

The slide features a vibrant, abstract geometric background composed of various shades of blue, purple, and yellow. On the left side, there is a vertical strip containing a satellite-style map of a region, overlaid with a grid of purple and yellow polygons. The main text is centered on the right side of the slide.

***Geoscience Australia
Explorer – Infrastructure
Planning Decision Support***

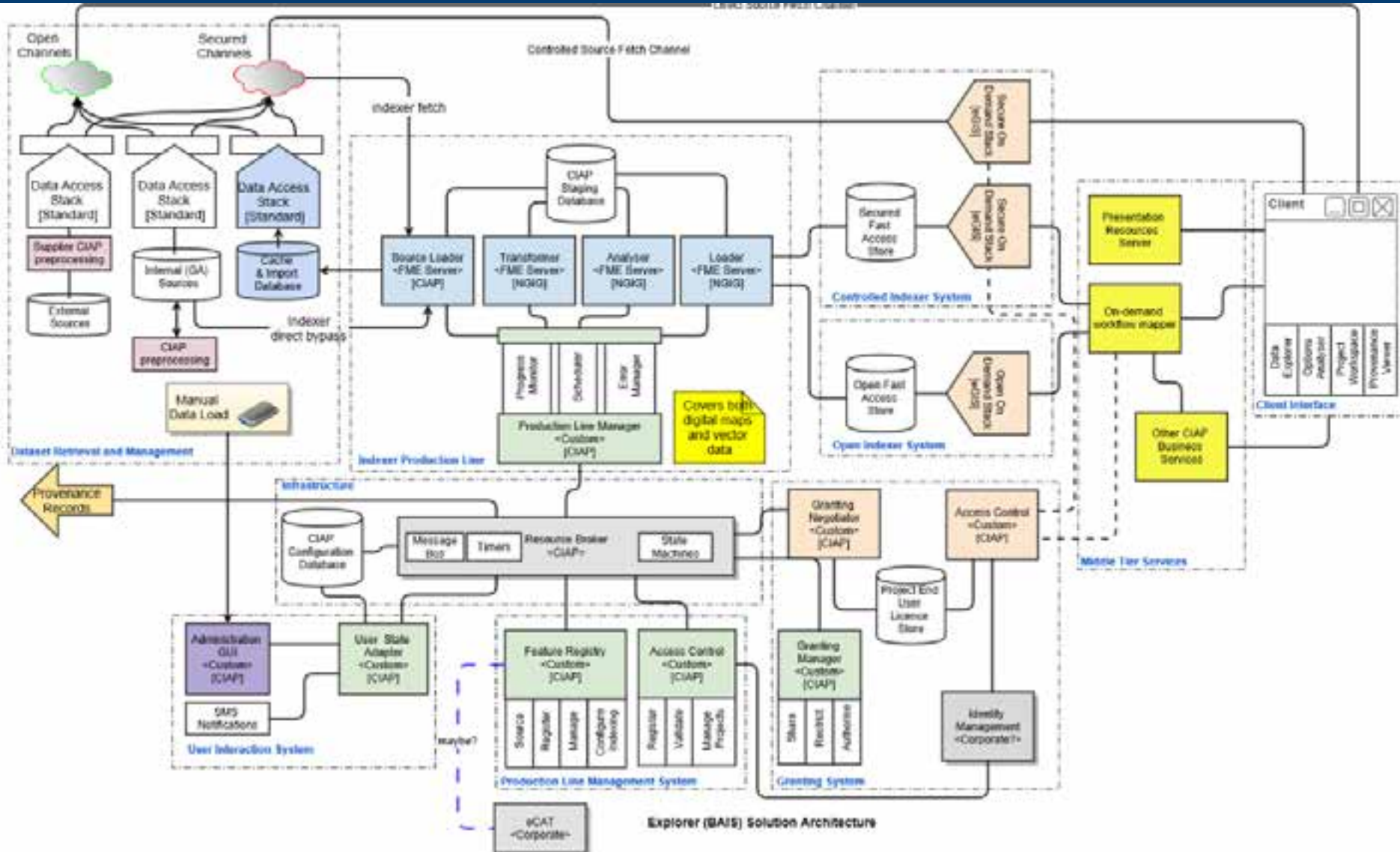
Ben Vanzino & Rob Kay

www.ga.gov.au

The project, our approach and influencing factors

- **CO2 Infrastructure Assessment Project (CIAP)**
- **Project overview**
- **Change of government**
- **Making the project applicable to other GA projects**
- **Over complexity (aiming too high)**

Detailed Solution Architecture



[Register Resource Owner](#)
[Register Resource](#)
[Create Asset](#)
[Create User](#)
[Create Project](#)
[Configure Project](#)
[Run ETL](#)

Assets marked as *DIRTY* will be run when ETL is triggered

Asset Name <input type="text"/>	States	
Airport areas	UPDATING	Mark DIRTY
Coast and borders	UPDATING	Mark DIRTY
Designated land reserves	PENDING	Mark DIRTY
Ferry route lines	PENDING	Mark DIRTY
Foot bridges	UPDATING	Mark DIRTY
Foot tracks	PENDING	Mark DIRTY
Heliports	UPDATING	Mark DIRTY
Island	PENDING	Mark DIRTY
Landing grounds, Taxiways and Runway centrelines	UPDATING	Mark DIRTY
Linear structures supporting railway networks	PENDING	Mark DIRTY
Linear structures supporting road networks	UPDATING	Mark DIRTY
Major and minor roads	PENDING	Mark DIRTY
Named places and regions	PENDING	Mark DIRTY
National onshore gas pipelines	PENDING	Mark DIRTY
Nationally significant regional areas	PENDING	Mark DIRTY
Point structures supporting railway networks	PENDING	Mark DIRTY
Point structures supporting road networks	UPDATING	Mark DIRTY
Railway stations and sidings	UPDATING	Mark DIRTY
Railways	UPDATING	Mark DIRTY

```

{
  "messageId": "ff5892d7-df58-46eb-87a4-aa524e51505a",
  "assetId": "A9999zzzzcda416e9e57ab152f44806d",
  "source": "http://intranet-dev.ga.gov.au/gis/services/climate/CIAP_Pipelines/MapServer/WFSServer",
  "featureTypeToRead": "Pipelines_Complex",
  "sourceCoordinateSystem": "EPSG:4326",
  "numberOfFeatures": 3677,
  "latMin": -43.00308,
  "latMax": -10.90399,
  "longMin": 113.090455,
  "longMax": 153.159958,
}

