Integrating Real-Time Operational Data with Engineering Data to Increase Efficiency and Sustainability

AVEVA™ PI System™ with AVEVA™ Asset Information Management

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Energy demand modelling aims to replicate system dynamics of the global energy system, requiring simplifications to limit a great deal of complexity. In addition, energy demand scenarios require assumptions on a variety of parameters. As such, the outcome of any given scenario using an energy demand model comes with a high degree of uncertainty. Third-party scenarios discussed in this document reflect the modelling assumptions and outputs of their respective authors, not Yinson, and their use or inclusion herein is not an endorsement by Yinson of their underlying assumptions, likelihood or probability. A reference to Yinson's support of a third-party organization within this document does not constitute or imply an endorsement by Yinson of any or all of the positions or activities of such organization.

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A more comprehensive discussion of the risk factors that may impact Yinson's business can be found in the Group's latest Annual Report, a of copy which can be found on the Group's corporate website, www.yinson.com.
Yinson at a glance

**USD1.85 billion**
Market capitalisation (listed on Bursa Malaysia)

**18 countries**
Presence across the globe

**~ USD22.3 billion**
Contracted revenue

**A1 / A + ratings**
From RAM and MARC

**Top tier**
FPSO contractor

**951 MW**
Renewables assets operational and under construction

**Green Technologies**
Active investments and business developments in Marine, Mobility and Energy segments

**> 5000 MW**
Renewables pipeline

As of 27 February 2023
Business Divisions

- **YINSON Production**
  FPSO and FSO services

- **YINSON Renewables**
  Focusing on wind and solar

- **YINSON GreenTech**
  Sustainable energy & net zero focused

- **FAROSSON**
  Advisory, Investment and Asset Management

- **Regulus OFFSHORE**
  Integrated OSV services
Our Global Presence

- **UNITED STATES**
  - Houston
  - Marketing Representation

- **COLOMBIA**
  - Renewables Development

- **PERU**
  - Renewables Development

- **BRAZIL**
  - Rio de Janeiro
  - Office
  - FPSO Anna Nery
  - FPSO Maria Guiteria
  - FPSO Atlantia
  - Renewables Development

- **CHILE**
  - Renewables Development

- **UNITED KINGDOM**
  - London
  - Office

- **ITALY**
  - Renewables Development

- **GHANA**
  - Accra & Takoradi
  - Office
  - FPSO John Agyekum Kufuor

- **NIGERIA**
  - Port Harcourt
  - Office
  - FPSO Abigail Joseph

- **ANGOLA**
  - Luanda
  - Office
  - FPSO Apopó

- **MALAYSIA**
  - Kuala Lumpur
  - Global Headquarters
  - Renewables Development

- **NETHERLANDS**
  - The Hague
  - Office

- **MALAYSIA**
  - Kuala Lumpur
  - Global Headquarters
  - Renewables Development

- **INDONESIA**
  - Bali
  - Renewables Development

- **INDIA**
  - New Delhi
  - Office
  - Rising Bhaba 142 Solar Plants
  - Noki Project

- **VIETNAM**
  - Ho Chi Minh City
  - Marketing Representation
  - FPSO PTSC Lam Son
  - FSO PTSC Bien Dong B1

- **SINGAPORE**
  - Offshore Projects Headquarters
  - Green Technologies Headquarters

- **NEW ZEALAND**
  - Renewables Development

- **NETHERLANDS**
  - The Hague
  - Office

- **FRANCE**
  - Paris
  - Office

- **UNITED KINGDOM**
  - London
  - Office

- **USA**
  - Houston
  - Marketing Representation
Our Transformation

1. 1983 - 2010
   TRANSPORT AND LOGISTICS
   Began as a transport agency in Johor Bahru, Malaysia. Grew to become one of Malaysia's largest transport companies.

2. 2011 - 2013
   OFFSHORE PRODUCTION
   Ventured into Offshore Production through a joint venture with PTSC Vietnam to build an FPSO and FSO.

3. 2014 - 2018
   FULL SCALE EXECUTION AND SERVICE FPSO PROVIDER
   Acquired Fred. Olsen Production ASA and divested non-O&G subsidiaries. Increased fleet size to become one of the largest independent FPSO leasing companies globally.

4. 2019 TO PRESENT
   ENERGY INFRASTRUCTURE AND TECHNOLOGY COMPANY
Yinson Production’s Business Strategy

https://www.yinson.com/offshore-production/

**Short to medium term (1 to 5 years)**
- Build sustainable project pipeline, including through mergers and acquisitions
- **Drive ESG initiatives towards reducing Group carbon intensity by 30% by 2030**
- Invest in asset lifecycle management via proactive digitalisation strategy
- Enhance learning, leadership, safety and corporate culture

**Long term (6 to 10 years)**
- Continuous development of asset portfolio to create strong order book and stable cashflows
- Optimise capital structure, increase capital velocity, and expand capital pool to support growth and capture market opportunities
- Continuously evaluate effectiveness of supply chain and project execution philosophy
Asset Lifecycle Management (ALM)

High Quality Data & Feedback Loops to Drive Data Driven Decision Making
Yinson Production’s Business Challenges

