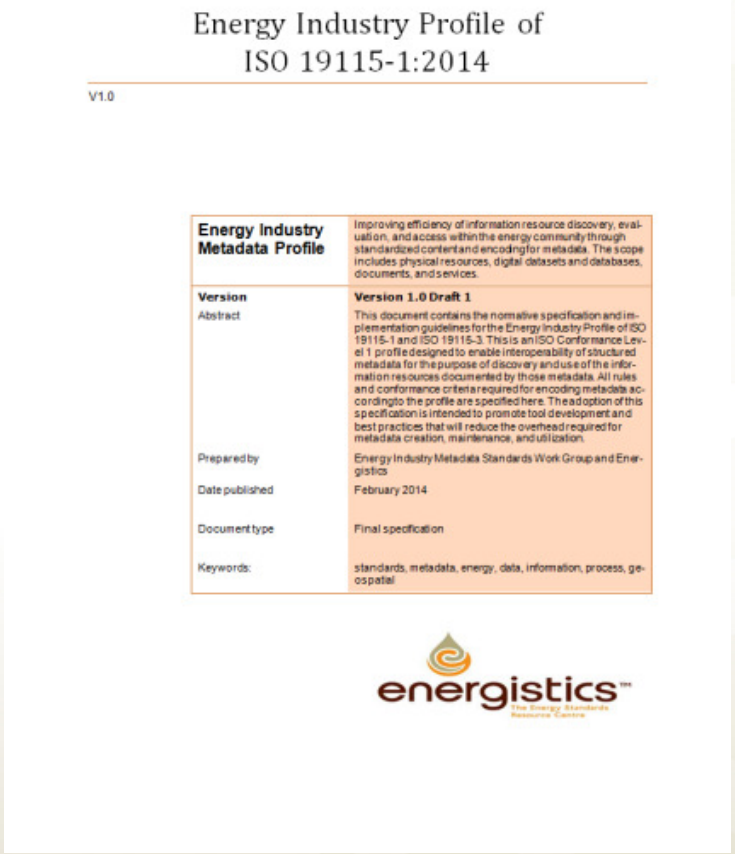
- ISO 19115-1:2014 *(content model)* and ISO 19115-3 *(XML encoding) 6/24/2013 draft*

… to Deliver

- "Energy Industry Profile of ISO 19115-1" v1.0
  - ISO Conformance Level 1 Profile designed to enable community interoperability

Status

- EIP v1.0 Draft 1
  - "Draft" status until ISO 19115-3 is finalized
- 167 pp. document includes:
  - Normative Specifications, Implementation Guidelines, Selected XML Encoding Examples
- Incorporates
  - learnings from 2012 Prototype Implementation Project
- **Expected publication: Feb. 2014**



Energy Industry Profile of
ISO 19115-1:2014

V1.0

Energy Industry Metadata Profile	Improving efficiency of information resource discovery, evaluation, and access within the energy community through standardized content and encoding for metadata. The scope includes physical resources, digital datasets and databases, documents, and services.
Version	**Version 1.0 Draft 1**
Abstract	This document contains the normative specification and implementation guidelines for the Energy Industry Profile of ISO 19115-1 and ISO 19115-3. This is an ISO Conformance Level 1 profile designed to enable interoperability of structured metadata for the purpose of discovery and use of the information resources documented by those metadata. All rules and conformance criteria required for encoding metadata according to the profile are specified here. The adoption of this specification is intended to promote tool development and best practices that will reduce the overhead required for metadata creation, maintenance, and utilization.
Prepared by	Energy Industry Metadata Standards Work Group and Energistics
Date published	February 2014
Document type	Final specification
Keywords:	standards, metadata, energy, data, information, process, geospatial