```



Home | Queues | Topics | Subscribers | Connections | Network | Scheduled | Send

Queue Name

Queues

Name	Number Of Pending Messages	Number Of Consumers	Messages Enqueued	Messages Dequeued	Views	Operations
beis.ssmr.etf.initiate	0	1	0	0	Browse Active Consumers 	Send To Purge Delete
beis.ssmr.etf.status	0	2	52	52	Browse Active Consumers 	Send To Purge Delete
beis.users.queue	0	0	1	1	Browse Active Consumers 	Send To Purge Delete
testRadwasteEmailValidationSend	0	0	0	0	Browse Active Consumers 	Send To Purge Delete
ActiveMQ.DLQ	8	0	18	30	Browse Active Consumers 	Send To Purge Delete
beis.aerlong.poll	0	0	1	1	Browse Active Consumers 	Send To Purge Delete
radwaste.waiting.process	0	0	0	0	Browse Active Consumers 	Send To Purge Delete
radwaste.aerl.mtp.poll	0	0	0	0	Browse Active Consumers 	Send To Purge Delete
beis.failed.messages.queue	0	0	0	0	Browse Active Consumers 	Send To Purge Delete
radwaste.report.retry	0	0	0	0	Browse Active Consumers 	Send To Purge Delete



Editing Publication

"PublishProductionLineMessageFromActiveMQ"



- Home
- Repositories
- Jobs
- Notifications**
- Schedules
- Security
- Services
- Monitoring
- Resources
- Migration

Topics to Publish To:

Select All Deselect All

✕ ProductionLineInputMessages

Protocol:

JMS

Provider Type or Context [?]:

ACTIVEMQ

Provider URL [?]:

tcp://rhe-ciap-tes01.les1.lan:61616

Additional Provider Properties [?]:

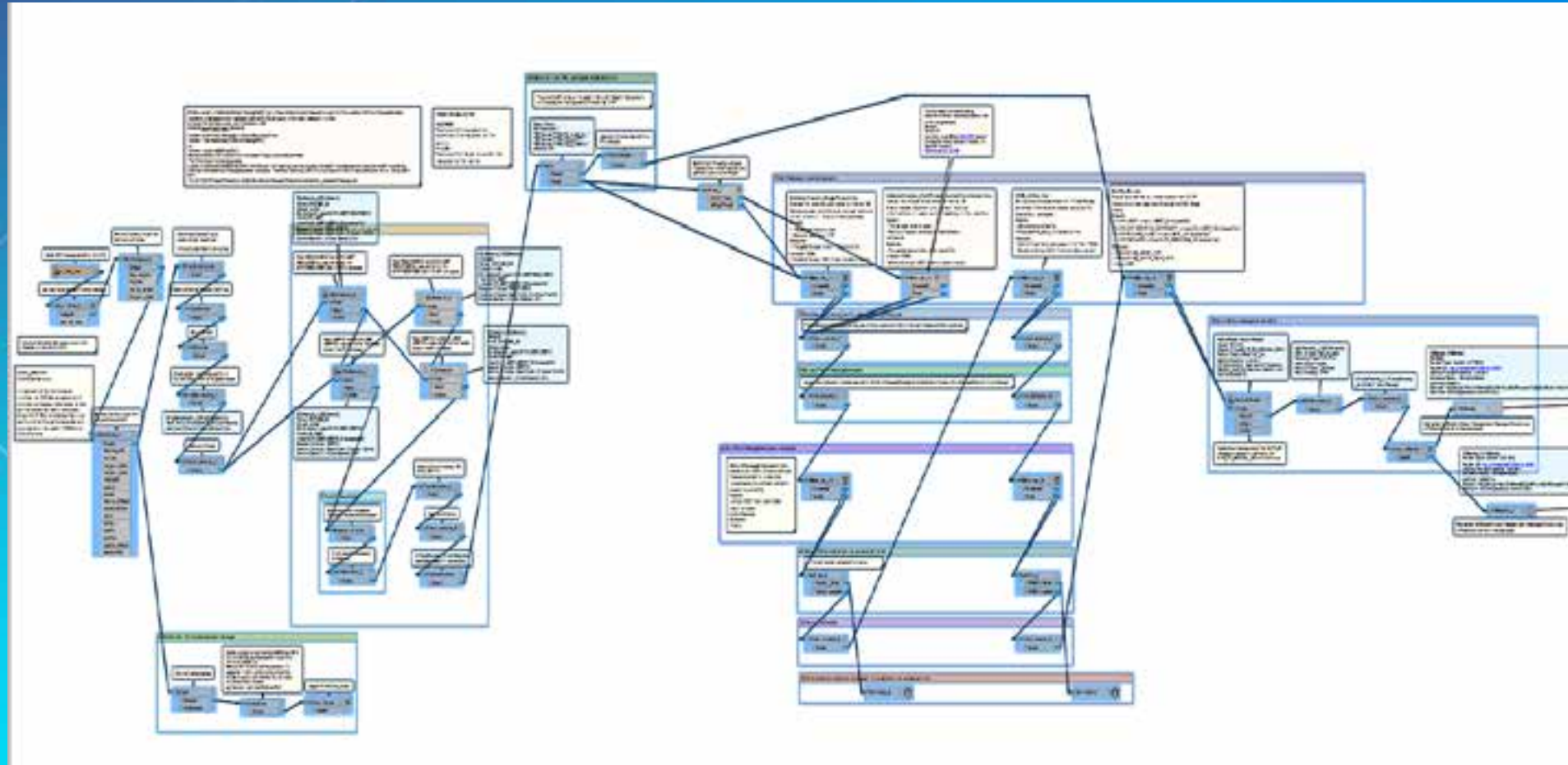
Connection Factory [?]:

ConnectionFactory

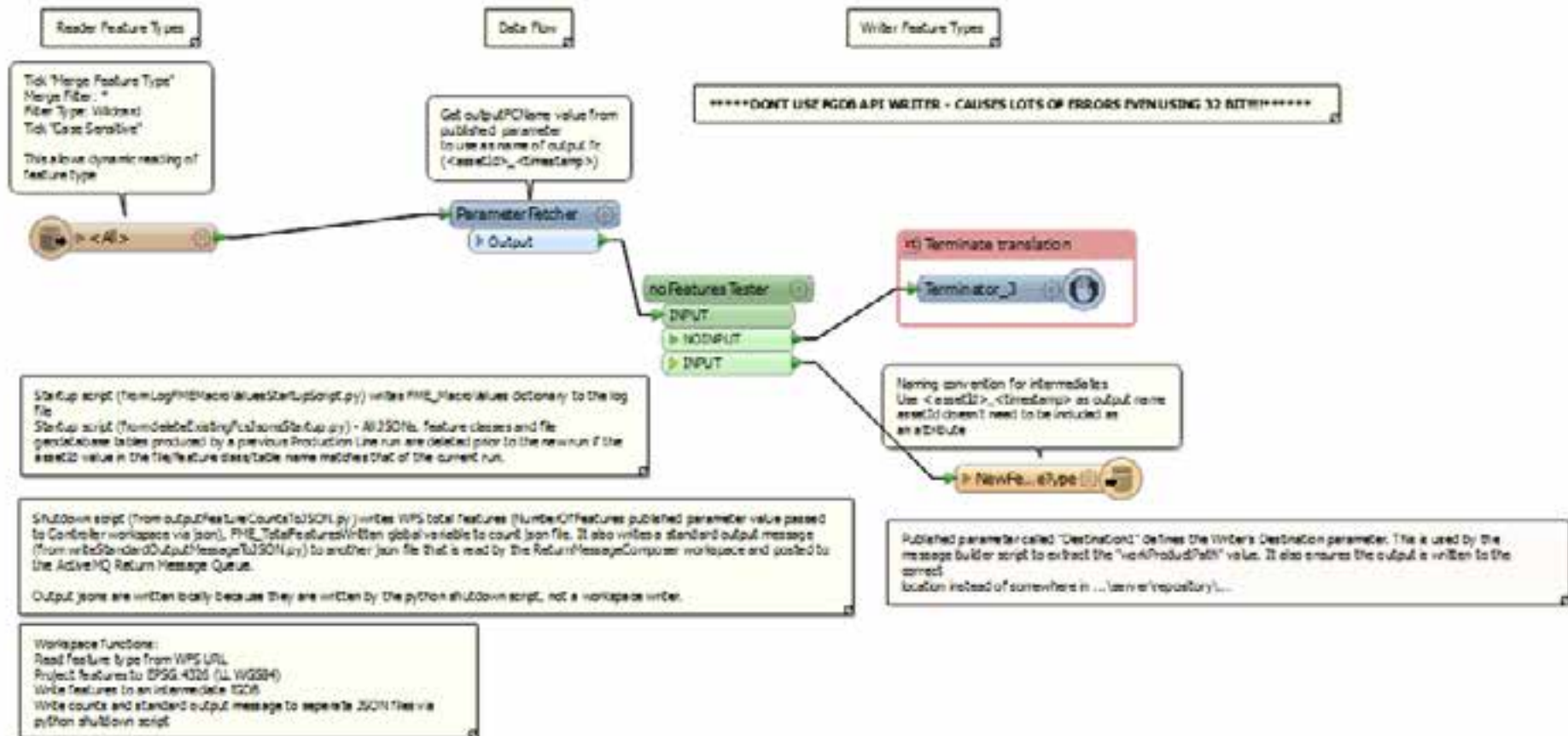
Username [?]:

mcollective

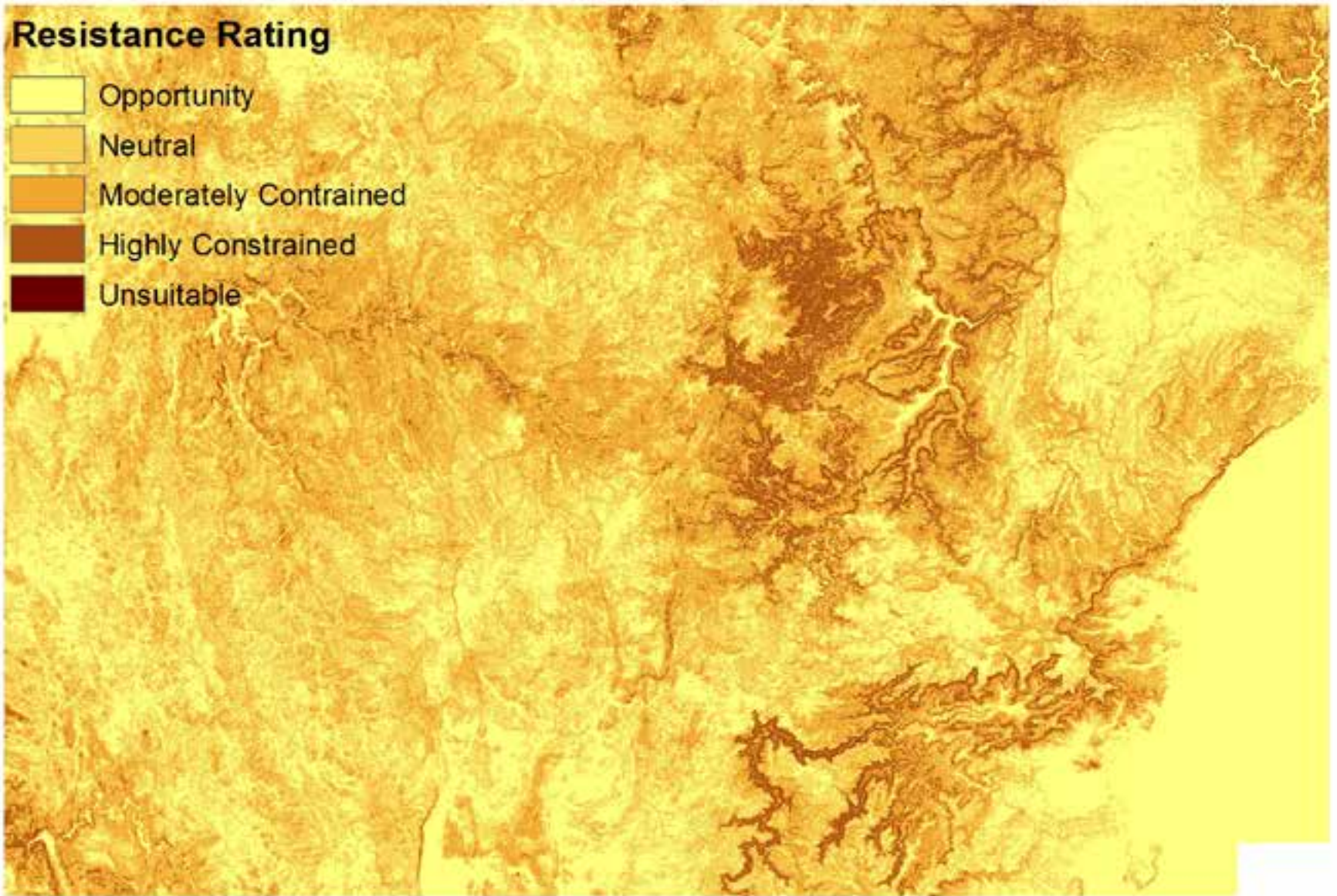
Controller Workspace



Component Workspace



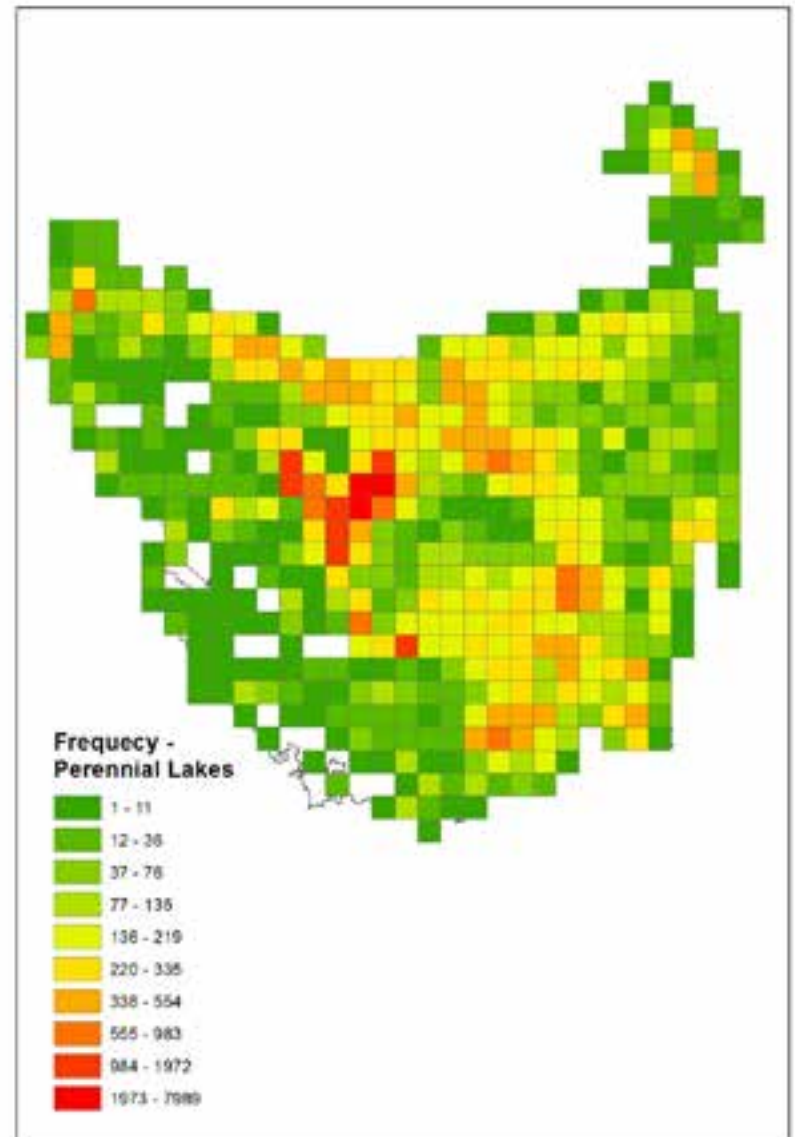
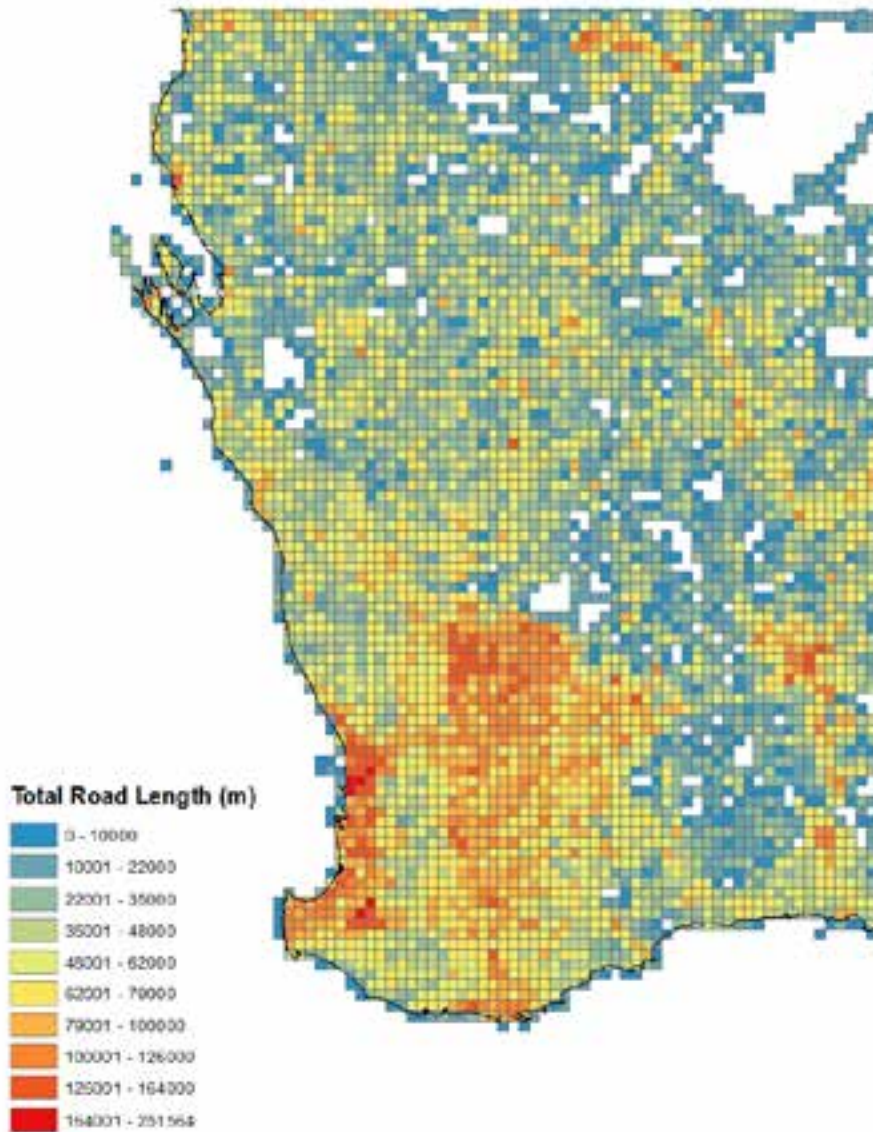
Resistance Rating



