Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

PUBLIC AFFAIRS

March 10, 2011

In reply refer to: DK-7

Michael Lightstone
Valcoustics Canada Ltd.
300 Wertheim Court, Unit 25
Richmond Hill, Ont L4B 1B9 Canada

RE: BPA-2011-00747-F

Dear Mr. Lightstone:

Thank you for your request for information that you made to the Bonneville Power Administration (BPA) under the Freedom of Information Act (FOIA), 5 U.S.C. 552.

You have requested:
The U.S. DOE Bonneville Power Administration 2006 Audible Noise Policy No. T2006-1.

Response:
BPA has provided a copy of the 2005 policy which is the most up to date version.

I appreciate the opportunity to assist you. Please contact Cheri L. Benson, FOIA/Privacy Act Specialist at (503) 230-7305 with any questions about this letter.

Sincerely,

/s/Christina J. Munro
Christina J. Munro
Freedom of Information Act/Privacy Act Officer

Enclosure: Responsive Document

U.S. DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION

TBL POLICY

POLICY TITLE: ***Audible Noise Policy*** ISSUE DATE: October, 2005

1. POLICY

POLICY NUMBER	NEXT REVIEW DATE	ORIGINATOR - ROUTING
T2006-1	October, 2010	Audible Noise Policy Team Contact: (Christine Goldsworthy x-8736)

2. PURPOSE

Why TBL Needs the Policy

Bonneville Power Administration's Transmission Business Line (TBL) established this policy to ensure compliance with Section 4(b) of the Noise Control Act of 1972 by requiring that its transmission system operates within any applicable federal, state, and local requirements respecting noise control and abatement of noise, except to the extent such applicable federal, state, and local requirements are more restrictive than the normally expected noise levels (1) for a particular type of transmission system equipment or (2) for particular weather or terrain conditions and (3) when noise restrictions may adversely affect system operations, safety, reliability, or ability to perform maintenance on transmission facilities

This policy updates and supersedes TBL's Audible Noise Policy established in the May 26, 1982 Memorandum "Sound Level Limits for TBL Facilities".

3. DETAILED POLICY

A Complete Policy Statement That Fully Explains the Policy

Audible Noise

Audible Noise (AN), as defined herein, represents sound generated by a transmission line, transformer, airport, vehicular traffic, or similar type of environmental noise. In the context of this policy AN, which is fundamentally measured as sound-pressure level, is given in dB(A). The "A" represents a particular scale that "weights" the various frequency components of a noise in approximately the same way that the human ear responds. The A-weighted scale is generally used to describe levels of environmental sounds such as those from vehicles or occupational sources or as in this case, transmission line and substation noise.

I. Noise Design Levels

Development of TBL's policy included a detailed review of the state and local sound level ordinances accessible to TBL at the time of this revision. TBL found over 320 separate ordinances in the state of Washington and Oregon alone. The sound level limits varied from 45 dBA to 60 dBA at distances of 0 feet to 1000 feet from a noise source.

Because a single transmission line may be located in more than one state or local noise control jurisdiction, TBL established its Noise Design Levels in a manner that is: (1) reasonable considering the impracticability of complying with multiple jurisdictions with varying standards; (2) reasonable given

the range of sound limits established within TBL's service territory; and (3) reasonable for the safe and reliable operation of TBL's transmission system.

II Transmission Lines - Audible Noise and Design

Transmission line noise is predominantly due to corona, which can be characterized by a broadband hissing, crackling sound and is basically a foul-weather (wet conductor) phenomenon. Weather conditions such as rain, fog, snow, and icing are typical conditions that can cause corona to become more audible. Corona generated AN is of concern primarily for transmission lines operating at voltages of 345 kV and above. Audible noise levels and, in particular, corona generated AN vary in time. In order to account for fluctuating sound levels, statistical descriptors called "Exceedence Levels ("L" levels) have been developed for environmental noise and are used by the TBL for the description of transmission line AN.

Exceedence levels refer to the A-weighted sound level that is exceeded for a specified percentage of the time. An L_5 exceedence level refers to the noise level that is exceeded only 5% of the time, whereas L_{50} refers to the sound level exceeded 50% of the time.

a. Transmission Line – Noise Design Levels

The following design criteria for transmission line AN accounts for the variation in environmental factors as listed above.

