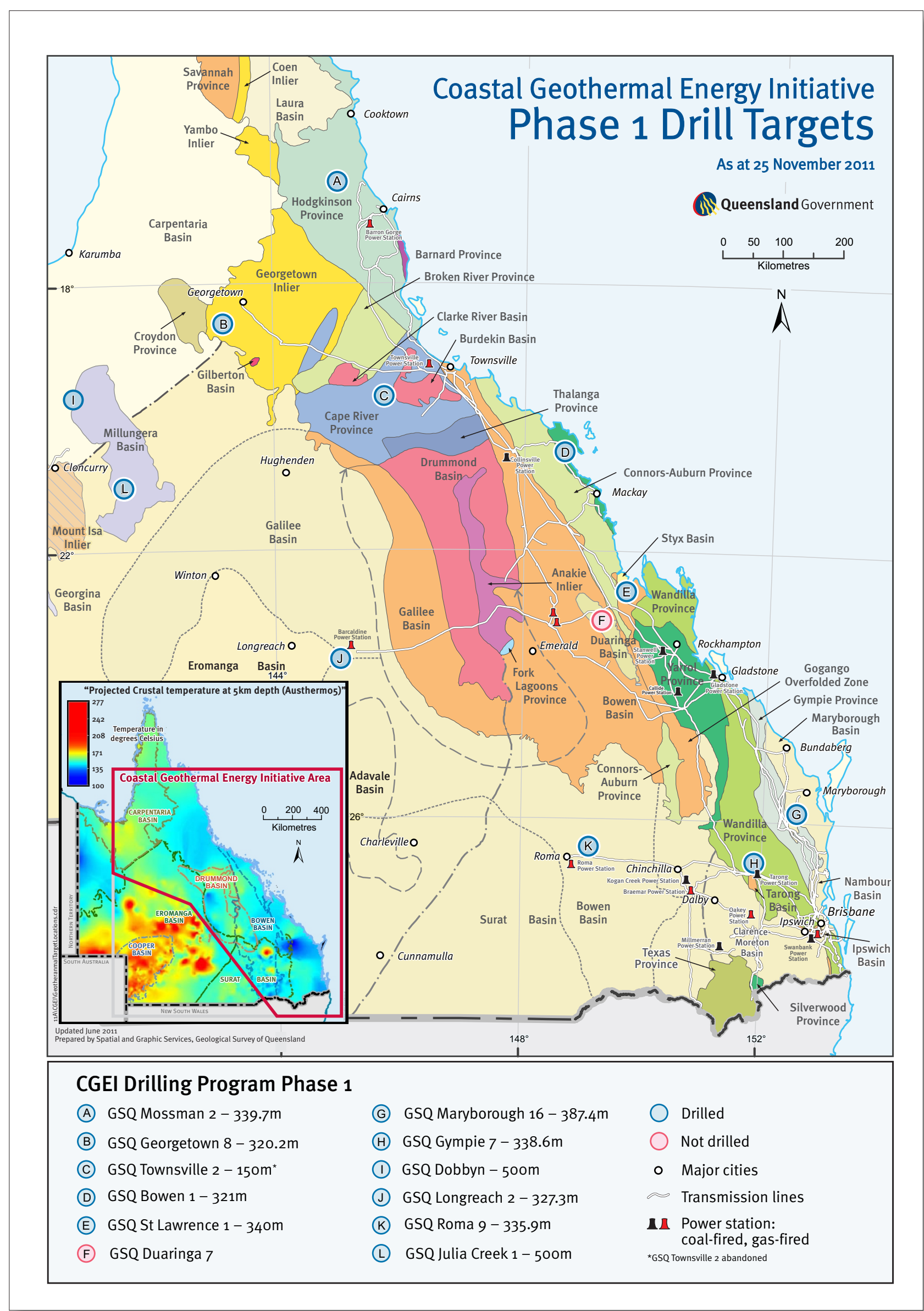


# Coastal Geothermal Energy Initiative

## Project outline

- To investigate potential areas for high heat flow along the Queensland east coast through a structured drilling program
- Drilling of the 10–12 highest priority targets forms “Phase 1” of the program and includes:
  - HQ cored boreholes 320-500m
  - Temperature and geophysical down-hole logging
  - Well log interpretation and core logging
  - Collection of core samples for thermal conductivity analysis
- The \$5 million Coastal Geothermal Energy Initiative (CGEI) is a cooperative undertaking between the Office of Clean Energy and the Geological Survey of Queensland.