Nested Tile Index system



Applications of statistical outputs



Demonstration of Dynamic Statistics in UI

- <http://www.ga.gov.au/explorer-web/>

Geoprocessing Tools

- Elevation tool
- Least Cost Path tool
- Clip Zip and Ship
- Identify tool

Confirm least cost path relative weightings

Opportunity

- Electricity transmission lines
- Pipelines
- Easements
- Railways
- Roads

Highly constrained

- Lakes
- Reservoirs

Variable rating (from Opportunity to Unsuitable)

- Slope percentage
- Reserves

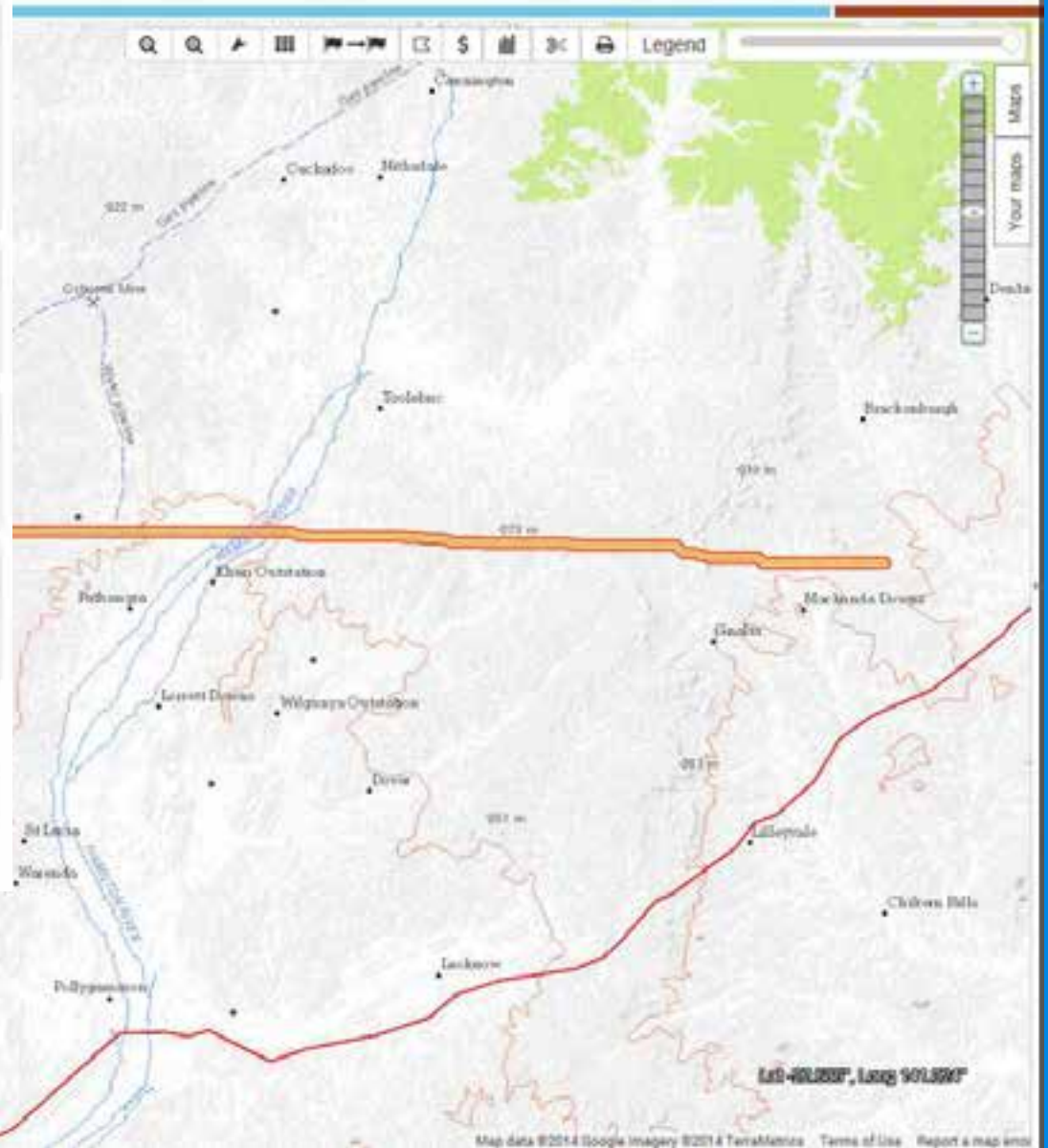
Unsuitable

- Urban Centres and Localities
- Prohibited areas

Path bounding box buffered by: 25%

Cancel Continue

Note: The processing can take a while.
You will be notified when the process is complete.