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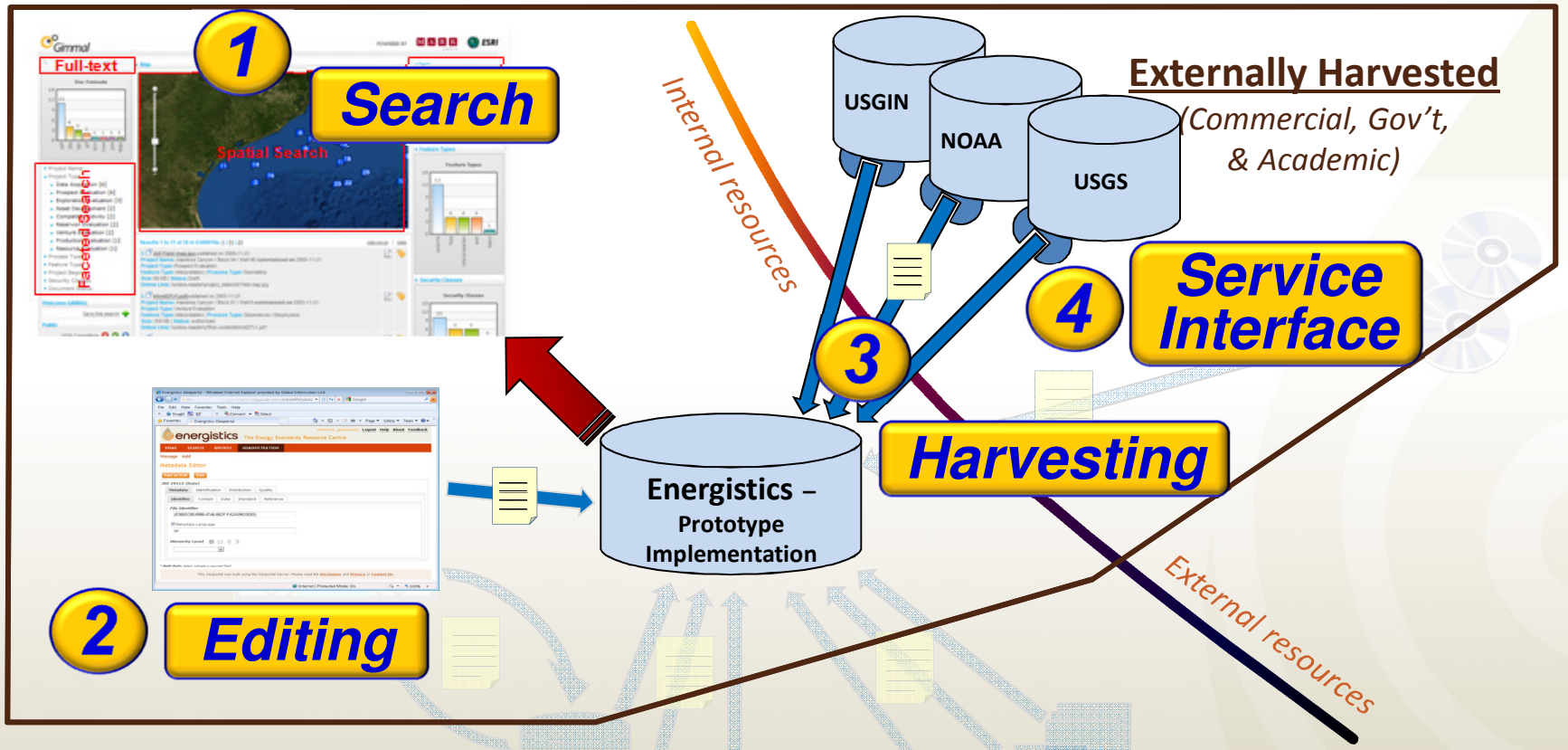
2012 Prototype Implementation
Objectives

Demonstrate the feasibility of the vision, and Expedite and encourage adoption of EIP v1.0

- *Produced a working,* ***Prototype Implementation*** *based on EIP v1.0 Release Candidate*
- *All project artifacts placed in the public domain*

2012 Prototype Implementation
Focus

Customization to demonstrate a subset of the Initiative vision, and to develop freely-available resources that encourage community adoption



