

Appendix A: Rule 012 Comment Matrix for Stage 1 of Round 2 Consultation and Proposed Questions for Stage 2 of Round 2 Consultation

Section 1 Suburban and urban permissible sound levels (PSLs)	
Topic 1.1 Need for suburban and urban PSLs	
Reviewer feedback	Commission response
<p>Alberta Energy Regulator (AER), AltaLink LP, dBA Noise Consultants Ltd. (dNCL), ENMAX power Corporation, SLR Consulting Canada Ltd. and Stantec Inc. believe changes are needed to address PSLs for urban environments.</p> <p>AltaLink stated that Table 1 of Rule 012 provides classification not granular enough to capture noise levels in urban environments.</p> <p>dNCL suggested that because the population of Alberta has increased significantly over the past decades with significant changes to its towns and cities, the approach taken in Rule 012 for urban environments has become outdated.</p> <p>ENMAX explained that facilities owned and operated by ENMAX are generally located in or near densely populated urban areas; an incremental exceedance of the PSL can result from elevated urban ambient sound levels (ASLs), not from the ENMAX facility. In this case, ENMAX believes the need to measure ASLs and apply for A2 adjustments add an unnecessary level of complexity and regulatory burden.</p> <p>SLR explained that PSLs defined based on Table 1 of Rule 012 may not always be suitable for an urban location, due to the nature of sources and geography in urban environments.</p> <p>Stantec explained that the existing provisions in Rule 012 for assessing ASLs are not adequate for urban environments, because (i) Current Table 1 in Rule 012 is not representative in an urban setting; (ii) Health Canada suggests higher baseline sound levels for suburban and urban areas than rural area. Further, Stantec suggested the Commission consider whether the urban PSL would be applicable to AER-regulated facilities.</p>	<p>The Commission understands that although Table 1 of Rule 012: <i>Noise Control</i> accounts for dwelling density and proximity to transportation infrastructure, permissible sound levels (PSLs) established based on Table 1 may not be suitable for urban environments that have high population density and busy residential, commercial and transportation activities.</p> <p>Rule 012 indicates that Class A2 adjustments should be considered in areas where there is non-energy industrial activity that would impact the ambient sound levels (ASLs) or where pristine surroundings prevail. The A2 adjustment, as currently described in Rule 012, may not be appropriate for suburban or urban environments, where the ASL is dominated by traffic and other non-industrial human activities, rather than non-energy industrial activity.</p> <p>The Commission has considered stakeholders’ submissions that the need to measure ASLs, and seek A2 adjustments to PSLs, places an unnecessary regulatory burden on applicants seeking to develop projects in urban environments. In response to stakeholder feedback, the Commission is proposing revisions to Rule 012 to specifically address PSLs for suburban and urban environments.</p> <p>The Commission consulted the Alberta Energy Regulator (AER) and confirmed that AER-regulated facilities are typically located in remote or rural environments and rarely within urban or suburban environments. As such, the Commission does not expect that revising Rule 012 to include PSLs specific to urban or suburban receptors will result in conflicts or inconsistencies with AER Directive 038: <i>Noise Control</i>. Circumstances where Rule 012 and Directive 038 may assign different PSLs to the same receptors could be addressed on a case-by-case basis.</p>

