

An aerial view of a city with a 3D power network overlay. The network consists of numerous colored lines (red, orange, yellow, green, blue, purple) representing power lines and substations, overlaid on a realistic cityscape with buildings, trees, and streets. The lines are connected to poles and form a complex web across the urban area.

**fugro**

# Geo-data at Scale: helping monitor risk across entire power networks

Chris Boreland 14<sup>th</sup> February

**fugro**  
**ROAMES**®

# The Real World Issue

All asset management companies have 3 core business critical requirements;



Reduce Time and Effort



Reduce Costs



Increase Auditability

## How can our clients deliver these;

- Replacement of traditional inspection services with remote inspection services
- Creation of data driven asset management through digitalisation/digital twin
- Leveraging 3D geodata with simulation and analysis



One of the largest asset management costs is inspection

# ROAMES® - History

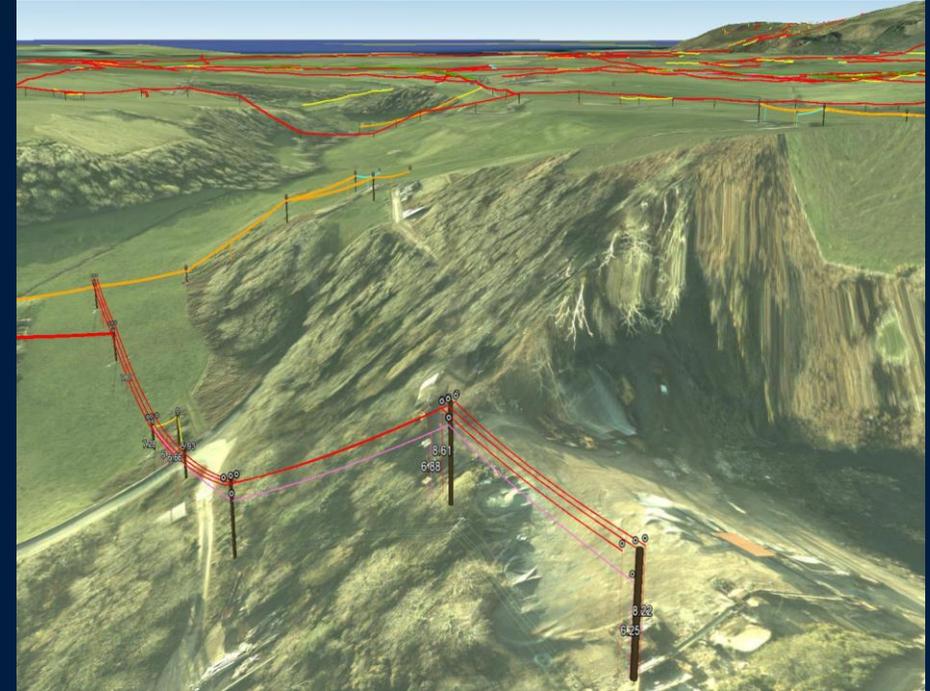
Foundation Client - Ergon Energy now Energy Queensland

**2007** - Went to the market to find a commercial solution from aerial survey companies but could not find a cost-effective solution that delivered to the requirements.

