BOARD OF INQUIRY
TE MIHI GEOTHERMAL POWER STATION PROPOSAL

In the Matter	of the Resource Management Act 1991
And	
In the matter	of resource consent applications by Contact Energy Limited in respect of the Te Mihi Geothermal Power Station Proposal

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REBUTTAL EVIDENCE OF BERND PUMMER

Counsel Instructed:
Trevor Robinson
Wellington

Tel 64-4-472 1755 Fax 64-4-472 1766 PO Box 8018 Wellington
trobinson@xtra.co.nz

Solicitor Acting:
H Rosemary Dixon
Contact Energy Limited

Telephone 64-4-462 1284 PO Box 10742, Wellington
Rosemary.dixon@contact-energy.co.nz

Introduction

1. My name is Bernd Pummer. I work for Contact Energy Limited ("Contact") as Project Manager - Generation Development - Geothermal.

2. I prepared Evidence in Chief on behalf of Contact Energy Limited outlining the development of the proposed Te Mihi Geothermal Power Station ("Power Station") and the associated proposed Te Mihi Switchyard and Transmission Line.

The staging of the project

3. My Evidence in Chief contains some discussion on how the Power Station is likely to be developed (paragraphs 47-50 and Exhibit BP11). As mentioned in my Evidence in Chief, it is likely that the development of the Power Station will occur in 2 stages. The "*Report On Consent Applications Under s42A Resource Management Act 1991 – Version 1. Te Mihi Geothermal Power Station*" dated 17 June 2008 (the Section 42A Report), sought further clarification of how the staging would occur (section 3, page 3).

4. The first stage covers the installation and commissioning of the first two turbine units along with all associated plant (including condensers, cooling towers, transformers, switchyard and transmission equipment). It is anticipated that it will take approximately 26 months from commencement of site works to the commissioning of the first unit. The second unit will take a further two to three months to be commissioned.

5. Once this has occurred (planned for 2011), construction work will halt. This will result in two turbine units (82 MW gross) operating at Te Mihi along with four turbine units (1 x ILP 4.5MW; A Station 1 x LP 11.2MW; and Station B 2 x MP 33MW units) operating at Wairakei Power Station. It is considered that this will provide the most efficient utilisation of the geothermal fluid from the Western Borefield and the existing plant at the Wairakei Power station.

6. The present planning is for the third (and final) turbine unit to be installed and commissioned at Te Mihi around 2016 (Stage 2). Based on current delivery times for turbines, it is anticipated that the third unit will need to be ordered about 29 months prior to commissioning. Accordingly, Stage 2 is likely to commence in mid 2013. Although much of the infrastructure (such as roading, switchyard and the turbine and cooling tower foundations) will be installed during Stage 1, the structural work and pedestal for the third turbine unit will likely be constructed during Stage 2, along with associated plant, such as condenser units, cooling towers, LP flash vessels, etc.

7. Once the third turbine unit is installed and commissioned, Te Mihi would then contain 3, 82 MW (gross), turbine units. The only anticipated generation at the Wairakei Power Station would then be a single 11.2 MW A Station LP turbine unit. The Wairakei Binary Plant as well as the Poihipi Power Station will continue to operate.

Transmission tower heights

8. In my Evidence in Chief I stated that maximum transmission tower heights will be 45 m. The Section 42A Report requested clarification of tower heights (section 4.1, page 6). As mentioned in my Evidence in Chief, detailed design including associated detailed site surveys has not yet been completed. Until such design occurs I emphasise that the tower heights set out in **Table 1** below are indicative only and subject to change (up or down). What will not change is a maximum height for any transmission tower as set out in **Table 1** below. I note that there was an inconsistency between the tower numbers in my Evidence in Chief and my Exhibit BP3. This inadvertently occurred due to **Exhibit BP3** being updated to reflect the new switchyard arrangement.

Table 1 – Transmission tower indicative and maximum heights

Tower number in my Evidence in Chief (paragraphs 103-107)	**Tower number in Exhibit BP3**	**Indicative tower height (in metres) (subject to final design)**	**Maximum tower height (in metres)**
201A	201B	33	38
202A	202D	40.6	45
202B	202E	43	45
202C	202F	33	38
	203B	27	32
	203A	20	25
203A	203	20.9	25.9
204A	204	20.9	25.9

Construction Laydown Area

9. The 42A report stated that the "*applicant may wish to consider if, and the degree to which this issue (noise within the area affecting horses) can be addressed in the location and management in the construction laydown area*" (section 11.8, page 19).

10. The first issue to note is that the components for the Power Station are expensive. Neither Contact, nor any contractors, want extra cost and delay caused by, for example, "*large object[s] falling off a forklift truck*" (Section 42A Report, page 19). Equally, such matters are likely to raise health and safety issues and are obviously to be avoided.

11. It is proposed (in addition to any health and safety requirements) to address potential excessive instantaneous noises by:

(a) providing a 100m buffer area from the Price's boundary and also that of the Ellery's, to any laydown area;

(b) bringing the access road in off the boundary from where it is presently located and sealing it; and

(c) establishing specific management regimes for the use of the laydown areas specific to their use (storage, workshops, temporary offices, car parking etc).

12. As mentioned in the conditions attached to the Evidence in Chief of Mr Daysh, it is proposed that three conditions be imposed on the Land Use consent to address this issue. First, condition 13 provides for the proposed 100m buffer area. Secondly, all activities in the lay-down areas will be managed "*so as to avoid unnecessary disruption to the neighbouring properties to the north of the consent area*" (proposed condition 14). Finally, a Construction Management Plan must be prepared and provided to the Taupo District Council for review and certification (condition 17).

Size of concrete mixers

13. In his Evidence on behalf of Transit New Zealand, Mr Swears comments (at paragraph 42) that $5m^3$ concrete mixers are most common in New Zealand. He therefore concludes that the traffic evidence of Mr Harries (on behalf of Contact) appears to have "*underestimated the total number of concrete loads … unless the Applicant proposes to identify and employ a non-standard fleet of concrete truck mixers*."

14. I understand that Mr Swears is correct that $5m^3$ concrete trucks are presently the most common in New Zealand. However, I also understand that the trend is for larger volume trucks. From investigations on behalf of Contact, I can confirm that at least one provider can obtain 17, $6.4m^3$ volume, trucks from within the local area (Hamilton, Tauranga, Rotorua and Taupo). There are additional trucks in other centres within the North Island that could be used as required (or replace those taken from the local catchment). I am informed that these trucks, supplemented with larger (up to 9.6m3 which are presently being ordered) trucks if desired, can be provided as required.

Bernd Pummer