<p>EPCOR Distribution & Transmission (EDTI) and Green Cat Renewables Canada Corporation (GCR) do not believe changes are required to Rule 012 to address PSLs for urban environments in light of Decision 27276-D02-2022 (Grande Prairie Eastlink). Their feedback was focused on this decision specifically, rather than urban PSLs more generally.</p> <p>EDTI explained that, in accordance with the current rule, the Commission has discretion to “dispense with, vary, or supplement all or any part of these rules if it is satisfied that the circumstances require it.” EDTI was concerned that changes to applicable PSLs (especially reduction of applicable PSLs) after a facility has been approved and constructed, may require licensees to retrofit noise mitigation, which is often more challenging than implementing mitigation at the design stage. In many cases, it may be prohibitively expensive and/or technically impossible to retrofit suitable noise mitigation, and especially it would be difficult for facilities located in urban areas, as there is little space to implement noise mitigation in densely populated areas.</p> <p>Similarly, GCR considers revisions to Rule 012 in light of Decision 27276-D02-2022 to be unnecessary, because factors and concerns raised in Proceeding 27276 are unique.</p>	<p>In Decision 27276-D02-2022, the Commission determined that noise levels were compliant with the applicable PSLs, but nevertheless directed the City of Grande Prairie to reduce existing noise levels by at least five dBA at the most affected receptor, based on the Commission finding that noise impacts from Grande Prairie’s power plant “are significant and disproportionately imposed on those residing in very close proximity to the power plant therefore outweighing the larger benefits of the project.”</p> <p>In special circumstances, the Commission may decide that compliance with PSLs is an insufficient means of limiting noise impacts to nearby residences. Accordingly, the Commission will retain the discretion to consider these special circumstances on a case-by-case basis.</p>
<p>Topic 1.2 Definition of suburban and urban receptors</p>	
<p>Reviewer feedback</p>	<p>Commission response</p>
<p>The AER suggested that the Commission adopt or modify the Ontario Ministry of the Environment, Conservation and Parks Class 1 receptor definition, which defines Class 1 as “<i>an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the activities of people, usually road traffic, often referred to as ‘urban hum’.</i>”</p> <p>Stantec recommended that an urban receptor be defined by city zoning and limits. It explained there are 19 municipalities in Alberta that have been</p>	<p>Based on stakeholder feedback, the Commission is proposing a revision to Table 1 of Rule 012 to establish basic sound levels (BSLs) for suburban receptors and urban receptors.</p> <p>To support this revision, the Commission reviewed census data from Statistics Canada.¹ Population densities (people per square kilometre) for Edmonton and Calgary are presented in the table below for the year 2021.</p>

¹ Retrieved April 23, 2023, from: <https://www150.statcan.gc.ca/n1/daily-quotidien/220209/t007b-eng.htm>.

granted city status and noted the population must exceed 10,000 people to qualify as a city in Alberta.

ENMAX stated that the starting point for a definition of “urban receptor” may be municipal boundaries, which could be modified based on the incorporation of site specific factors such as higher population density, higher transportation activity, permissible land use and other urban activities.

GCR suggested the Commission consider clarifying urban environments as specific areas within the rule and requiring justification for appropriate ASLs and associated PSLs.

Table 1: Population density for census metropolitan areas from Statistics Canada²

City	Population density per square kilometre				
	Distant suburb	Intermediate suburb	Near suburb	Urban fringe	Downtown
Edmonton	17	205	1,448	1,629	4,845
Calgary	17	291	1,732	2,364	7,778

In addition, the Commission reviewed categories for residential areas defined in Health Canada’s *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise*,³ which are presented in the table below.

Table 2: Population density for residential areas in Health Canada guidance

Average census tract population density (number of people per square km)				
Quiet rural	Quiet suburban	Normal suburban	Urban	Noisy urban
28	249	791	2,493	7,913

Table 1 of Rule 012 uses dwelling density per quarter section of land, not people per square kilometre.

To convert population density to dwelling density, we must know average household size for residents in Alberta. Based on 2021 census data from Statistics Canada,⁴ the average household size in Alberta is 2.6 people.

This Statistics Canada data was used to convert population density per square kilometre (from tables 1 and 2 above) into dwelling density per quarter section of land for use in Rule 012 (see tables 3 and 4 below).

² Retrieved April 23, 2023, from: <https://www150.statcan.gc.ca/n1/en/daily-quotidien/220209/dq220209b-eng.pdf?st=mflfxj81>
Statistics Canada indicates that:

- Urban fringe (less than 10 minutes drive from downtown by car).
- Near suburb (10 to 20 minutes from downtown).
- Intermediate suburb (20 to 30 minutes from downtown).
- Distant suburb (30 minutes or more from downtown).

³ Retrieved April 23, 2023, from: https://publications.gc.ca/collections/collection_2017/sc-hc/H129-54-3-2017-eng.pdf.

