



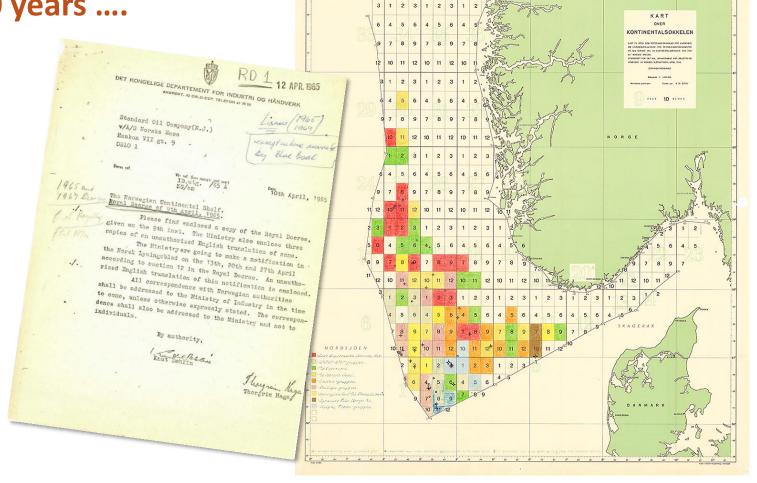
Petroleum Data Managment in Norway The National Data Repository - Diskos

IOGP Geomatics / Statoil
Industry Day 2017
Stavanger 26th April

Eric Toogood, Diskos Manager NPD



50 years



HART SOM VISER TILDELING AV UTVINNINGSTILLATELSE FOR PETROLEUM.



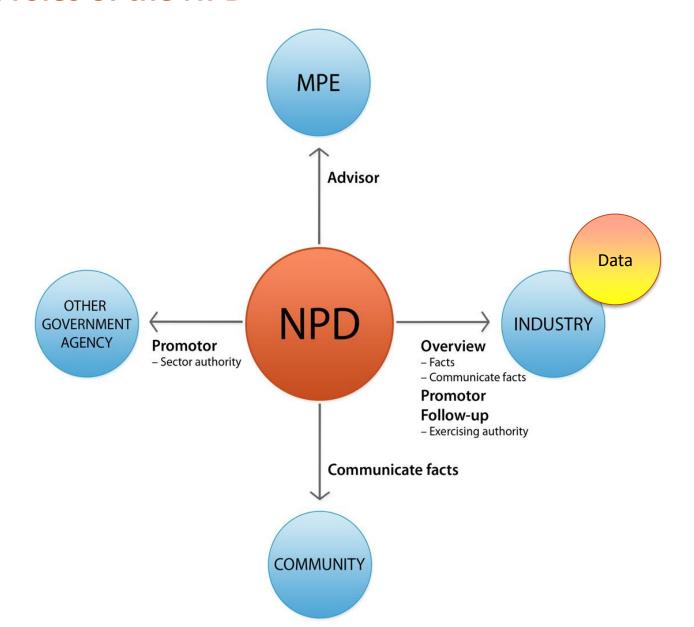
National responsibility for data



- The NPD has a national responsibility for data from the Norwegian continental shelf.
- The Norwegian authorities' strategy
 - Co-operative solutions for efficient data management
 - Common standards for data transmission and storage
- The NPD is on behalf of the Norwegian State entitled to all information the oil and seismic companies have regarding their activity on the Norwegian Continental Shelf
- The NPD has a long-term goal of taking a national responsibility to ensure that data and information from the petroleum activities are made available to all interested parties
- The NPD's data, overview and analyses constitute a crucial factual basis on which the activities are founded.

Main roles of the NPD









Data legislation

Data Reporting to the NPD



- NPD is entitled to all information the oil companies have regarding their activity in Norway.
- The Norwegian Petroleum Act allows NPD to formulate detailed routines for reporting.
- NPD has observer status in all licence committees.
- NPD gives drilling permission.
- NPD gives permission to perform all seismic surveys.