## Project map



## Status

Drilling commenced in mid November 2010, with the following sites now completed:

GSQ Maryborough 16, GSQ Gympie 7, GSQ Roma 9, GSQ Longreach 2, GSQ St Lawrence 1, GSQ Julia Creek 1, GSQ Dobbryn 2, GSQ Mossman 2, GSQ Georgetown 8 and GSQ Townsville 2\* and GSQ Bowen 1.

GSQ Duaringa 7 will not be drilled, due to difficult drilling and sample extraction predicted.

\* GSQ Townsville 2 was abandoned due to a lack of the consolidated formation expected at 150m.

## Preliminary results: heat flow modelling

### Millungera Basin (North) GSQ Dobbryn 2

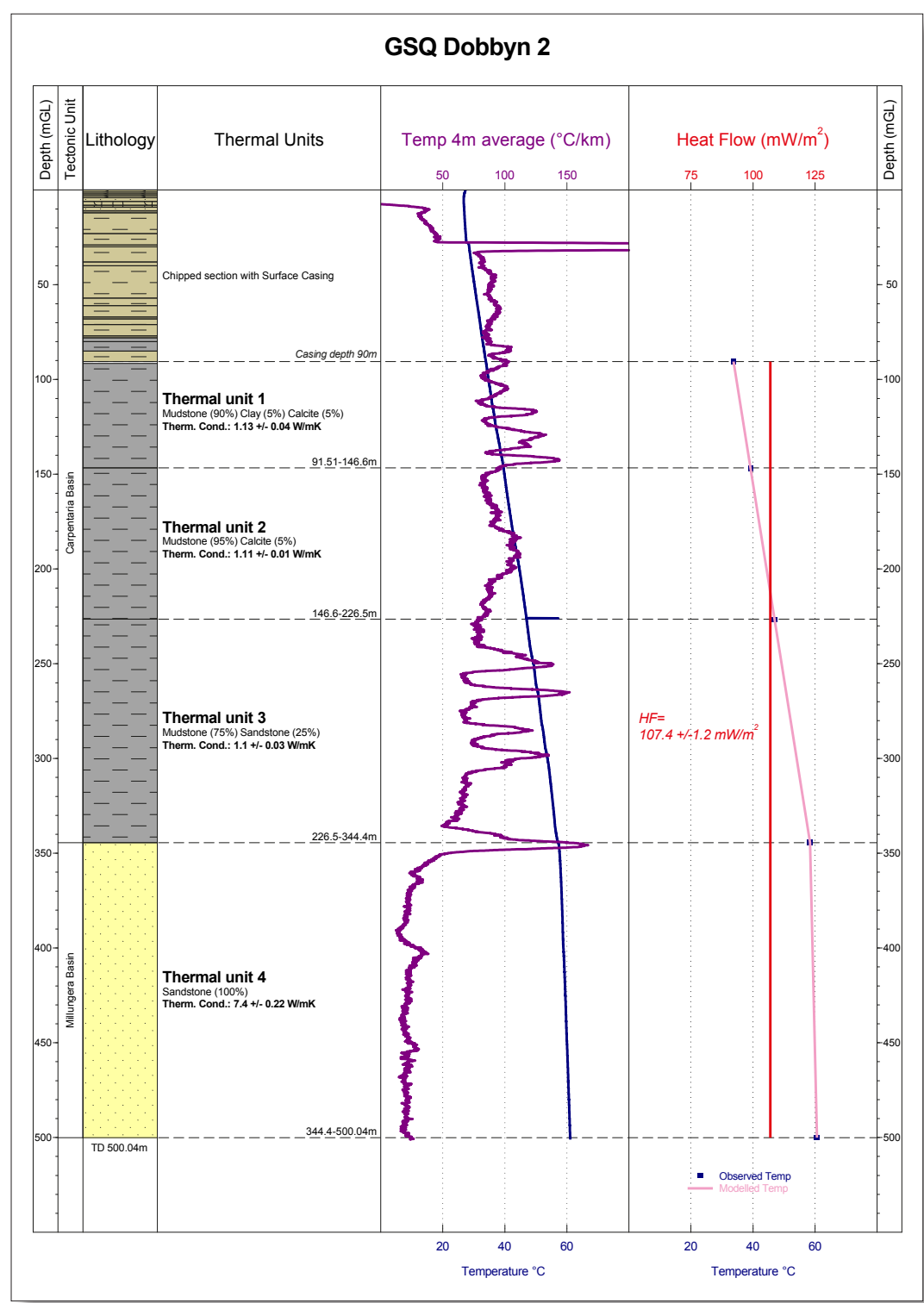
After 7 weeks thermal stabilisation

- BHT: 61.1°C@ 500.0m
- 4 thermal units

Heat flow modelling interval  
90.5–500.0m

$q = k \frac{dT}{dz}$  Where  $k$  = rock thermal conductivity (W/mK);  $dT/dz$  = vertical temperature gradient (degrees Kelvin per metre, K/m).