**Aim:** Provide a comprehensive remote vegetation monitoring system and lower the cost of vegetation management.

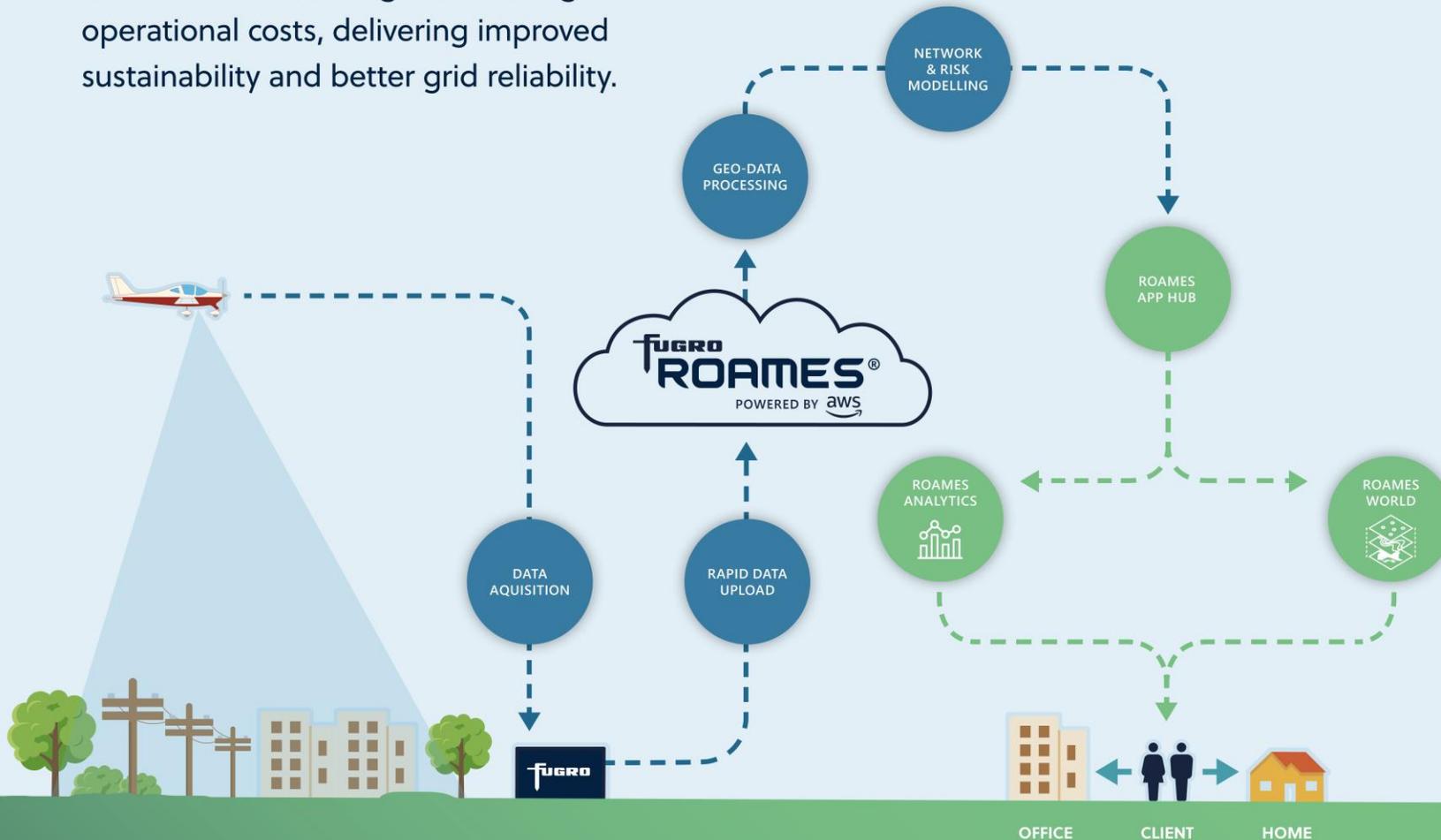
Developed a solution using Lidar to accurately map and model the overhead network and report vegetation clearances.

2014 onwards – ROAMES® launched across the UK and US regions with instant success



# Fugro ROAMES®

Unlocks new data insights, reducing operational costs, delivering improved sustainability and better grid reliability.