Petroleum Legislation Structure



Acts

Regulations stipulated as Royal Decrees or by Ministry

Regulations stipulated by NPD

Guidelines

The Petroleum Act 29 November 1996 (revision of previous legislation)



The Legislation:

- § 10-4 Material and information concerning the petroleum activities
 - Outlines the framework for reporting to the authorities
 - Legislation applies to anyone generating information regarding petroleum activity
 - The Licence operator has a special responsibility for data
 - Material and information shall be submitted to the Ministry or to anyone designated by the Ministry
 - Currently CGG

Data Ownership in Norway



- Data is owned by the company that pays for its initial acquisition and thus has the "copyright" or intellectual property rights
 - oil company (private or state owned)
 - licence group
 - spec company
 - NPD
- Data may be purchased User Rights or Owner Rights
 - User entitlements to the data can be easily changed
- Data may be traded User Rights only
 - Data may by traded
 - Managed by The Norwegian Oil and Gas Association





Data confidentiality

Regulations to Act relating to petroleum activities Section 85. Procedures and duty of secrecy

- Release of seismic data/well data
 - Licence data is confidential for <u>2 years</u>
 - Data not owned by a licence group is confidential for <u>5 years</u>
 - Market available data is confidential for <u>10 years</u>.
 - Interpreted data is confidential for <u>20 years</u>
 - Data from a licence area which is relinquished or surrendered, is no longer confidential.





Fact Pages



NPD Fact Pages – www.npd.no

FACTPAGES

NORWEGIAN PETROLEUM DIRECTORATE

Wellbore Licence BAA Field Discovery Company Seismic Facility TUF Pipeline Stratigraphy





Shortcuts

Quick reference
Field production
Wellbore statistics
Geographical datasets
FactMap
FactMap services
FactMap Google Earth

FactPages

NPD FactPages contain information regarding the petroleum activities on the Norwegian continental shelf. The information is synchronised with the NPD's databases on a daily basis.

Purpose

The NPD has a national responsibility for data from the Norwegian continental shelf. The NPD FactPages represent a contribution in this context.

Feedback

We constantly strive to improve this product, and welcome any kind of feedback. If you have comments or questions please e-mail us at factweb@npd.no

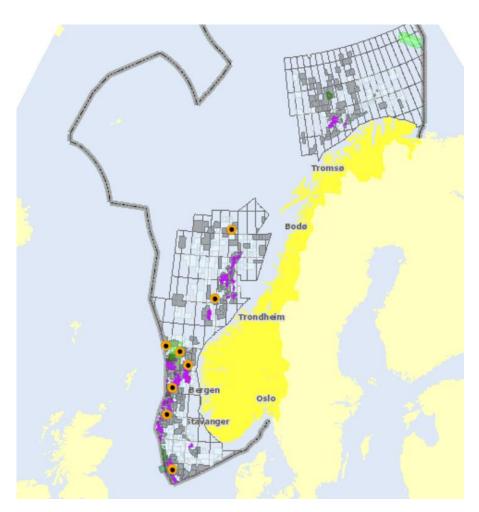
Use of content

The content on the Norwegian Petroleum Directorate's FactPages can be copied and used free of charge as long as all materials are marked with their date, reference and link to their source. This information must appear prominently.

NPD Fact Maps - www.npd.no



- integrated with the FactPages
- contain information regarding petroleum activities on NCS
- all information is synchronised with NPD's databases daily
- FactMaps are offered in HTML5 and Silverlight (advanced edition)
 - Can filter, query, add your own data or services, re-symbolize and more.





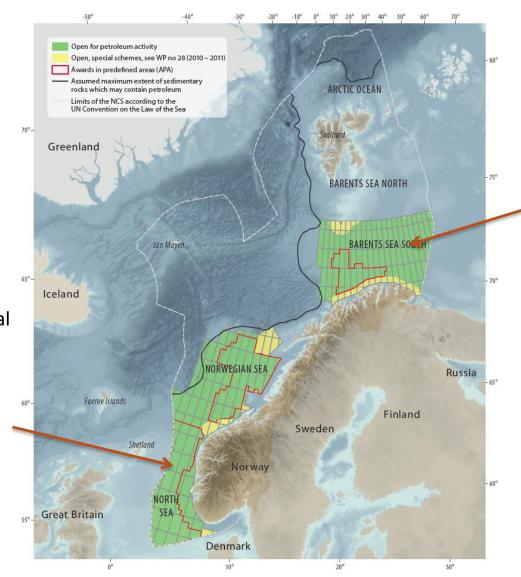
Concession rounds - Licencing

Two systems for new awards

Mature areas

Awards in Predefined Areas (APA)

- Good geological understanding
- Fields and infrastructure developed
- Less likelihood of major new discoveries
- Play field for smaller companies