**Heat flow = 107.4 +/- 1.2 mW/m²**



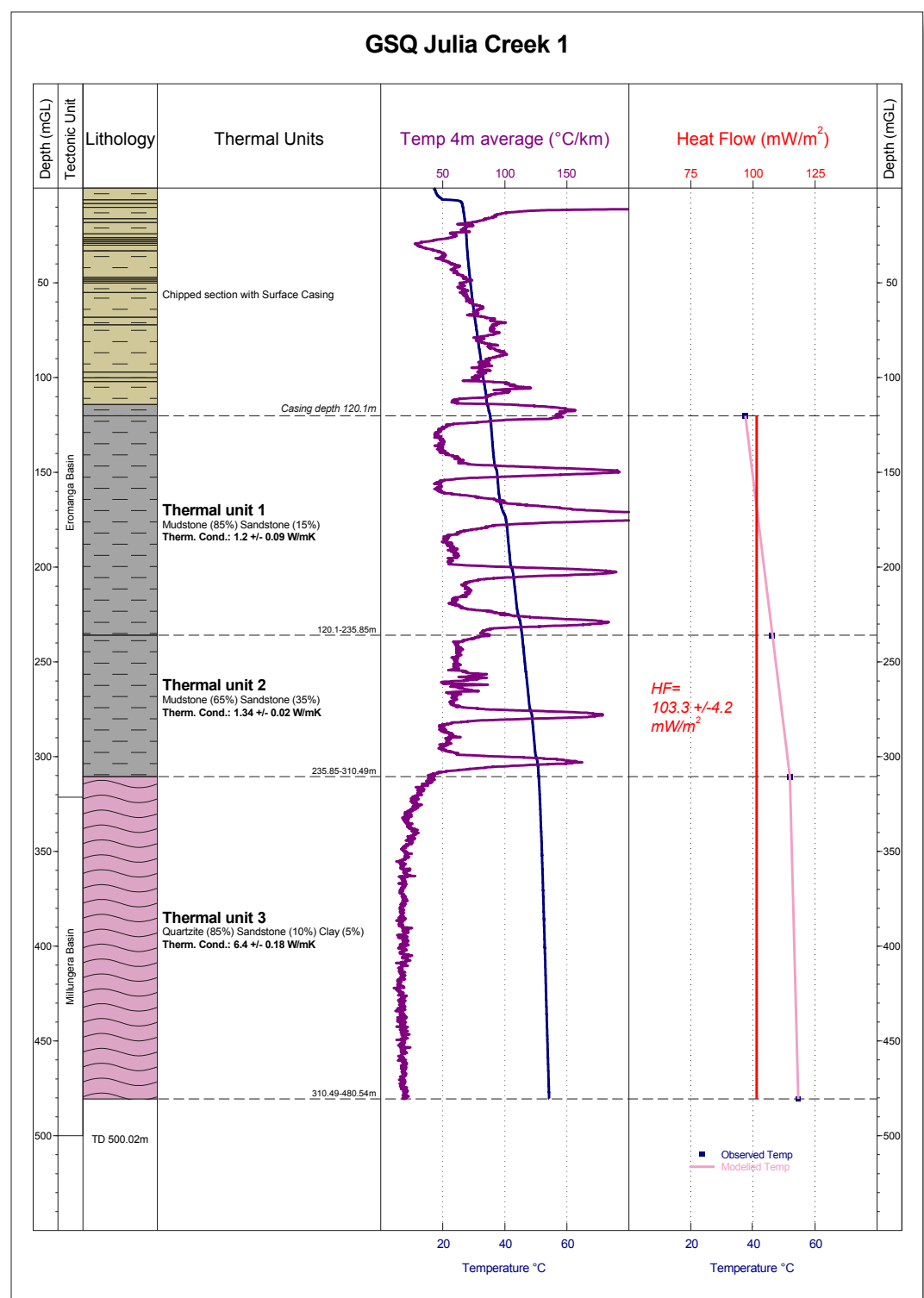
### Millungera Basin (South) GSQ Julia Creek 1