⁴ Retrieved April 23, 2023, from: <https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Alberta&DGUIDlist=2021A000248&GENDERlist=1,2,3&STATISTIClist=1&HEADERlist=0>.

Table 3: Dwelling density for census metropolitan areas from Statistics Canada

City	Dwelling density per quarter section of land				
	Distant suburb	Intermediate suburb	Near suburb	Urban fringe	Downtown
Edmonton	4	50	356	400	1,191
Calgary	4	71	425	581	1,912

Table 4: Dwelling density for residential areas in Health Canada guidance

Dwelling density per quarter section of land				
Quiet rural	Quiet suburban	Normal suburban	Urban	Noisy urban
11	96	304	959	3,043

Table 1 of Rule 012 uses “1 to 8,” “9 to 160” and “>160” as thresholds for dwelling densities. However, dwelling densities for urban areas may be as high as 1,912 dwellings per quarter section of land. To account for the higher dwelling densities in urban environments, the Commission proposes to add two new columns into Table 1 of Rule 012, one for suburban receptors and the other for urban receptors.

Based on the tables above, the Commission considers a density of 400 dwellings per quarter section may be a suitable threshold for defining suburban areas and a density of 1,000 dwellings per quarter section may be a suitable threshold for defining urban areas. As such, the Commission is proposing to add two columns in Table 1 of Rule 012: 401 to 1,000 dwellings (Suburb) and >1,000 dwellings (Urban). Each of these new categories would have progressively higher BSLs to reflect the higher associated ASLs.

Discussion questions

Question 1. Please comment on the definition of suburban and urban receptors proposed for Table 1 of Rule 012.

- Is it reasonable to add two columns to Table 1 of Rule 012 for suburban and urban receptors?
- Has the Commission selected appropriate dwelling densities for suburban and urban receptors?

Topic 1.3 Determination of suburban and urban PSLs																																				
Reviewer feedback	Commission response																																			
<p>ENMAX and Stantec proposed the Commission consider the following approaches for addressing urban PSLs:</p> <ul style="list-style-type: none"> The implementation of urban PSLs similar to noise limits from other jurisdictions. Revisions to Table 1 of Rule 012, to incorporate higher population density, higher transportation activity, permissible land use in the relevant area (i.e., zoning) and other urban activities. A zone or classification-based approach. For example, the City of Vancouver Noise Control By-Law No. 6555 uses zone-based thresholds for different zones (i.e., activity or event zone, intermediate zone, and quiet zone); another example is different classification used in the Ontario MOECC NPC-300 with Class 2, 3, and 4 for suburban, urban, and development adjacent to existing industry, respectively. The use of a measured ASL to determine the basic sound level. <p>AltaLink and Stantec recommended higher PSLs to provide a more accurate representation of urban areas similar to those described in Table 6.1 of Health Canada’s <i>Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise</i>.⁵ Table 6.1 of Health Canada Guidance is presented below. Note that Table 6.1 of the Health Canada guidance uses the day-night sound level (Ldn) to describe representative baseline conditions in different environments. The Ldn parameter is the time-average sound level over a 24-hour period, after adding 10 dBA to sound levels during the nine-hour nighttime period (10 pm to 7 am).</p>	<p>The Commission has considered stakeholders’ recommendation that PSLs be established based on representative baseline sound levels from Table 6.1 of Health Canada’s <i>Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise</i>. The Commission proposes to revise BSLs in Table 1 of Rule 012 as shown below.</p> <p>Table 5: Revised Table 1 of Rule 012</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #d9ead3;"> <th colspan="6">Basic sound levels for nighttime (dBA L_{eq})</th> </tr> <tr style="background-color: #d9ead3;"> <th rowspan="2">Proximity to transportation</th> <th colspan="5">Dwelling density per quarter section of land</th> </tr> <tr style="background-color: #d9ead3;"> <th>1 to 8 dwellings</th> <th>9 to 160 dwellings</th> <th>161 to 400 dwellings</th> <th>401 to 1,000 dwellings (Suburb)</th> <th>>1,000 dwellings (Urban)</th> </tr> </thead> <tbody> <tr> <td>Category 1</td> <td>40</td> <td>43</td> <td>46</td> <td>48</td> <td>53</td> </tr> <tr> <td>Category 2</td> <td>45</td> <td>48</td> <td>51</td> <td>53</td> <td>58</td> </tr> <tr> <td>Category 3</td> <td>50</td> <td>53</td> <td>56</td> <td>58</td> <td>63</td> </tr> </tbody> </table> <p>The relationship between the revised Table 1 from Rule 012 (above) and Table 6.1 from the Health Canada guidance can be shown by calculating Ldn values using assumed ASLs established based on Table 1. The assumed nighttime ASL is five dBA less than the BSL presented in Table 1, and the assumed daytime ASL is five dBA greater than the BST presented in Table 1. As a result, the Ldn corresponding to a BSL of 40 dBA is 45 dBA, the Ldn corresponding to a BSL of 43 dBA is 48 dBA, and so on.</p> <p>Health Canada guidance explicitly indicates that BSLs for quiet rural, quiet suburban residential, normal suburban residential and urban residential areas do not account for sound from industrial activities. Similarly, BSLs for Category 1 in Table 1 of Rule 012 do not account for industrial activities. In areas where sound levels are dominated by non-energy industrial activities, measurements to determine representative ASLs may be appropriate and a Class A2 adjustment may be applicable.</p>	Basic sound levels for nighttime (dBA L _{eq})						Proximity to transportation	Dwelling density per quarter section of land					1 to 8 dwellings	9 to 160 dwellings	161 to 400 dwellings	401 to 1,000 dwellings (Suburb)	>1,000 dwellings (Urban)	Category 1	40	43	46	48	53	Category 2	45	48	51	53	58	Category 3	50	53	56	58	63
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⁵ Retrieved February 23, 2023, from: https://publications.gc.ca/collections/collection_2017/sc-hc/H129-54-3-2017-eng.pdf.

