PIPELINE

– POTENTIAL ROUTE

– BATHYMETRY (water depth and seabed stability)

– RISKS (including earthquake risks)
Data Sources: Onshore Topography from NASA SRTM

Offshore bathymetry: Yellow = GGS survey, Red = Geoscience Australia compilation (less accurate) Infill bathymetry from Satellite gravity and digitised general hydrographic contours (least accurate)
Sunrise Field is adjacent to the DEEPEST segment of the Timor Trough – 3300-3350 metres deep

The Trough MAY be shallower to the East, but there is limited data and territorial issues
Australian Shelf
Sea Floor is generally smooth, topography steepens as Australian plate bends down under weight of Timor Thrusts. Some normal faulting as rocks are in tension.

Timor Leste
Sea floor is rugged and has many small thrusts and folds as rocks are compressed.

A real seismic profile with topography at ~ 200m resolution.

Length scale Arbitrary
Image contains some local data and gridding artefacts
Pipeline Route will cross near deepest part of Trough and over steep slopes.
Sunrise Field is adjacent to major faults and topography at seabed, so pipeline routing WILL be affected.
Bathymetric profiles across and along Trough
Real topography will be MORE RUGGED than this profile which is derived from a smoothed grid – especially on the Timor Leste side of the Trough.
Example Seismic Profile
Landfall Area – How Steep?

Note steep slopes offshore from Beaco Coast

Gradient *averages* 160 m/km (9 degrees)

Major segments reach 40 degrees

Length scale Arbitrary
Note seabed faults near Sunrise field

Gradient *averages* 330 m/km (18 degrees) on fault-generated slopes

Shelf-Edge is partly a constructional feature

Sunrise Field

Seabed Faults

Buried Fault

Trough Axis

Length scale Arbitrary
TROUGH AXIS – How Deep?

Length scale Arbitrary

Likely Crossing Zone

Depth ~3075 m
Seismic gaps may either be future major fractures, or could be geologically quiet. A major seismic quiet zone accommodates our pipeline route.
Recommended next steps – 1) Confirm end points of pipeline route (± 5 km)

- Define landfall zone and range of options for compressor platform location
Recommended next steps – 2) acquire ~ 1km spaced bathymetry profiles in 20 km wide belt
Recommended next steps – 3) Use 1km profiles to define area for detailed swath bathymetry
• Bathymetry database needs further work

• The final map will change in detail but a DEEP crossing is inevitable (likely ~3075 m)

• Beware of artefacts in the database and grid – some features are NOT real

• There are many recent (possibly active) faults at seabed. These are very high risk zones and should be avoided if possible
Next steps:

• Incorporate additional seismic and other bathymetry
• Update Earthquake and seabed risk maps
• Refine locations of pipeline end-points
• Acquire ~1 km-spaced bathymetry profiles
• Interpret and map new data and define broad pipeline corridor
• Acquire swath bathymetry over corridor (needs specialised vessel)
• Geotechnical interpretation of pipeline route