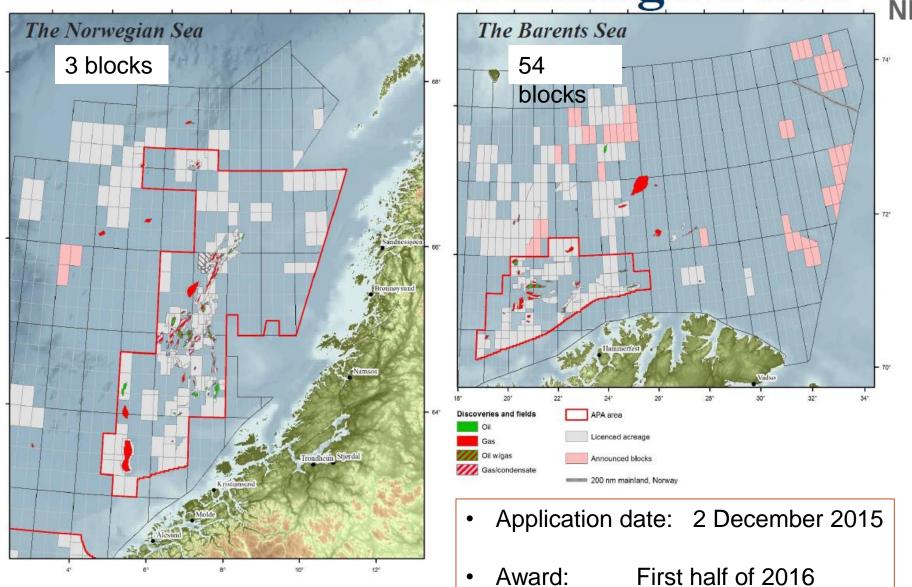


Frontier areas

- Traditional licensing rounds every second year
- Areas considered to be immature
- Still possible to make major discoveries

Announced blocks in the

23rd Licencing Round





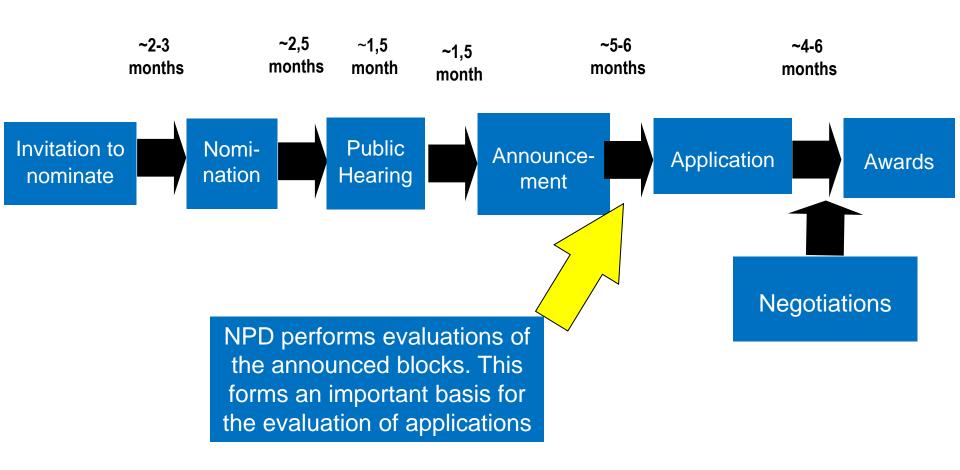


- Technical expertise
- Financial strength
- Geological understanding
- Experience
 - NCS or other similar areas
 - Other activities





Norwegian licensing round - Milestones





Awards – by the Government





The concession contract:

- Operator
- Participating companies and interest
- SDFI State's Direct Financial Interest?
- Concession area, work programme, duration, milestones
- Terms of relinquishment
- Any restrictions related to environmental or fishery concerns
- The companies have to enter a Joint
 Operating Agreement and an Accounting
 Agreement for Petroleum Activities with the license partners





Diskos NDR



Diskos – Joint Industry Project 1990's

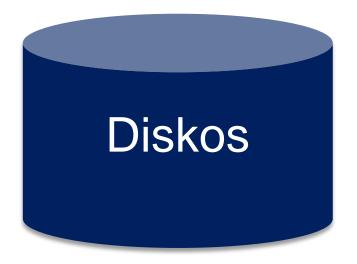


How could the NPD manage reported data efficiently?