Table 6.1 (of Health Canada guidance): Estimation of Baseline Noise Levels Using Qualitative Descriptions and Population Densities of Average Types of Communities

Description	Estimated Baseline Sound Level ¹ , Ldn (dBA)
Quiet rural Dwelling units more than 500 m from heavily travelled roads and/or rail lines and not subject to frequent aircraft flyovers.	≤45 ²
Quiet suburban residential Remote from large cities, industrial activity and trucking.	48 to 52
Normal suburban residential Not located near industrial activity.	53 to 57
Urban residential Not immediately adjacent to heavily travelled roads and industrial areas.	58 to 62
Noisy urban residential Near relatively busy roads or industrial areas.	63 to 67
Very noisy urban residential	68 to 72

- Note that a range of values is provided and that selection of the appropriate estimated value would typically be based on the precautionary principle in the absence of adequate justification for a higher baseline. All day-night sound level (Ldn) values, except those of the quiet rural area community type, are based on the US EPA levels document (US EPA 1974).
- The quiet rural area (Ln = 35 dBA) estimated baseline noise level and population density were obtained from ERCB Directive 038 (revised Feb 16, 2007). The difference between Ld and Ln was obtained from ERCB and US EPA, and was approximated as 10 dBA. As such, quiet rural areas are considered to be less than or equal to 45 dBA Ldn.

The table below compares Ldn values based on assumed ASL values for Category 1 receptors in the proposed version of Rule 012 to corresponding Ldn values from Table 6.1 of the Health Canada guidance.

Table 6: Comparison of ASLs in Rule 012 and Ldn in Health Canada guidance

Revised Rule 012 Table 1	Dwelling density per quarter section of land				
	1 to 8 dwellings	9 to 160 dwellings	161 to 400 dwellings	401 to 1,000 dwellings (Suburb)	>1,000 dwellings (Urban)
ASL Ldn for Category 1 (dBA)	45	48	51	53	58
Health Canada Guidance Table 6.1	Quiet rural	Quiet suburban residential		Normal suburban residential	Urban residential
Baseline sound level, Ldn (dBA)	≤45	48 to 52		53 to 57	58 to 62

Based on the above table, the Commission considers PSLs set out in the revised Table 1 of Rule 012 would be generally consistent with Health Canada guidance for rural, suburban and urban environments.