## BENEFITS



**Cost Savings** – Reduce maintenance and vegetation management operational costs by up to 40 %



**Increase revenue** – Prevent and reduce unplanned outages caused by vegetation or asset failures



**Reduce risk** – Mitigate public safety hazards by identifying vegetation and objects that are too close to the power line

# Network model

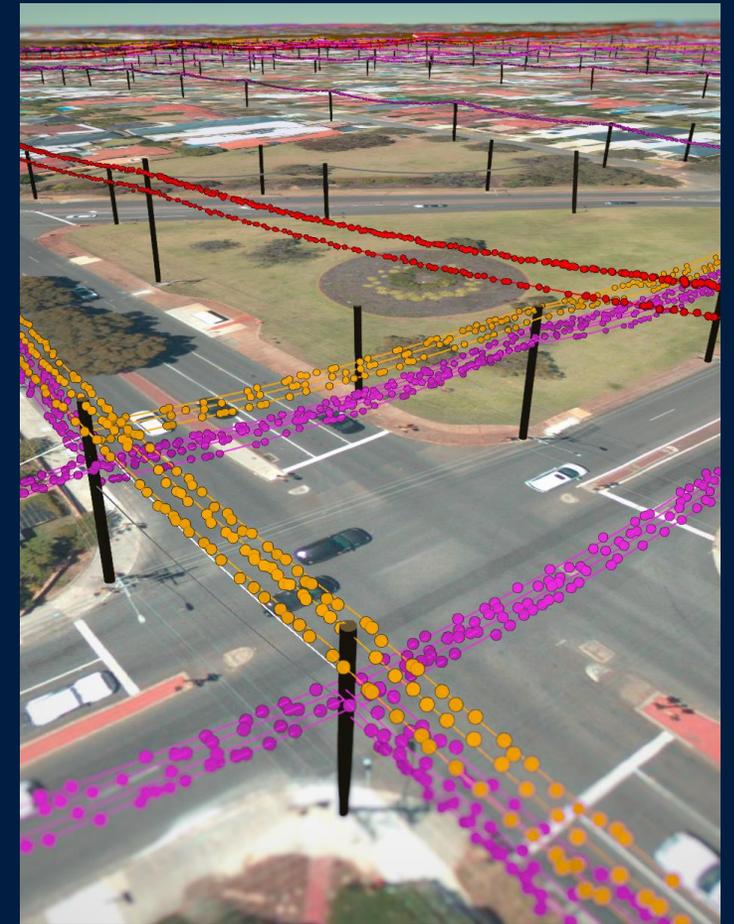
The ROAMES® **network model** is a 3D visual representation of the electrical network based on real-world location and position.

Build a complete  
asset inventory

Find and  
prioritize defects

Audit third-party  
attachments

Assess or  
inventory post-  
disaster fixes



# Asset matching

**Asset matching** demonstrates a spatial link between the surveyed ROAMES® network model and your GIS network.

Align GIS  
network to  
survey location

Preserve  
corporate records  
and GIS  
investment

Reduce  
conflation costs

Find missing  
network



# Vegetation encroachment

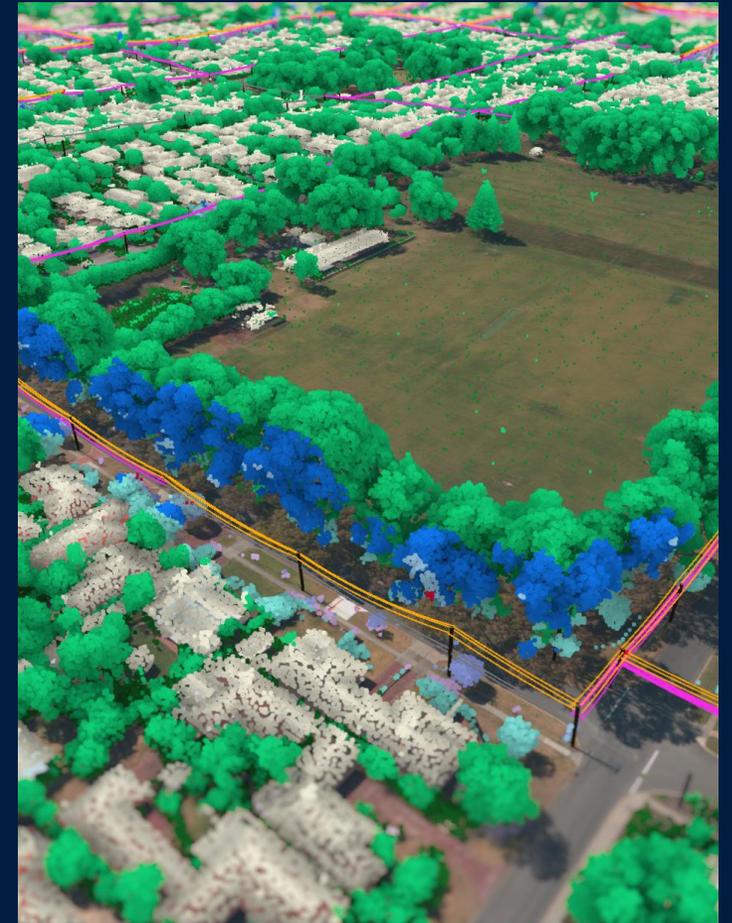
Vegetation encroachment identifies trees, shrubs or other vegetation within a user-defined clearance tolerance of the network model.