After 4 months thermal stabilisation

- BHT: 54.3°C@ 480.5m
- 3 thermal units

Heat flow modelling interval  
120.1–480.5m

**Heat flow = 103.3 +/- 4.2 mW/m²**



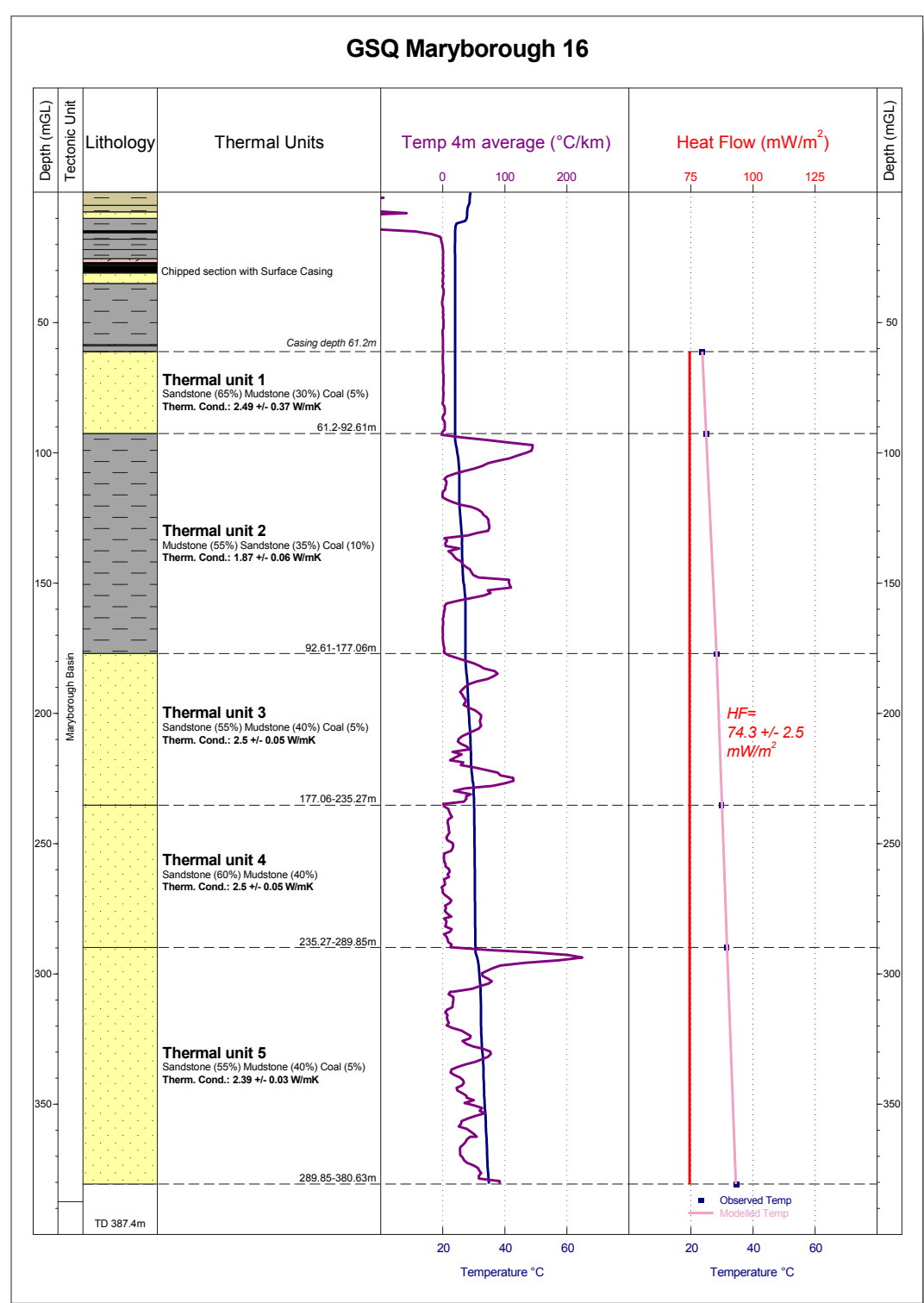
### Maryborough Basin GSQ Maryborough 16