Asset Lifecycle Management of Data

Challenges
• Global project execution
• Global asset operation
• Data structuring from multiple sources and format - data quality and data quantity

Solution
• Established shared digital platforms
  ▪ AVEVA™ E3D Design
  ▪ AVEVA™ Engineering
  ▪ AVEVA™ Diagram
  ▪ AVEVA™ Asset Information Management (AIM) – Master Tag Register
  ▪ AVEVA™ PI System™

Results
• Access and interlinking of 1D, 2D and 3D data in all engineering source systems.
• Improved data quality and quantity of technical data for data-driven decision making. Continuous data improvement throughout asset lifecycle.
• Synchronization of engineering data with maintenance data also integrating real-time data in operations phase.
AVEVA™ Asset Information Management (AIM)

Bringing data from multiple sources / vendors in one place

Digital Twin

CORPORATE STANDARDS

Native Formats
Spreadsheet
3D Model
Laser Scan
Documents
Drawings
Images

Plant sequential Data

Link to Real-time Data

Asset Structured and Unstructured Data

Transaction Data

Maintenance Data
Inspections Data
Simulation Data
Spares Data
Integrated Asset Performance Management Solution

Unified Operating Centre – Common User Experience

Operational KPIs / Metrics
Dashboards & O&A Health
Value Realization
Maintenance & Reliability
Engineering
Life Cycle Costing
Workflow

Asset Strategy Optimization
Predictive Analytics
BI Gateway

CMMS (IFS)
Novacura
HSEQ

Industrial Information Management

AVEVA™ AIM (Engineering)

AVEVA™ PI System™ (Operations)
Digital Twin – “The Physical Twin”

1D, 2D, 3D data from Integrated Engineering and Design applications

All Contractors working in one common 3D model through shared access

3D model files are created in E3D and assembled, coordinated and synchronized using AVEVA Global by use of Satellite and Hub servers.
Asset Information Management

Collecting and structuring static data

- Databases
- DMS
- Structured Data
- Unstructured Data
- Diagrams & Drawings
- 3D Models
- Laser Scan Data

AIM Gateways / Register Gateway

- Extract
- Validate
- Transform

- Organise
- Interlink

AVEVA™
Information Standards Manager

Mobile

AVEVA Dashboard
Asset Information Management

Collecting and structuring real-time data
Asset Information Management

Integration of operational reporting through AVEVA™ PI System™

Data acquisition
- Real-time data (AVEVA PI)
- Maintenance data
- Inspections data
- HSEQ data
- Engineering data (AVEVA IE&D)

Tools for visualization
- Power BI
- AVEVA™ Unified Operations Center

Query to different source systems
- Databases
- DMS

Platforms for visualization
- AIM Dashboard
- Unified Operating Centre
Asset Information Management

All assets’ data structured and integrated with real-time data through Yinson Production LCI Hub
Real-time data acquisition through AVEVA™ PI System™

Drive ESG initiatives towards reducing Group carbon intensity by 30% by 2030

- Create baseline for operational performance on ESG metrics based on real-time data acquisition
- Through data extraction and analysis, create strategies to achieve ESG goals for assets in operation
- Use data to improve and optimize design in concept stage for new conversion projects
Asset Information Management

Integration of AVEVA™ PI System™ in AVEVA™ 3DVS
Asset Information Management

Integration of AVEVA™ PI System™ in 3D environment
Integrated Asset Performance Management Solution

Using real-time data connected with transactional data to increase efficiency and sustainability

Connecting real-time performance with maintenance system for:

• Condition Based Monitoring through AVEVA™ PI System™ Asset Framework
• Advanced analytics through AVEVA™ Predictive Analytics
• Machine learning through a combination of models
Integrated Asset Performance Management Solution

Templatizing assets in PI Asset Framework for Condition Monitoring
ALM Purpose & Vision:

“To safeguard the integrity of the company assets throughout their entire lifecycle, by optimizing processes and providing data-driven recommendations for continuous learning, improvement and development”
Kari Berte Bye

Manager Lifecycle Operations

• Yinson Production
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Questions?

Please wait for the microphone.
State your name and company.

Please remember to...

Navigate to this session in the mobile app to complete the survey.

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AVEVA is a world leader in industrial software, providing engineering and operational solutions across multiple industries, including oil and gas, chemical, pharmaceutical, power and utilities, marine, renewables, and food and beverage. Our agnostic and open architecture helps organizations design, build, operate, maintain and optimize the complete lifecycle of complex industrial assets, from production plants and offshore platforms to manufactured consumer goods.

Over 20,000 enterprises in over 100 countries rely on AVEVA to help them deliver life’s essentials: safe and reliable energy, food, medicines, infrastructure and more. By connecting people with trusted information and AI-enriched insights, AVEVA enables teams to engineer efficiently and optimize operations, driving growth and sustainability.

Named as one of the world’s most innovative companies, AVEVA supports customers with open solutions and the expertise of more than 6,400 employees, 5,000 partners and 5,700 certified developers. The company is headquartered in Cambridge, UK.

Learn more at www.aveva.com