Perform desktop-based scoping safely from the office

Quickly prioritize work for your entire network

Audit work performed by vegetation contractors

Identify fall-in risk



# Network clearance

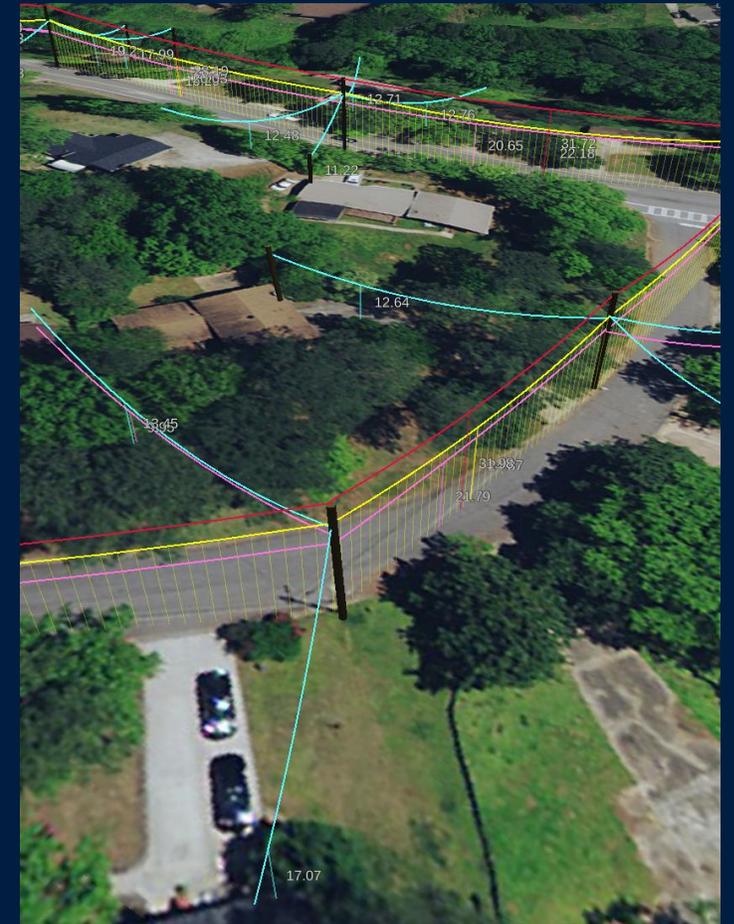
**Network clearance** measures clearance for every conductor and reports proximity violations based on required standards or proprietary defect categories.

Target high-risk locations

Achieve compliance with regulatory standards

Re-direct field crews to higher priorities

Maintain record of asset location and environmental conditions



# ROAMES

## Analytics

Easier. Faster. Better.