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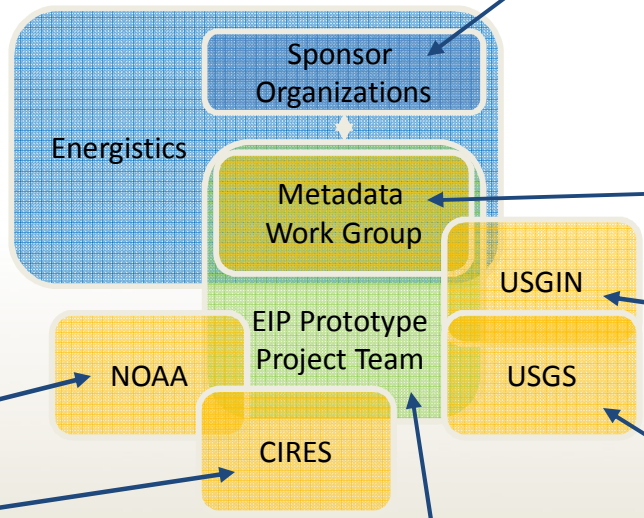
2012 Prototype Implementation:
Participants

Martha Gardill *(Pioneer Resources)*
Doug Gregory *(Chevron)*
Chris Legg *(BP)*
Mark Stehm *(ExxonMobil)*
Steve Peltier *(ExxonMobil)*
Vicki Raney *(Chevron)*



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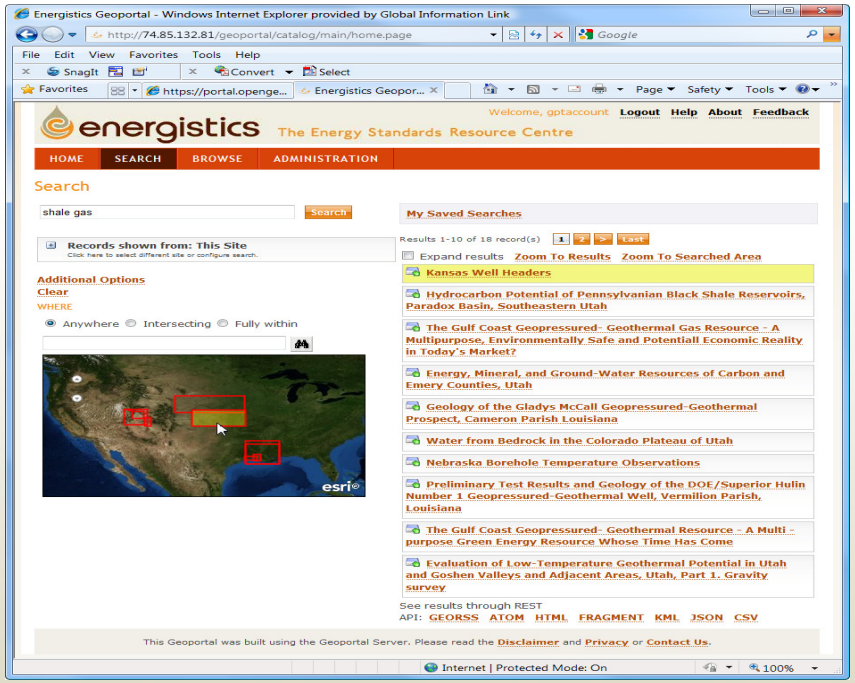
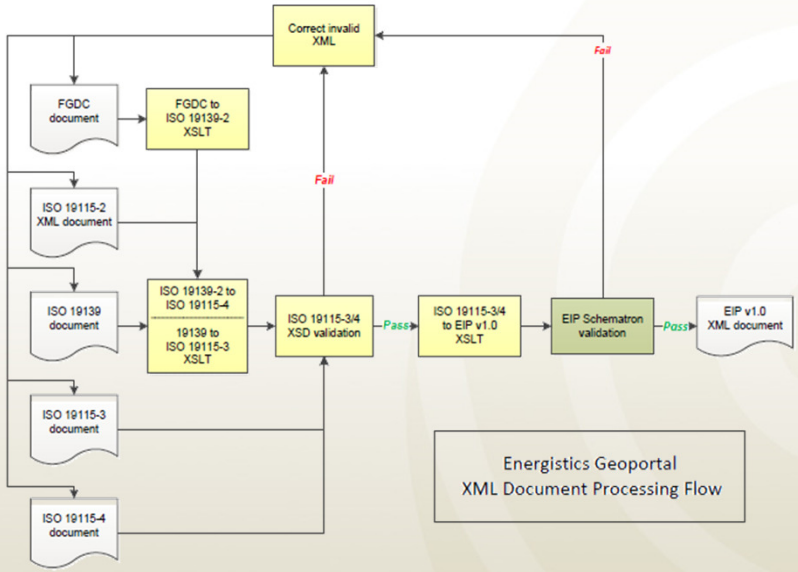
2013 EIP v1.0 Reference Implementation