After 4 months thermal stabilisation

- BHT: 34.9°C @ 380.6m
- 5 thermal units

Heat flow modelling interval  
61.2–380.5m

**Heat flow = 74.3 +/- 2.5 mW/m²**



## Reassessing Queensland’s geothermal energy prospects

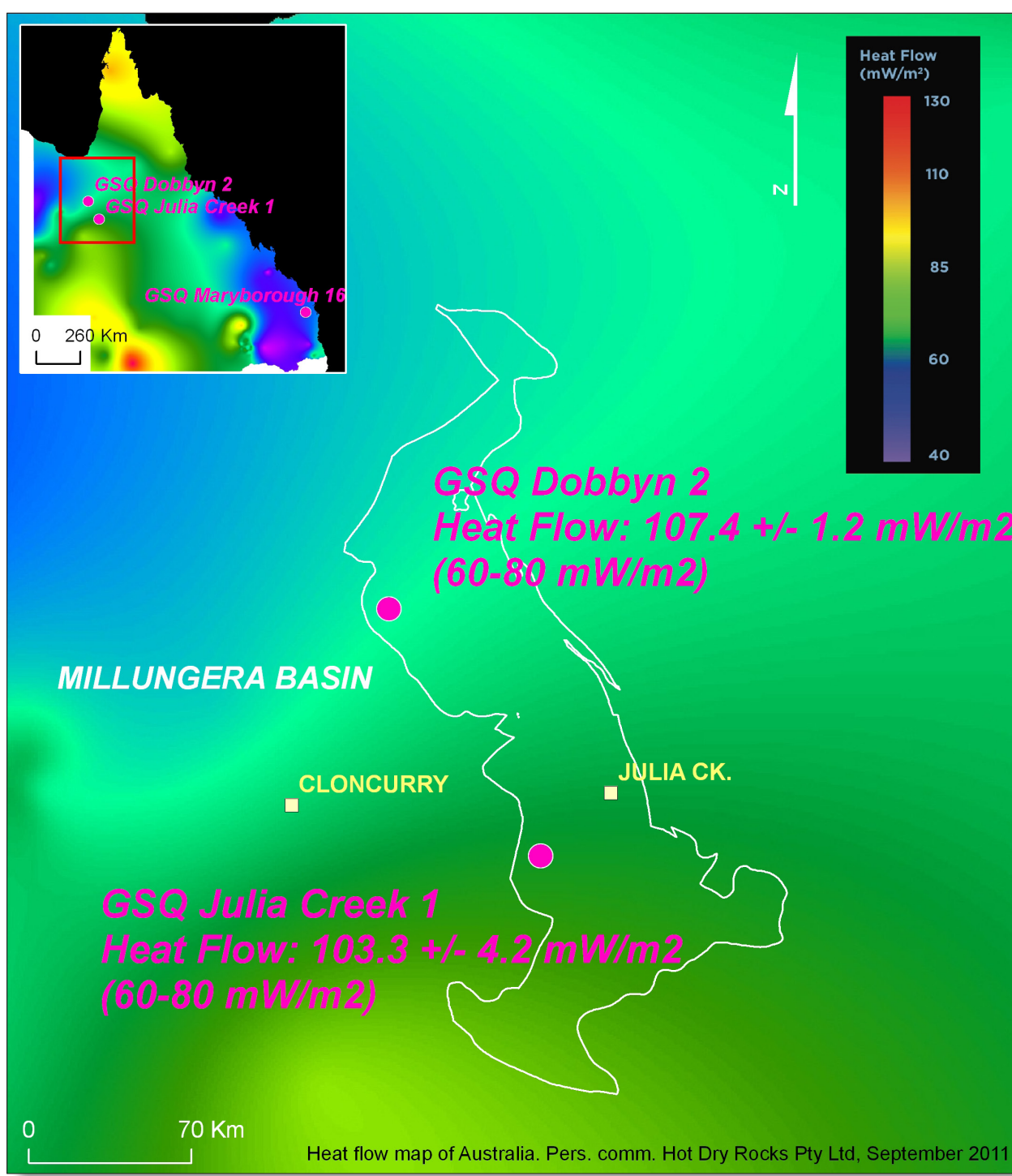
### Millungera Basin

Old heat flow:  
60-80 mW/m²

**New heat flow:**  
107.4 mW/m² (north)  
103.3 mW/m² (south)

- Area contains hot artesian aquifers and inferred granites at depth
- Up to 4km insulating cover from the Eromanga Basin and Carpentaria Basin overlying the Millungera Basin