ROAMES World integration



New, simple design



Configure custom views



Secure collaboration for unlimited users

**Fugro ROAMES™** Analytics Asset Model

Model Distribution > Asset Model

MA Program Type: [Urban] MA Name: [ ] MA No: [ ] Cycle No: [ ] Favorites: MEC 0 and 1 Matched (Default)

Select	MA Program Type	MA Name	MA No	Cycle No	Bay Id	Bay Capture Status	Bay Capture Date	Bay Length	Bay Voltages	Bay Site 1 Label	Bay
<input type="checkbox"/>	Urban		10646691	1	10646691	Good	2019-10-17	81.73	240V	1011263	1
<input type="checkbox"/>	Urban		10645479	1	10645479	Good	2019-10-17	100.33	240V	1005698	1
<input type="checkbox"/>	Urban		10645452	1	10645452	Good	2019-10-17	21.46	240V		1
<input type="checkbox"/>	Urban		10645451	1	10645451	Good	2019-10-17	69.36	Communications	1008644	1
<input type="checkbox"/>	Urban		10645450	1	10645450	Good	2019-10-17	66.11	240V		1
<input type="checkbox"/>	Urban		10645447	1	10645447	Good	2019-10-17	88.39	240V	1008644	1
<input type="checkbox"/>	Urban		10645446	1	10645446	Good	2019-10-17	84.97	Communications	1005522	1
<input type="checkbox"/>	Urban		10645303	1	10645303	Good	2019-10-17	198.82	13kV, 120V, Com...	1002113	1
<input type="checkbox"/>	Urban		10645303	1	10645303	Good	2019-10-17	198.82	13kV, 120V, Com...	1002113	1
<input type="checkbox"/>	Urban		10645303	1	10645303	Good	2019-10-17	198.82	13kV, 120V, Com...	1002113	1
<input type="checkbox"/>	Urban		10645303	1	10645303	Good	2019-10-17	198.82	13kV, 120V, Com...	1002113	1
<input type="checkbox"/>	Urban		10645299	1	10645299	Good	2019-10-17	39.76	240V	1004298	1
<input type="checkbox"/>	Urban		10645298	1	10645298	Good	2019-10-17	84.81	240V	5949086	1
<input type="checkbox"/>	Urban		10645297	1	10645297	Good	2019-10-17	124.8	240V		1
<input type="checkbox"/>	Urban		10645296	1	10645296	Good	2019-10-17	11.06	240V	14329993	1
<input type="checkbox"/>	Urban		10645295	1	10645295	Good	2019-10-17	380.87	Communications		1
<input type="checkbox"/>	Urban		10645294	1	10645294	Good	2019-10-17	24.54	240V		5
<input type="checkbox"/>	Urban		10644794	1	10644794	Good	2019-10-17	54.69	240V	1009600	1
<input type="checkbox"/>	Urban		10644793	1	10644793	Good	2019-10-17	76.08	240V, Communica...	1003214	1
<input type="checkbox"/>	Urban		10644793	1	10644793	Good	2019-10-17	76.08	240V, Communica...	1003214	1
<input type="checkbox"/>	Urban		10604011	1	10604011	Good	2019-10-17	58.2	240V	1004847	1

Display Item 0 to 31 | Total of 54,997

Get more from your data with ROAMES Analytics.



# ROAMES World

Powerful. Intuitive. Easy.