Discussion questions

Question 2. Please comment on the basic sound levels for suburban and urban receptors proposed for Table 1 of Rule 012.

- In particular, the Commission requests that noise consultants and others who may represent members of the public comment on the basic sound levels for suburban and urban receptors from the perspective of suburban and urban residents.

Topic 1.4 Existing framework in Rule 012 (Table 1 and A2 adjustment)	
Reviewer feedback	Commission response
<p>Table 1</p> <p>AltaLink and dNCL suggested the Commission refine “dwelling density” and “proximity to transportation” in Table 1 to account for urban areas with very high population densities and busy surroundings.</p> <p>SLR and Stantec note that the BC Oil & Gas Commission (BCOGC) updated its <i>British Columbia Noise Control Best Practices Guideline</i> in July 2021. Consistent with Rule 012, previous versions of the BCOGC guideline defined a Category 2 receptor as being located between 30 m and 500 m from transportation infrastructure (i.e., a heavily travelled road or rail line), and defined a Category 3 receptor as being located less than 30 m from transportation infrastructure. The updated BCOGC guideline has increased the distance threshold from 30 m to 100 m when differentiating Category 2 and Category 3 receptors (i.e., a Category 2 receptor is now located between 100 m and 500 m from transportation infrastructure and a Category 3 receptor is now located less than 100 m from a transportation infrastructure).</p>	<p>The Commission is not persuaded of the need to change the way that PSLs are adjusted based on proximity to transportation infrastructure. Circumstances where proximity to transportation infrastructure are not adequately captured by Table 1 of Rule 012 can be addressed through ASL measurements and A2 adjustments.</p> <p>Based on consultations with the AER, both the Commission and the AER agree that Rule 012 and Directive 038 should remain consistent with respect to the treatment of heavily travelled roads and rail lines, and at the current stage, neither of these two regulations are proposed to change on this matter.</p>
<p>Class A2 adjustments</p> <p>AER submitted that the existing provisions for determining PSLs and A2 adjustments are still practical and reasonable.</p> <p>Motive Acoustics indicated that if PSLs are not applicable (e.g., real ASL is higher than assumed ASL), Class A2 adjustment methodology should be followed.</p> <p>SLR recommended that the Commission mandate an A2 adjustment sound monitoring survey as part of the noise impact assessment (NIA) process. SLR suggested a publicly available map be created showing the applicable PSLs from NIAs accepted by the Commission.</p> <p>dNCL’s view is PSLs should be established based on a measured ASL or a calculated traffic noise level, if the receptor is close to transportation infrastructure. dNCL noted that stakeholders (i.e., local residents) typically</p>	<p>It is important to maintain consistency between AUC Rule 012 and AER Directive 038 regarding application of Class A2 adjustments. Both Rule 012 and Directive 038 explicitly state that Class A2 adjustments are <u>only</u> applicable in a pristine area or an area with non-energy industrial activities. The Commission maintains discretion to determine if an ASL survey or a Class A2 adjustment is required in a particular area.</p> <p>The Commission emphasizes that wherever assumed ASLs in Table 1 are representative, measurements for ASLs are not necessary.</p> <p>ASL surveys should follow the requirements in Section 4 of Rule 012. The Commission does not intend to revise those requirements in the current process.</p> <p>The Commission’s use of assumed ASLs in Rule 012 is intended to provide a reasonable, consistent and practical mechanism for predicting and assessing cumulative sound levels in noise impact assessments (NIAs). The use of assumed ASLs is also intended to promote consistency when assessing energy-related projects in similar environments. Further, assumed ASLs promote consistent PSLs</p>