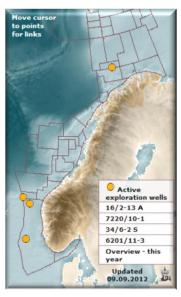
- Huge amounts of data to be stored increasing rapidly
- Poorly managed legacy databases
- Lack of common data standards
- Difficult to transfer data from system to system
- Poor data quality
- Loss of data on magnetic tapes
- NPD chose to cooperate with oil companies to solve the problem

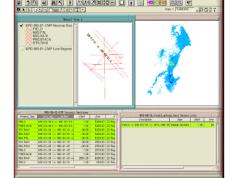
Diskos – The Norwegian National Data Repository

- Funded by the NPD and Norwegian Oil industry – "Shared Solution"
- Raw data from Norwegian Continental Shelf
- Standardizing
 - Datatypes
 - Data formats
 - Data model
 - Procedures









PetroBank



Datatypes in Diskos NDR

- Seismic data
- Well data
- Production data

Diskos - 47 members





petoro











































concedó









































DETNORSKE

















- Consultancy companies
- Data services
- Etc.





















University Access













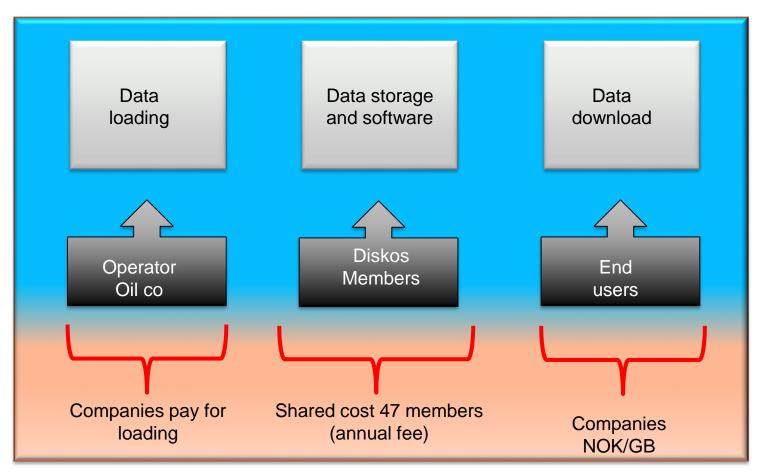




- Norwegian Universities
- UK Universities (selective)
- Norwegian Geological Survey
 - free online access to the database
 - Research
 - Eduction
 - Access to public data
 - Access to confidential data if there is agreement with the data owner



Diskos Business Model



Diskos - CGG & Partners









- Open, PPDM data model, provided by CGG' Trango solution
- CGG quality verification tools, tape copying and transcription software

- Data operations, support and administration will be provided from KADME's offices in iPark, Stavanger
- Open architecture framework, provided by KADME's Whereoil platform

- Main data center will be the EVRY facilities in Green Mountain
- Secondary data center also operated by EVRY, in their facilities in Forus



Evry – Data Centre Services

- Forus, Stavanger
 - Data receipt
 - Data loading
- Disaster Recovery site







Infrastructure

As a major Nordic player we have both the capacity and experience to operate any IT system – large or small. Infrastructure is an integral opportunity of any solution from EVRY – from day one, or to grow into. Having infrastructure in the portfolio

Home / Services / Infrastructure

IT services

Good access to business applications is crucial to

Database Operation

Poor recognee times on important husiness applications create dissatisfaction and are an

Our Insight



No one enterprise can do everything. That's why we have outsourcing.





Green Mountain – Main Data Store



Data centres About Contact Media Centre Connectivity Blog

Setting The Green Standard



facility.



GREEN MOUNTAIN – Data Centre - Rogaland



The greenest data centre in the world



Site overview – Rennesøy

Site overview - Rjukan

Power Supply

Cooling System

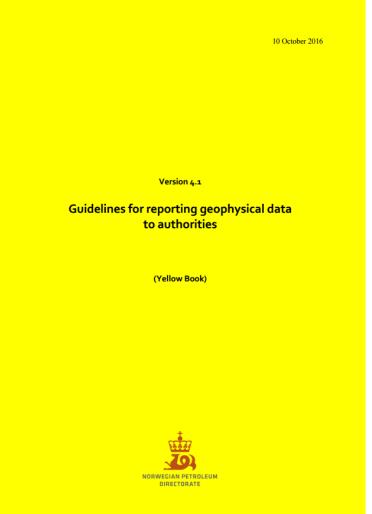
Site overview - Rennesøy





Seismic data

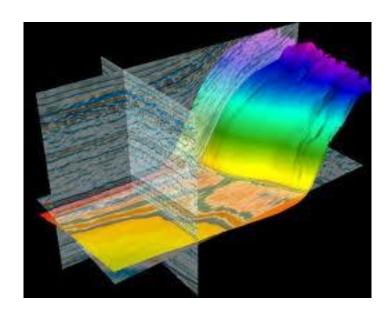
- Guidelines for reporting Geophysical data (Yellow Book)
- See www.npd.no
- Main focus is on seismic data
- See also Table S-1