ROAMES Analytics integration



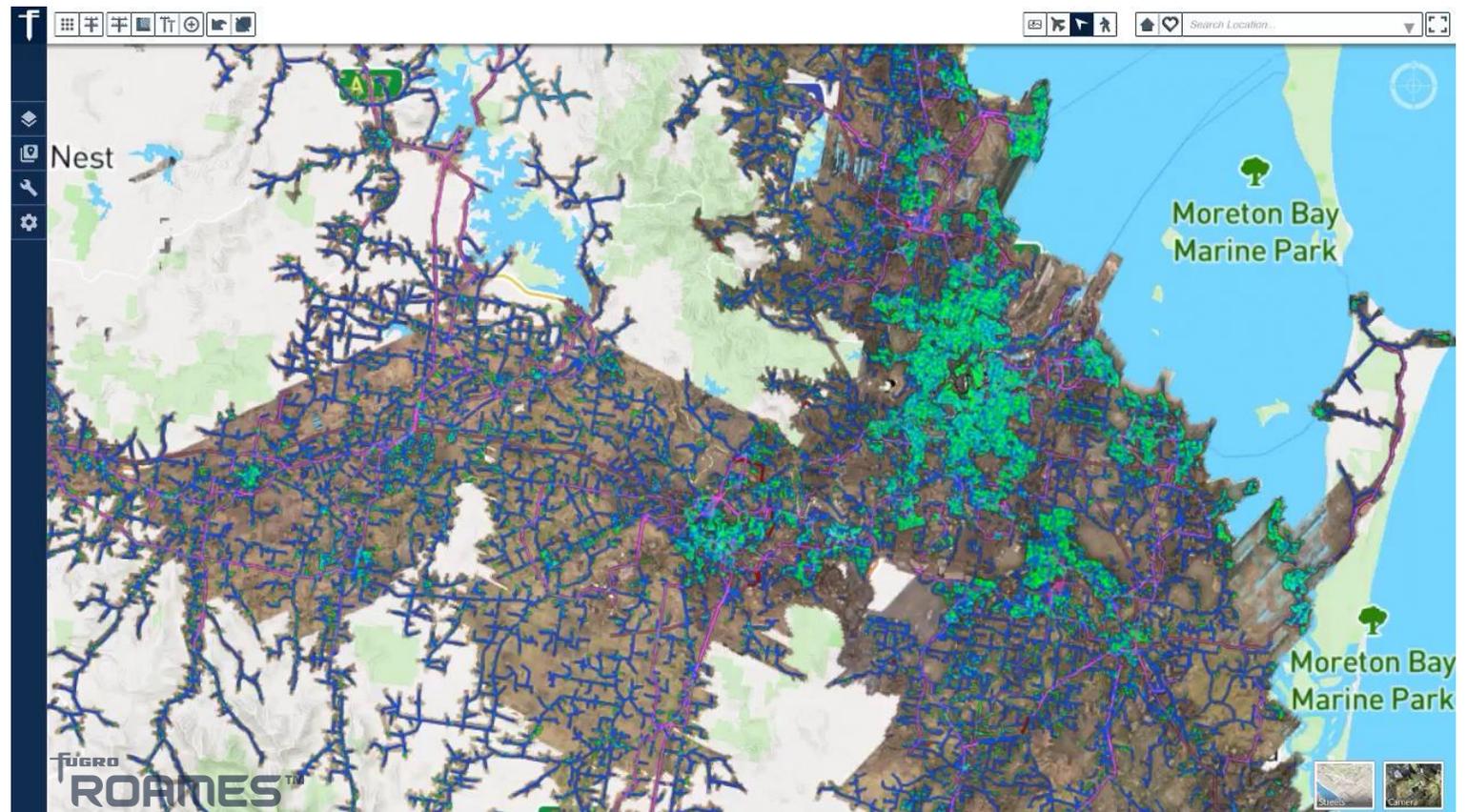
New, simple design



Survey-level accuracy



Secure collaboration for unlimited users



Explore with ROAMES World.

# Tree Analysis

Select the best equipment and crew for removal

Identify risk that can't be seen by the human eye

Find hazard trees

Monitor tree health and condition over time

Attribute	Value
MA_NAME	MID_FD_VZ_0516
CYCLE_NUM	2022
BAY_ID	12904114
TREE_ID	KX642_1
HEIGHT	50.918637
CANOPYDIAM	38.136484
LV_CPY_PCT	0.125000
INTRUSION_ID	2620857359
CLEAR_SB	CL2
NET_CORR	V3A
VOLTAGE	13kV
CAP_DATE	6/22/2022 16
DIST_CCL	6.96
LAT	41.72230137
LONG	-94.92975588
HGT_AG	37.298434
INT_CNT	2
SPECIES	Ok
CURHEALTH	Healthy
HEALTHRISK	AtRisk





# Thank you

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 <https://www.fugro.com/our-services/asset-integrity/roames-power>