do not understand why no ASL survey was conducted, and frequently request one.	for energy applications filed at different times and prevent divergence between PSLs for oil and gas facilities regulated by the AER and utilities facilities regulated by the AUC. For these reasons, the Commission does not propose to mandate measured ASLs (or A2 adjustments) as part of a typical NIA at this time.
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Section 2 New dwelling PSLs⁶	
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Reviewer feedback	Commission response
<p>Most stakeholders do not believe that changes are required to update sections of Rule 012 that address PSLs for new dwellings. These stakeholders generally consider that the existing sections are adequate.</p> <p>GCR explained that for situations involving legacy projects, there is no one solution that would be applicable to all cases, and GCR suggested specific situations be considered and addressed on a case-by-case basis.</p> <p>In SLR’s view, conflicts between residents and licensees may arise not because of the Rule 012 provisions per se, but because there is no requirement to identify licensed facilities and applicable noise regulations as part of the building permit process for new dwellings. This is an issue associated with the permitting process for new dwellings and cannot be addressed in Rule 012. SLR suggested that a Noise Management Plan, as described in Section 2.8 of Rule 012, may be a good first step to resolving noise complaints similar to the one addressed in Proceeding 27444.</p> <p>A few stakeholders suggested specific changes to sections of Rule 012 related to new dwelling PSLs.</p> <p>ENMAX and Stantec recommended the Commission update Section 2.3 to accept both measured comprehensive sound levels (CSLs) or modelled cumulative sound levels from the facility at the start of new dwelling construction.</p>	<p>Proceeding 27444 was a noise complaint application regarding the ENMAX No. 28 Substation. The substation is located in an urban area of Calgary and began operating in 1969. The noise complaint was associated with a “new dwelling” constructed close to the substation in or about 1982 (i.e., after the substation commenced operations). Typically, the PSL at a new dwelling is the cumulative sound level that existed at the time the dwelling was constructed. However, in this case, the substation underwent modifications subsequent to construction of the dwelling, such that it was impossible to measure sound levels as they would have existed at the time the dwelling was constructed. These factors resulted in a special situation where the applicable PSL had to be determined.</p> <p>The Commission agrees that special situations involving legacy projects, such as that considered in Proceeding 27444, may need to be considered on a case-by-case basis because no one solution is likely be applicable to all cases. As a result, apart from certain discrete revisions discussed below, the Commission does not propose to substantially update the sections of Rule 012 that address PSLs for new dwellings at this time.</p> <p>In response to SLR, the Commission notes that Section 2.8 of Rule 012 (“Noise management plans”) is intended to address unique circumstances where the Commission considers that a comprehensive sound level (CSL) survey is not practical because of the complexity of the local environment. In these circumstances, a noise management plan approved by the Commission may be used to ensure compliance. One example is the Alberta Industrial Heartland , where a regional noise management plan was developed to provide industrial companies with an alternative means of demonstrating compliance with applicable noise</p>

⁶ Rule 012 defines “new dwelling” as: A dwelling that is built after submission of the noise impact assessment for a proposed facility (i.e., a circumstance in which the noise impact assessment does not present modelled cumulative sound levels at the new dwelling). Rule 012, *Noise Control*, PDF page 45.

Motive Acoustics suggested adding the following text to Section 2.3 of Rule 12: *Every time a facility is modified a new NIA must be performed and the facility should have to comply with the PSL at all residences located within 1.5 km.*

ATCO recommended that Subsection 2.5(2) be revised to apply to “approved facilities where the licensee has not substantially started construction”. ATCO explained that for facilities where construction is underway and, at a minimum, foundation work has been completed, having to potentially amend the approved facility during construction would be an unreasonable burden on the licensee, and mitigation can be extremely expensive and could have significant impacts to the approved facilities design and operation.

regulations. The Commission retains discretion to assess and approve noise management plans for unique cases.

In response to ENMAX and Stantec’s suggestion, the Commission is proposing revisions to subsections 2.3(1) and 2.3(3) to accept both measured CSLs and modelled cumulative sound levels from the facility at the start of new dwelling construction.