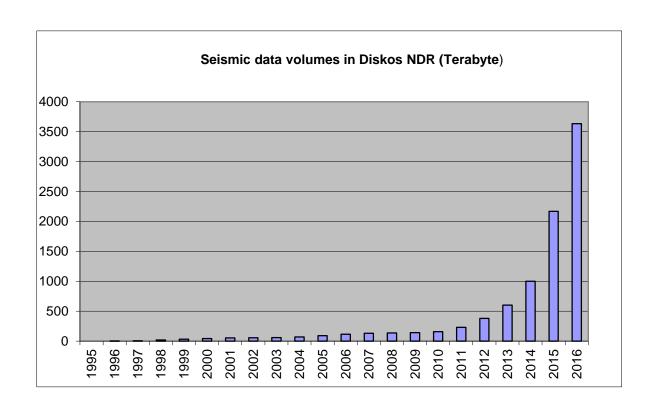
NPD Reporting Requirements – Seismic Data

- Processed post-stack seismic data (SEG-Y) all "significant " versions are to be reported:
- Field data (SEG-D)
- Pre-stack Nav-Seis merge volumes
- Velocity Data
- Navigation data
 - In accordance with "Specifications and Information for Reporting Navigation Data"
- All associated documentation
 - Acquisition, navigation, processing reports
 - Observers logs etc.





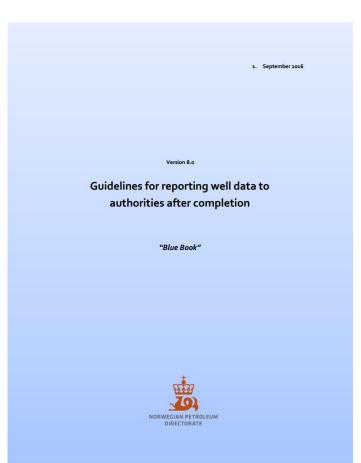
Volumes of seismic data in Diskos NDR



Well data

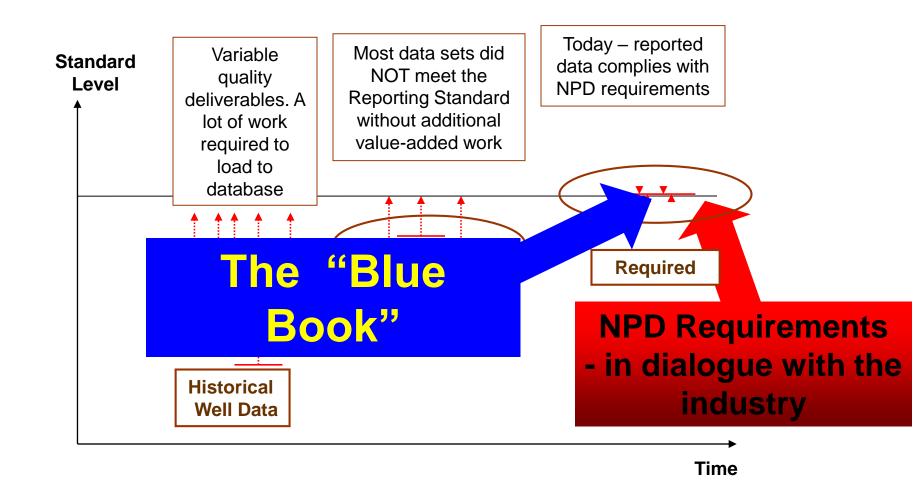


- Current Guidelines:
 - Reporting requirements for digital well data (Resource Management Regulations, Section 24).("Blue Book")
- Detailed specifications on the NPD website www.npd.no
- Digital reporting is required within 6 months of the completion or abandonment of a well.
 - Reporting applies to exploration and production wells



Well Data Reporting Standards The "Blue Book"