- Close to Mount Isa mining centres and infrastructure

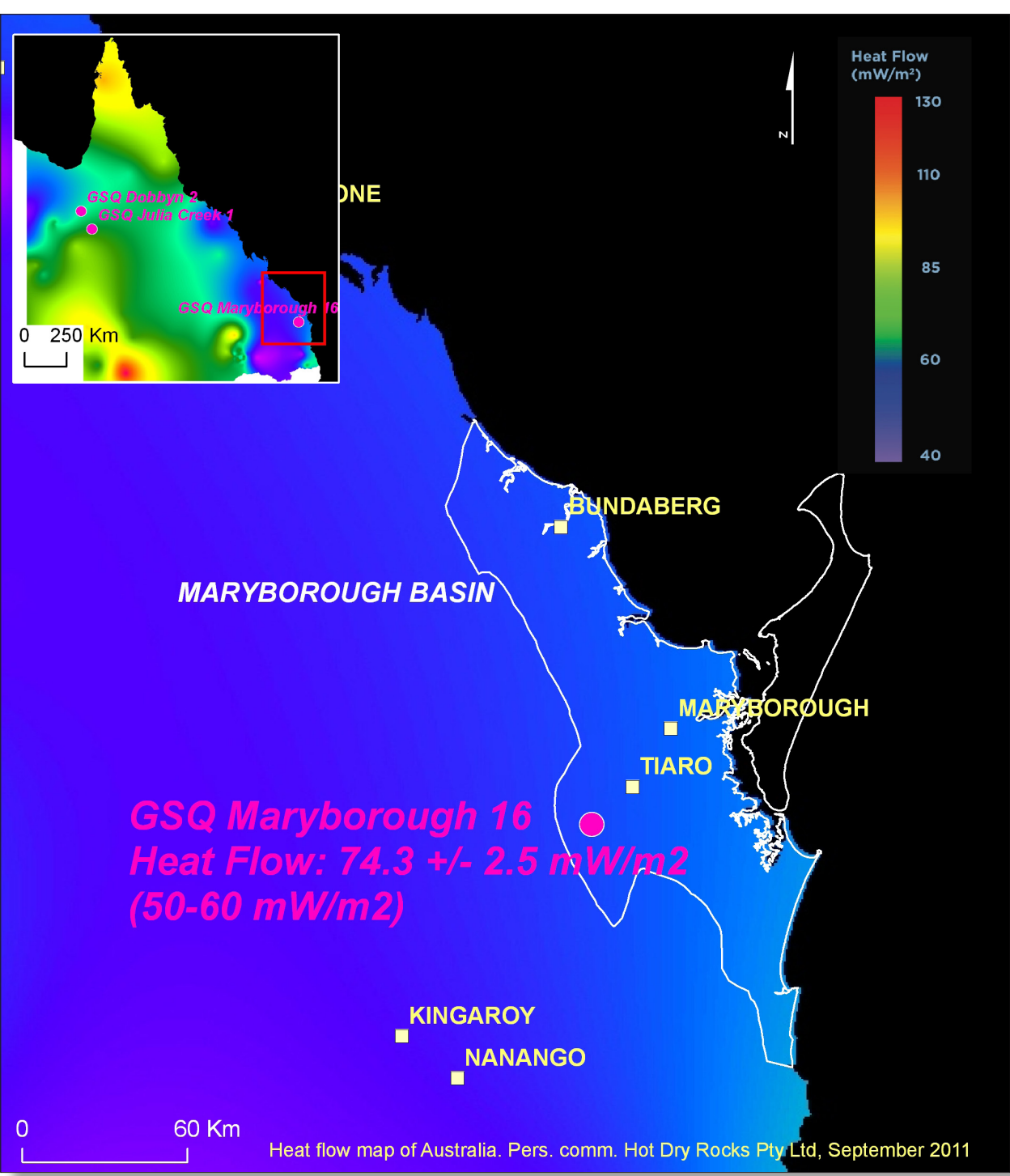


### Maryborough Basin

Old heat flow:  
50-60 mW/m²

**New heat flow:**  
74.3 mW/m²

- Basin contains thick coal measures providing excellent insulation over granite intruded basement
- Within 100km of Brisbane and Sunshine Coast population centres



## Future Work

- Further monitoring of down hole temperature
- Heat flow modelling and temperature projections to 5km depth

## Deliverables

- Well completion reports for each site
- Report on the geothermal potential across Queensland