Tool design and methodologies

- **Integrated surfaces (onshore-offshore), Multiple surface profiles.**
- **PDF generation, KML generation**
- **Preprocessing data for performance**
- **Way pointing, segment ordering**

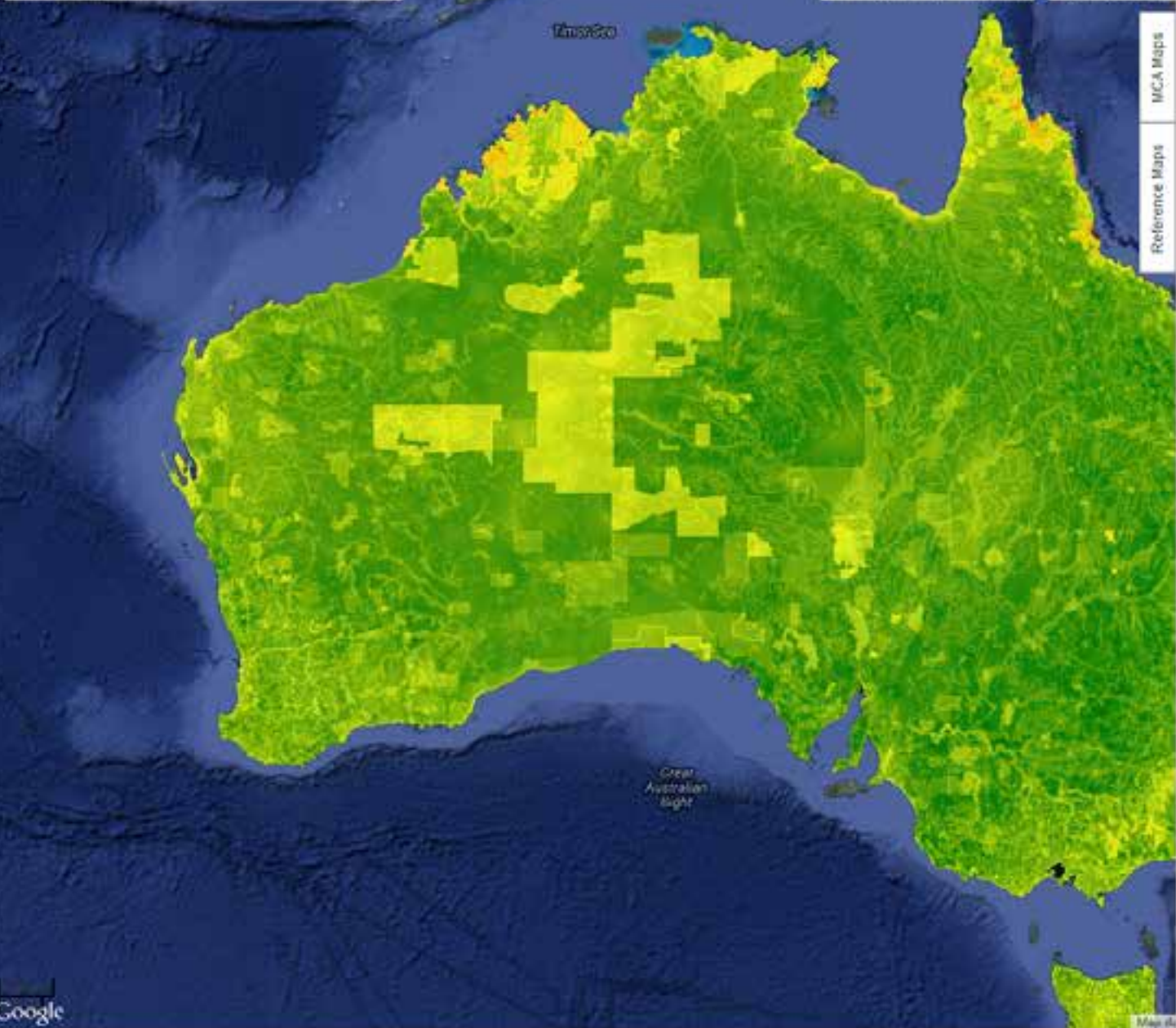
Application Provides:

- **Intuitive GIS for non technical users to provide decision support for specific and general questions that drive government policy.**
- **Exposure of Geoscience Australia data and products.**
- **Proven capability for the delivery of these type of systems and their value to other government agencies.**
- **Geoprocessing services reused by a range of applications delivered (Service Oriented Architecture).**

Enter a locality

Map navigation icons: Home, Print, Location, Layers, Full Screen, Search, Zoom In, Zoom Out, Refresh

Legend



MCA Maps
Reference Maps

- MCA Maps:**
- (EO1) Lucas Heights Reader
 - (EO3, HSS1) Communities with more than 1000 people
 - (HSS5) Utilities
 - (EV1) Communities with more than 10000 people
 - (EV2) Roads
 - (CWB1) Known Reserve or Park
 - (CWB2) Mining operations present
 - (CWB4) Registered Culturally Significant Sites
 - (SE1) Presence of Cyclonic Winds
 - (SE2) Coastal Elevation
 - (SE3) Rainfall

Enter a location

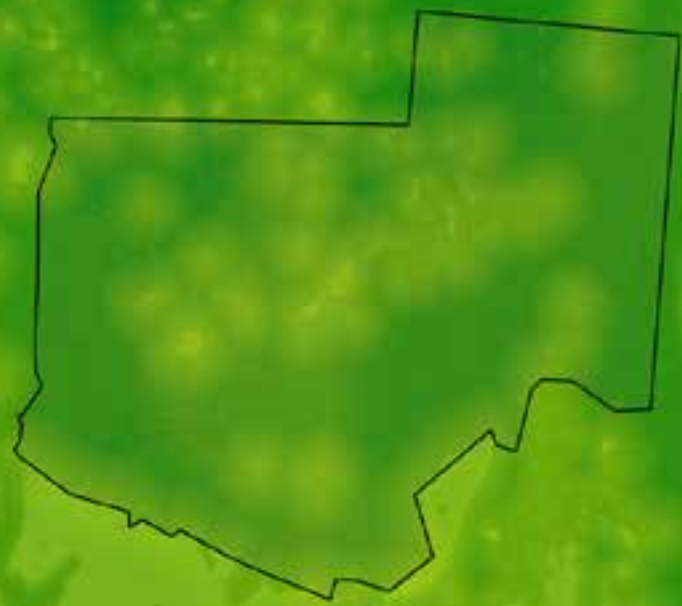
Site Information

Site ID: 20
Details: Notified area is 3,337 square kilometres
Factory - Arcozia Station

