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**NORTHERN SYDNEY
CENTRAL COAST
NSW HEALTH**

Ms Dinka McKenzie
Senior Planner – Water & Energy
Infrastructure Projects
Department of Planning
GPO Box 39
SYDNEY NSW 2001

Re: North Sydney Zone Substation Redevelopment (MP 10_0092) – Environmental Assessment Exhibition

Dear Ms Dinka,

Thank you for the opportunity to comment on the Environmental Assessment (EA) for the proposed substation to be built at 3-11 Ward St, North Sydney. I would like to comment on two components of the EA prepared for the project; Electromagnetic fields (EMF) generated by the facility and noise impacts.

EMF – health effects

The health effects of EMF has been extensively studied in recent years and current scientific opinion is well summarized in the Environmental Health Criteria (EHC) document no. 238 Extremely Low Frequency fields (ELF) published by the World Health Organization in 2007. The health effects can be classified as acute or chronic;

a) Acute effects

The above document states that "Acute biological effects have been established for exposure to ELF electric and magnetic fields in the frequency range up to 100 kHz that may have adverse consequences on health. Therefore, exposure limits are needed." ARPANSA issued a Draft Standard on "Exposure Limits for Electric and Magnetic Fields (0Hz to 3kHz)" for public comment. This Draft Standard proposes a 24-hour magnetic field exposure limit for the general public of 1000 mG and is designed to protect against established biological effects.

b) Chronic effects

The international Agency for Research on Cancer classifies ELF magnetic fields as a possible human carcinogen (Group 2B). The following is a key extract from the EHC document;

Page 11 of the WHO EHC document states; "There is scientific evidence suggesting that everyday, chronic low-intensity (above 0.3–0.4 μ T) power-frequency magnetic field exposure poses a health risk and this is based on epidemiological studies demonstrating a consistent pattern of increased risk for childhood leukaemia. Uncertainties in the hazard assessment include the role that control selection bias and exposure misclassification might have on the observed relationship between magnetic fields and childhood leukaemia. In addition, virtually all of the laboratory evidence and the mechanistic evidence fail to support a relationship between low-level ELF magnetic fields and changes in biological function or disease status. Thus, on balance, the evidence is not strong enough to be considered causal, but sufficiently strong to remain a concern. "

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As the evidence for a causal relationship is limited, the WHO therefore does not recommend exposure limits based upon epidemiological evidence but does consider some precautionary measures are warranted.

EMF – exposures at North Sydney substation

The report entitled North Sydney 132kV Zone Substation, EMF Assessment Energy2UAlliance prepared by Aurecon Australia Pty Ltd dated 19 August 2010 provides a detailed assessment of EMFs exposures likely to occur as a result of the project. Due to the varying land uses around the site the most sensitive human receptors would be located in the proposed mixed commercial/resident building at 136-140 Walker Street on the eastern boundary of the site. Although EMF exposures are likely to be higher at other boundaries sensitive human receptors are unlikely to be exposed to significant EMFs for prolonged periods of time given the current land uses. As such comments will now be confined to the EMF exposures on the eastern boundary.

Figure 3.5 on p16 describes the current magnetic field levels along the eastern boundary with levels generally reported at about 0.3 mG. Figure 3.17 on p29 depicts the proposed substation facility in relation to the proposed commercial/residential development. It can be seen that some proposed residences will be located adjacent to the boundary of the proposed substation facility with those located on level 5 likely to have the greatest exposure to EMF from the proposed substation.

Figure 3.21 predicts that EMF levels for some residences on level 5 will be in the order of 6 to 9 mG and although these levels decrease with distance from the external wall they will still be approximately half of these levels at a distance of 10 metres from the outside wall. These levels are substantial higher than the existing levels of approximately 0.3 mG measured at the boundary.

In summary, the EA predicts that sensitive residential receptors will be exposed to a substantial increase in EMF exposure above currently existing levels if the substation facility is constructed as currently designed. It is recommended that the design of the project should be altered with the objective of reducing this predicted increase over background levels.

Noise

Noise exposure has been linked with significant non auditory health effects¹. As the proposed facility has the potential to generate significant noise for a prolonged period, particularly in the operational phase it is important that project specific noise levels are set and implemented strictly in accordance with relevant Department of Environment, Climate Change & Water noise policy.

Should you require any further information please contact Mr Ronnie Naicker, Environmental Health Manager, Hornsby Office on (02) 9477 9188.

Yours sincerely,

 17/10/10.
Dr Michael Staff
Public Health Physician

cc Environmental Health Branch, NSW Health.

¹ EnHealth: The health effects of environmental noise – other than hearing loss. Commonwealth of Australia 2004.