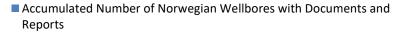


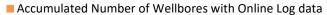


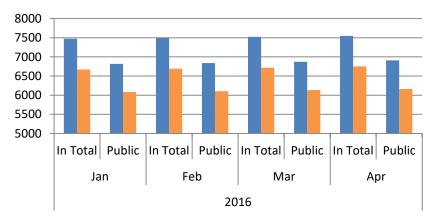




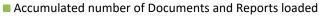
	January 2016		February 2016		March 2016		April 2016		April 2015	
	In Total	Public	In Total	Public	In Total	Public	In Total	Public	In Total	Public
Accumulated Number of Norwegian Wellbores with Documents and Reports	7472	6817	7497	6840	7525	6873	7550	6908	7231	6577
Accumulated Number of Wellbores with Online Log data	6671	6080	6693	6104	6717	6131	6751	6162	6429	5840
Accumulated number of Documents and Reports loaded	870289	553901	873646	561359	876280	564995	878584	570106	824819	501312
Accumulated number of Logs loaded	49535	38933	49706	39080	49872	39225	50034	39423	47867	37459
Accumulated number of Curves loaded	822197	04186	825133	706650	828053	709349	830542	711828	795457	682812
Accumulated Data volume in well module (TB)	7.249 TB		7.332 TB		7.384 TB		7.433 TB		6,548 TB	

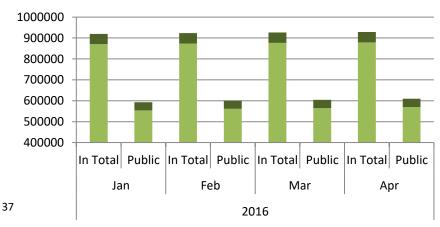






■ Accumulated number of Logs loaded







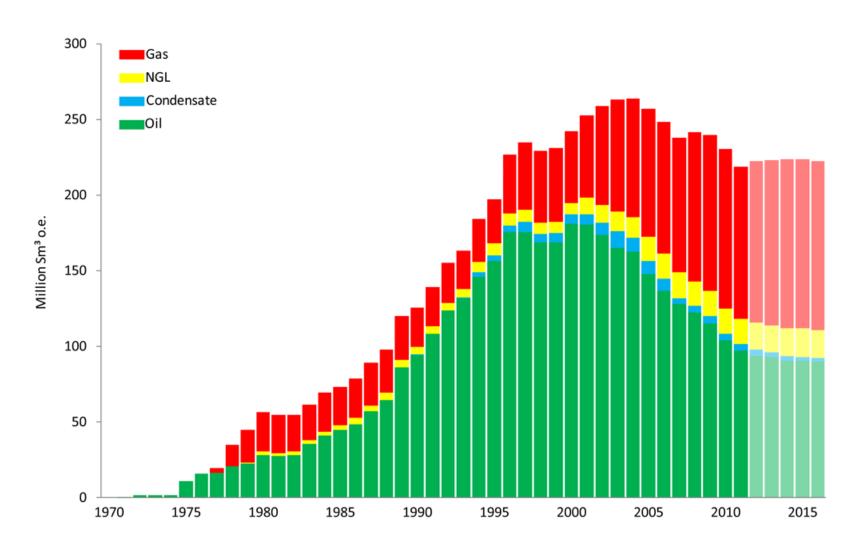
Production Data

Monthly allocated reporting





Petroleum Production Norway



Production and Sales Information



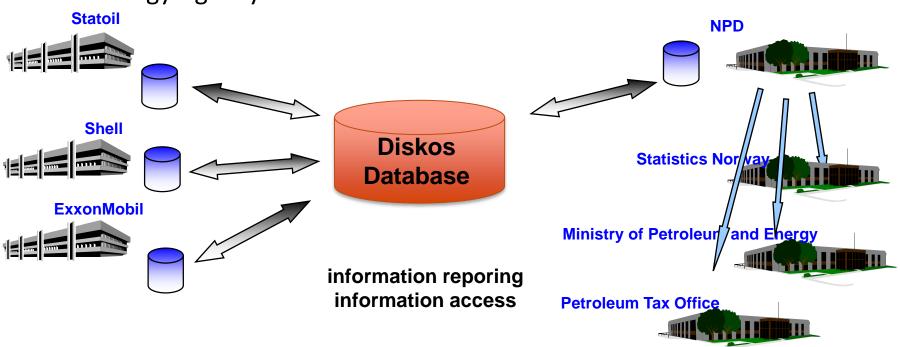
- Production per well
- Injection per well, installation and field
- Flared gas
- Fuel and diesel used
- Stored quantities
- Sales of oil, condensate and NGL products per ship cargo
- Gas sales