Upgrade Energistics Geoportal

- ***from*** Prototype Implementation based on EIP Release Candidate
- ***to*** EIP v1.0 Reference Implementation

- Project duration: Sep.-Nov. 2013





Other 2013 Activities

Presentations

- OGC Technical Committee Meeting *(15 Jan; Redlands, CA)*
- ExxonMobil GIS Conference *(21 Feb; Houston, TX)*
- Standards Leadership Council *(25 Feb; London)*
- OGP Geomatics Committee *(26 Apr; Rijswijk)*
- Esri Petroleum GIS ("PUG") Conference *(8 May; Houston, TX)*
- OGP Geomatics Committee *(21 Oct; Rio de Janeiro)*

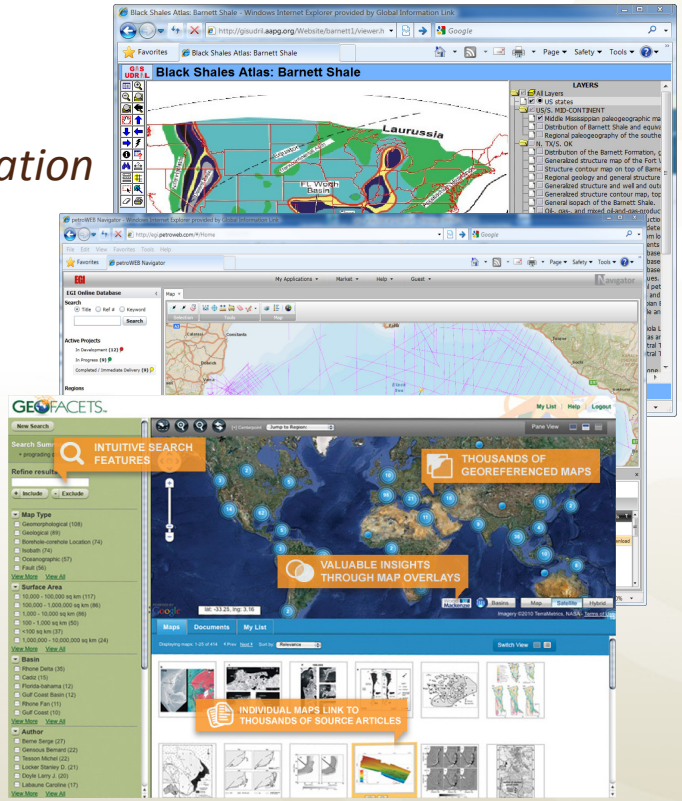
On-going

- Contributing member of ISO 19115-3 Project Team (S. Richard)
  - *in Project Meetings associated with ISO TC 211 Plenary Meetings*
  - *Demo of Energistics Geoportal Reference Implementation (Nov. 11-15; Redlands, CA)*

2014 Plans

Pilot Implementations

- Implement a low-cost system which enables harvesting metadata about an organization's available resources
  - *E.g., using artifacts from Reference Implementation*
- Energistics has agreed to represent interested member organizations in these discussions
  - *Engagement protocol TDB*
- With EIP v1.0 published, resume discussions with candidate organizations
  - *AAPG/Datapages, Elsevier/Geofacets*
- Other candidates to approach:
  - *C&C Reservoirs, EGI, Fugro Robertson, SEG, IHS Energy, Neftex, SPE, Wood Mackenzie*



2014 Plans *(cont'd)*

Continued participation ISO 19115-3

- Monitor need to update EIP v1.0 Draft 1

Community Engagement

- Use workshops/webinars to develop understanding
- Solicit feedback to identify community needs for tools, enhancements to v1.0

Candidate Tools, Enhancements

- Enhancements to EIP identified in the v1.0 specification
  - *E.g., Data quality (ISO 19157), Sensor dataset documentation ("ISO 19115-4")*
- Continued development of EIP "normalization" XSLT
  - *Improves compliance of metadata translated from other standards to EIP v1.0*
- Pursue value identified in integrated metadata completeness measures
  - *Four use cases recognized, incl. metadata creation support, use as a search refiner*

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Questions / Comments