Score: 0/100

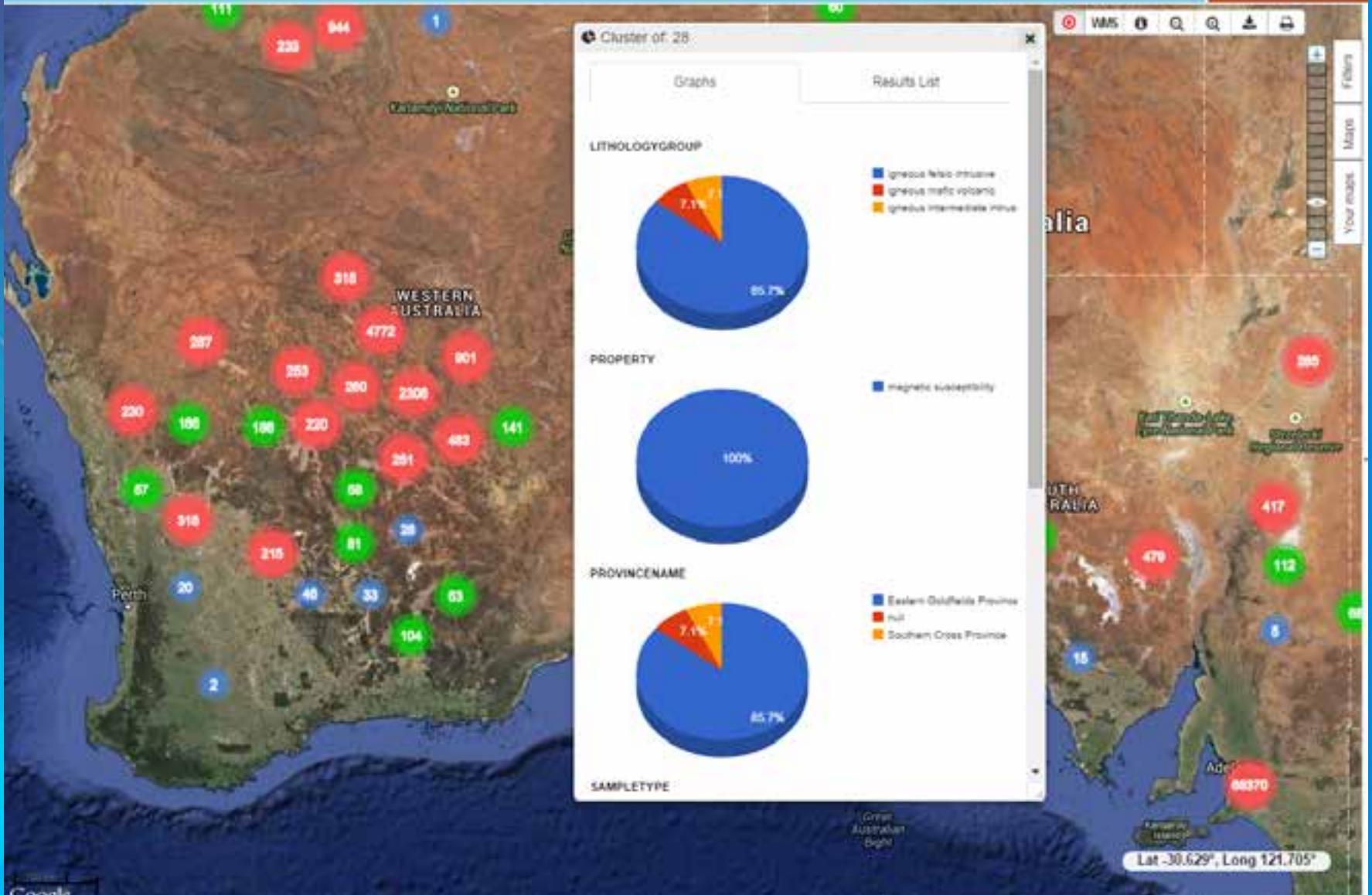
[Add site](#)