Production Data – Monthly data

- Information can be shared within a licence and reported easily to third parties
 - Statistics Norway, Ministry of Petroleum and Energy, International Energy Agency – Joint Oil Data Initiative







Access to data



Data Access in Norway

- NPD
 - NPD Fact pages
 - Well data
 - Core photos
 - Data from relinquished areas
 - Interpreted data on application
- Diskos Databases
 - Operated by CGG and Kadme
 - Seismic, well data and production data
 - Data trading



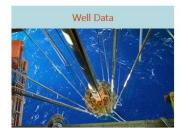


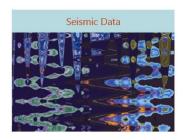
Data Access – Members and non-members



About Diskos Members Log In New member? Contact us







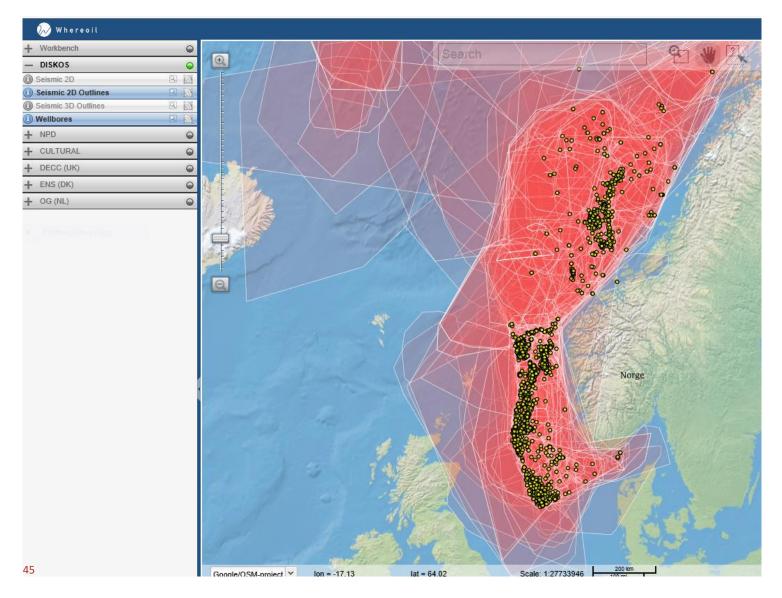






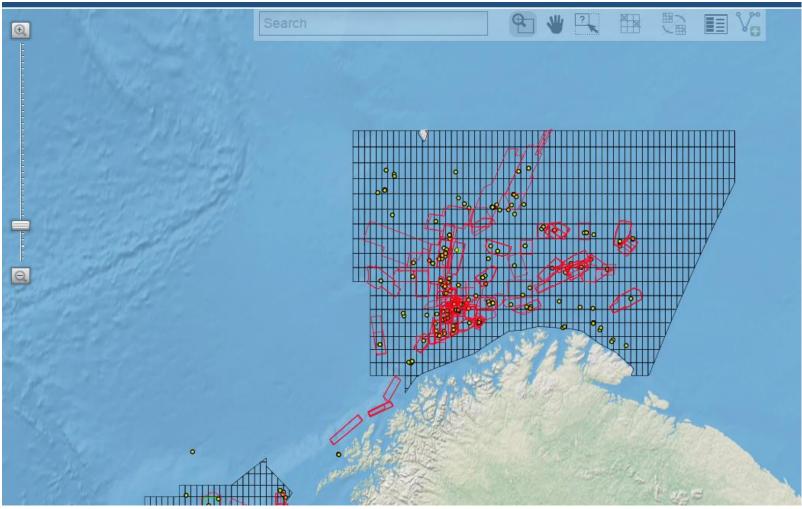


Online Access to seismic data through Diskos (WhereOil)











Zoom in on areas of interest





Standards & data management organisations









Technical Standards

The SEG Technical Standards Committee serves as a forum for discussion of geophysical developments in which standards for acquisition and processing of geophysical data need to be identified or improved. When data problems of a sufficient magnitude to warrant action by SEG are identified, an appropriate subcommittee is appointed to develop a set of standards and make a recommendation to the Executive Committee concerning their adoption. The committee works in partnership with a wide range of industry organizations. Standards are provided below in PDF and Microsoft Word as a convenience to the geophysical industry. Questions or comments about the documents, or corrections needed to them, should be reported to the committee chairman.