- For new line construction, TBL will design each new line to meet an L_{50} Exceedance Level of 50dB(A) at the edge of the right-of-way (ROW). This is under typical conditions of foul weather, altitude, and system voltage.

- Some existing multi-circuit lines and multi-line ROW's may exceed the L_{50} level of 50dBA. For a new line added to such an existing transmission corridor the design will be such that the total combined noise level will not be increased more than 3 dBA from the existing L_{50} level at the edge of ROW. (Note: The individual AN contribution of the new line must meet the 50dBA design criteria established above.)

III. Substation - Audible Noise and Design

Substation audible noise comes predominantly from transformers, reactors, and other wire wound type equipment. Transformer and reactor AN is a normal phenomenon caused by the magnetic forces in the core that result in sound producing vibrations. Transformer AN is more pure in tone than is transmission line AN, and is generally characterized by a 120Hz hum. Transformer AN level is largely a function of transformer core design but can be affected by system conditions such as voltage or in rare cases the presence of a direct or geomagnetic induced current (dc or GIC). For both of these examples the transformer may produce AN at other frequencies (harmonics) in addition to the 120Hz hum. Similar to transmission lines, transformer noise can vary with system conditions.

a. Substations – Noise Design Levels

The ability to control or manage substation AN is largely a function of obtaining equipment that meets specified noise level limits.

- Audible noise levels for substations will meet a maximum level of 50 dBA at the substation property line. Transformer and reactor noise will be evaluated at 100 percent of rated voltage with all cooling in service.

- For the addition of equipment to existing substations TBL will design to 50 dBA at the substation property line for each new piece of equipment.

- For substations located in industrial, business, commercial, or mixed use zones the AN level may exceed 50 dBA but will still meet any state or local AN requirement for that zoning. It may also be appropriate to exceed the 50 dBA limit in substations located in remote, unpopulated areas where the likelihood of development of noise sensitive properties near the substation is highly unlikely.

- For new substations it is recommended, that a no-build buffer outside the substation perimeter fence be included in the fee owned property. The size of the buffer will coordinate with the equipments' specifications for noise emission and meet current design practices for substation layouts.

IV. Audible Noise - Mitigation Decision Process

The TBL technical organization(s) responsible for the engineering design and engineering application of transmission lines and high voltage substation equipment, respectively, will investigate audible noise complaints. These organizations will determine the validity of the noise report, determine whether the TBL facilities involved are compliant with the policy, and develop mitigation options. The investigating technical organization will coordinate with the appropriate TBL field offices and other organizations (i.e., customer service, maintenance, project management – as applicable) during the investigation and to convey the results.

Cost analysis will be provided for those mitigation options determined most effective in reducing noise and technically most feasible. TBL will utilize its current business practices and procedures, associated cost, public impact, and severity of the noise, to evaluate and select mitigation options. Major mitigation projects with significant cost or public impact will be reviewed; with project approval determined according to agency decision framework and capital allocation processes.

4. APPLICABILITY

Who the Policy Applies to, When it Applies, and the Consequences of Not Complying

This policy applies, in general, to all transmission facilities owned and operated by the TBL, and specifically to those facilities and equipment described herein for which noise level standards have been defined. If the TBL is required to meet noise level limits for other types of equipment or facilities currently not described herein, the policy will be revised to specifically characterize and define noise level limits for those items. Non-compliance with this policy could result in greater susceptibility to legal and political risks, or negative impacts related to our environmental stewardship responsibilities in the region.

5. CONTACT
Subject Matter Contact

The primary contact for BPA's *Audible Noise Policy* is the VP of Engineering and Technical Services. Subject Matter Experts (SME) in transmission line design and in high voltage equipment application are the initial point of contact for policy application or interpretation.

6. RELATED POLICIES
Cite any Related Policies

Federal Law - Noise Control Act of 1972
Federal Executive Order No. 12088

7. IMPLEMENTATION
Applicable Practices, Procedures, and Related Documents Developed Under This Policy

For new transmission facilities implementation will occur by applying this policy to applicable standards and specifications related to the design and procurement of such facilities. For existing transmission facilities, where noise complaints are received, implementation will occur by following the Mitigation Decision Process described in Section IV of this policy.

8. AUTHORITY
Highest Level Individual Authorizing This Policy

Vickie A. VanZandt

Vickie VanZandt, Senior Vice President

1/3/06
Date