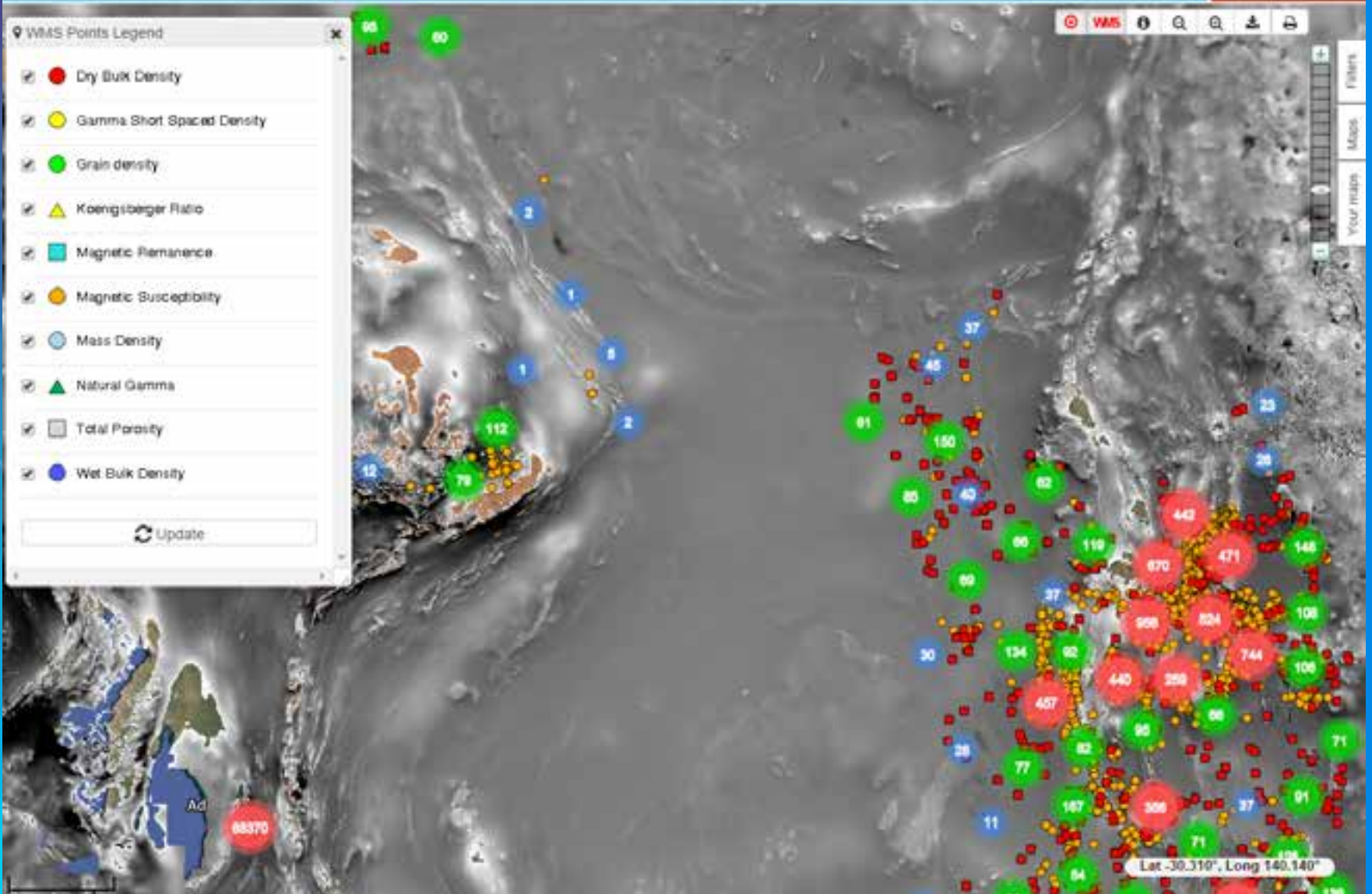
Legend



Lat: 38.658°, Long: 137.436°









WMS Points Legend

- Dry Bulk Density
- Gamma Short Spaced Density
- Grain density
- Koenigsberger Ratio
- Magnetic Remanence
- Magnetic Susceptibility
- Mass Density
- Natural Gamma
- Total Porosity
- Wet Bulk Density

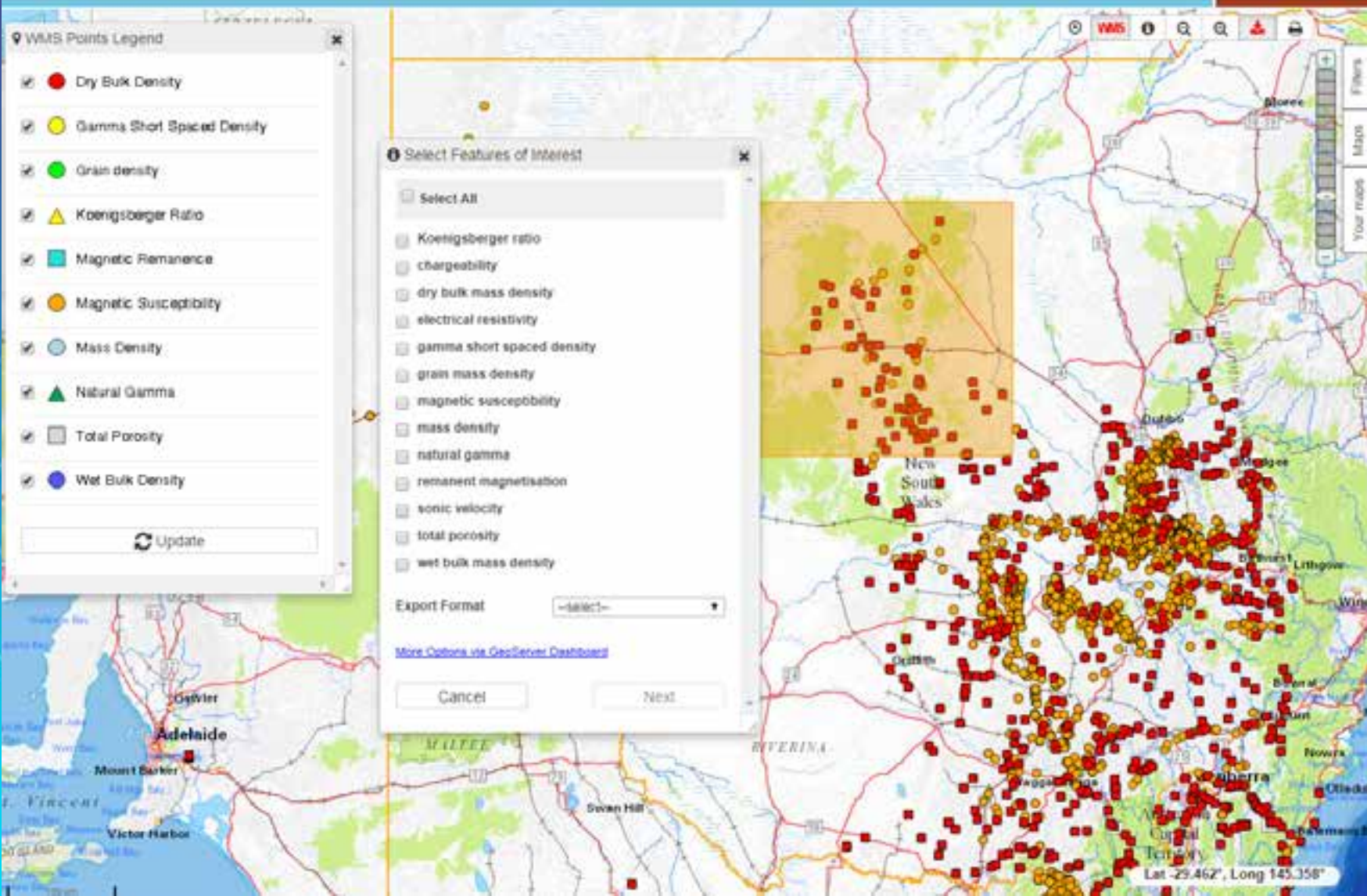
Select Features of Interest

Select All

- Koenigsberger ratio
- chargeability
- dry bulk mass density
- electrical resistivity
- gamma short spaced density
- grain mass density
- magnetic susceptibility
- mass density
- natural gamma
- remanent magnetisation
- sonic velocity
- total porosity
- wet bulk mass density

Export Format:

[More Options via GeoServer Dashboard](#)



Where to from here:

- **Austrade Project– Northern Australia pre-investment information support system (GIS enabled).**
- **Economic Fairways – Greenfields decision support for mining investment.**
- **COSAP – Next version of CIAP project with a wider scope.**
- **Plus more to come.**

Code Snippets

Python toolboxes for Elevation and Least Cost Path
GP tools



DSS_LeastCostPath2.pyt



Transect.pyt



Thank you - Questions

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