- · SEG Technical Standards Committee
- · SEG Technical Standards Committee online collaboration community
- · Purchase SEG standards in print
- SEG-Y Revision 2 draft









STANDARDS ADOPTION STANDARDS PORTFOLIO MEMBERSHIP EVENTS NEWS ABOUT ENERGISTICS

STANDARDS



COMMUNITY CENTRE





"29 APR 2015"

Standards Leadership Council Public Forum - Stavanger

19 MAY 2015 - 21 MAY 2015

PNEC Conference

01 JUN 2015 - 04 JUN 2015

EAGE Conference & Exhibition

MORE D



23 MAR 2015

Regulator Newsletter - March

12 MAR 2015

Energistics Transfer Protocol Ready for Review



Energistics is a global consortium that facilitates the development, management and adoption of data exchange standards for the upstream oil and gas industry.

Upstream Standards.
Bottom Line Results.















Media Partners

Member Spotlight

IOGP







About oil and gas Tabout us Our initiatives Technical expertise Policy and issues Bookstore Members area

Home / Geomatics



Oil & Gas business decisions, safety of personnel, assets, operational activities, and also protection of the natural environment, are often dependent on having complete, correct, consistent and current information of our operating locations and areas of interest.

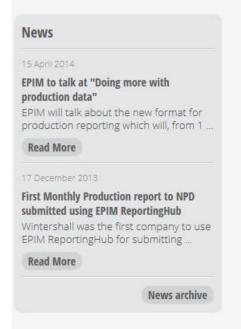
Geomatics is the combined discipline of Survey & Positioning and Geospatial Data Management, and provides accurate positioning and mapping support across the full O&G life cycle.

The most recent update about the Committee's work is available <u>here</u>

EPIM – Reporting Formats – e.g. MPRML







Reporting Formats



A service maintaining and enabling enhancements to common reports.

EPIM is the responsible body for maintaining and enabling enhancements to some of the common reports to authorities and license partners on the NCS.

The standard XML schemas and corresponding reference data resulting from collaborative projects are under continuous development by the stakeholders in the oil and gas industry.

ECIM - Expert Community for Information Management



ECIM



E&P Data Management User Meeting

Rrintable version

Welcome to ECIM 2017

Program Committee

Call for Paper

Sponsor and Profiling inquiry



Subscribe to our newsletter

ECIM 2017 - 11th. to 13th. September in Haugesund

'Delivering Value - Applying Methods and Technology'

The "ECIM 2017" E&P Data and Information Management Conference and User Meeting will be held in Scandic Maritim Hotel, starting Monday afternoon September 11th. until Wednesday 13th. early afternoon.

The conference days are busy, the atmosphere is intense, and we are staying at a very nice hotel and conference facilities in Haugesund, a medium sized city located between Bergen and Stavanger, just an hour and a half away by bus or boat from Stavanger.

Registration will be open from beginning June.

Conference Days Program Overview

Exhibition area will be open from monday afternoon and until wednesday lunch.

Monday September 11th.

12:00 Registration, networking and meetings

19:00 Opening session

20:00 Social Program

Tuesday September 12th.

08:30 Plenary session

11:30 Lunch

12:30 Parallell Workstream sessions

18:30 Social Program

Wednesday September 13th.

08:30 Parallell Workstream sessions

11:30 Plenary session

13:00 Lunch

We will begin publishing the conference program from late june.







Conference Partners



Landmark

Event Partners

ECIM 2017 September 11th to 13th

'Delivering Value - Applying Methods and Technology'

The most important Conference and Meeting Place in Europe for E&P Data and IM Professionals

Call for Paper - ECIM 2017

We invite you to submit papers for the 22nd ECIM International E&P Data and Information Management Conference 2017. (Within May 10th.) For more information and download of Speaker Form, please use this link: www.ecim.no/cfp2017

 Registration opens mid June www.ecim.no/2017



National Data Repository Meetings

- NDR2017 – 6-8th June Stavanger, Norway



NDR Conferences

- Participation from many nations
- Exchange of ideas
- Organisation, business models
- Collaboration on standardisation, legislation

NDR12 2014

- Hosted by SOCAR
- Azerbaijan

NDR 2017

- Hosted by NPD
- Stavanger, Norway
- 6-8. June 2017
- See: http://www.ndr2017.org/





Questions?