With respect to Motive Acoustics’ comment, Rule 012 explicitly states in Section 3.1 that subject to subsections 3.1(4) and 3.1(5), an applicant must file an NIA in accordance with this rule for the proposed facility and predict compliance. This means an applicant or developer must complete an NIA or NIA summary form for any new facility or facility amendment.

In response to ATCO’s suggestion, the Commission is contemplating adding a development milestone in subsection 2.5(2) for establishing PSLs applicable to new dwellings. In circumstances where a facility has been predicted or measured to be compliant with Rule 012 and development of the facility has passed this milestone, owners/residents of the new dwelling should be aware that a new facility will be located nearby and subsequently should be aware that the PSL at the new dwelling will be the greater of the modelled cumulative sound level at the start of the dwelling construction, or the PSL as determined in Section 2.1 of Rule 012.

Discussion questions

Question 3. Please suggest changes to subsection 2.5(2) of Rule 012.

- **In particular, please specify an appropriate development milestone for a facility that has been predicted or measured to be compliant with Rule 012. After this milestone, owners/residents of a new dwelling should be aware that a new facility will be located nearby and the permissible sound level at the new dwelling will be greater of the modelled cumulative sound level at the start of the dwelling construction, or the permissible sound level as determined in Section 2.1 of Rule 012.**

Section 3 Tonality evaluation	
Reviewer feedback	Commission response
<p>AER stated that the existing provisions of Rule 012 do not require an evaluation of potential tonality at mid- or high-frequencies (i.e., frequencies above 250 Hz). Mid-frequency and high-frequency tones can be important when assessing potential noise impacts in populated urban areas where the propagation distance between facility and receptors may be small. AER suggested the Commission consider requiring an assessment of tonality for frequencies above 250 Hz, and requiring an adjustment to broadband sound levels in cases where a tone is present. AER pointed out that adjustments for tones suggested in ISO Standard 1996-2 are not limited to low frequency tonal components.</p> <p>Similarly, Motive Acoustics submitted that tonal noise should not be allowed, or the PSL should be reduced by 5 dBA in cases where tonal noise is present.</p>	<p>Rule 012 requires that an evaluation of low frequency noise conditions be conducted as part of an NIA or post-construction CSL survey. Rule 012 specifies two criteria to identify a low frequency noise condition: (i) dBC minus dBA is greater than or equal to 20 dB, and (ii) a clear tonal component existing at a frequency between 20 to 250 Hz.</p> <p>Rule 012 states that if a low frequency noise condition exists, five dBA must be added to the measured CSL.</p> <p>The Commission notes the AER is recommending that Rule 012 be updated to include tonality evaluation for all audible frequencies, not just low frequency noise.</p> <p>The Commission understands that tonal sound can be more noticeable than broadband sound at the same level, and that many noise complaints are driven by prominent tones.</p> <p>The Commission also understands that evaluating tonality in measured data from a CSL survey is relatively straightforward, but that tests for tonality cannot typically be applied to noise model outputs, which may be the only data available at the application stage.</p> <p>The Commission may order a post-construction CSL survey in the following circumstances:</p> <ul style="list-style-type: none"> • as an approval condition; and/or • in response to a noise complaint. <p>The Commission is seeking input on whether tonality evaluation for all audible frequencies should be included in Rule 012.</p>

Discussion questions

- Question 4.** Please comment on whether Rule 012 should include tonality evaluation for all audible frequencies.
- Question 5.** If Rule 012 should include tonality evaluation for all audible frequencies, please comment on the circumstances where it would be appropriate to evaluate tonal noise.
- Should tonality evaluation be required in all comprehensive sound level surveys ordered by the Commission?
 - Should tonality evaluation only be required in comprehensive sound level surveys arising from complaints?
- Question 6.** Please comment on potential unintended consequences if Rule 012 were to require tonality evaluation for all audible frequencies.
- Question 7.** If the Commission were to require tonality evaluation for all audible frequencies, should any changes be made to the current criteria for low frequency noise?
- In particular, should the dBC minus dBA element of the low frequency noise evaluation be eliminated?