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10 CFR 50
10 CFR 51
10 CFR 54

RS-16-074

April 4, 2016

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Subject: Exelon Generation Company, LLC Comments on the Draft Generic
Environmental Impact Statement for License Renewal of Nuclear Plants
Supplement 57 Regarding LaSalle County Station, Units 1 and 2
[Docket ID NRC-2014-0268]

Reference: 1) Letter from Michael P. Gallagher, Exelon Generation Company, LLC (Exelon
Generation), to U.S. Nuclear Regulatory Commission (NRC) Document
Control Desk, "Application for Renewed Operating Licenses," dated
December 9, 2014.
2) Letter from Michael P. Gallagher, Exelon Generation, to NRC Document
Control Desk, "Response to NRC Request for Additional Information, dated
May 22, 2015, Regarding the LaSalle County Station, Units 1 and 2, License
Renewal Application, Environmental Review," dated July 2, 2015.
3) Letter from Michael P. Gallagher, Exelon Generation, to NRC Document
Control Desk, "Revisions to LaSalle County Station, Units 1 and 2, License
Renewal Application, Applicant's Environmental Report - Operating License
Renewal Stage," dated July 31, 2015.
4) Letter from James G. Danna (NRC) to Michael P. Gallagher (Exelon), "Notice
of Availability of the Draft Plant-Specific Supplement 57 to the Generic
Environmental Impact Statement For License Renewal of Nuclear Plants
Regarding LaSalle County Station, Units 1 And 2 (TAC Nos. MF5567 and
MF5568)," dated February 8, 2016.

In the Reference 1 letter, Exelon Generation Company, LLC (Exelon Generation) submitted the
License Renewal Application (LRA) for the LaSalle County Station, Units 1 and 2, which
contained technical information required by 10 CFR 54.21 and, in Appendix E to the Application,
site-specific environmental information required by 10 CFR 54.23.

In the References 2 and 3 letters, Exelon Generation provided the NRC staff with additional, updated, and corrected, information regarding site-specific environmental information initially submitted in Appendix E (Applicant's Environmental Report) to the LaSalle County Station, Units 1 and 2 Application for Renewed Operating Licenses.

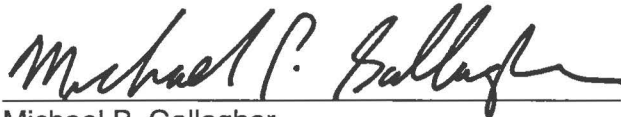
In the Reference 4 letter, the NRC informed Exelon Generation of the availability of the Draft Supplement 57 to the Generic Environmental Impact Statement for License Renewal of Nuclear Plants (GEIS) regarding LaSalle County Station, Units 1 and 2 and requested that comments be provided by April 4, 2016.

Enclosure 1 to this letter provides written comments on two specific aspects of Draft Supplement 57 to the GEIS Regarding LaSalle County Station, Units 1 and 2—potential impacts on aquatic resources and potential impacts from greenhouse gas emissions. Enclosure 2 provides specific corrections to erroneous facts and information located throughout the Draft Supplement 57 to the GEIS.

There are no new or revised regulatory commitments contained in this letter.

If you have any questions, please contact Ms. Nancy L. Ranek, Senior Environmental Lead, Exelon License Renewal, at 610-765-5369.

Respectfully,



Michael P. Gallagher
Vice President - License Renewal Projects
Exelon Generation Company, LLC

- Enclosures:
1. Exelon Generation Company, LLC Comments on Sections 4.7.1.2, 4.7.1.3, 4.15.3, and 4.16.11 in Supplement 57 to the Draft Generic Environmental Impact Statement for License Renewal of Nuclear Plants Regarding LaSalle County Station, Units 1 and 2
 2. Exelon Generation Company, LLC Corrections to Supplement 57 to the Draft Generic Environmental Impact Statement for License Renewal of Nuclear Plants Regarding LaSalle County Station, Units 1 and 2

cc: Regional Administrator – NRC Region III
NRC Project Manager (Environmental Review), NRR-DLR
NRC Project Manager (Safety Review), NRR-DLR
NRC Project Manager, NRR-DORL LaSalle County Station
NRC Senior Resident Inspector, LaSalle County Station
Illinois Emergency Management Agency – Division of Nuclear Safety

**Exelon Generation Company, LLC Comments on
Sections 4.7.1.2, 4.7.1.3, 4.15.3, and 4.16.11 in
Supplement 57 to the Draft Generic Environmental Impact Statement for
License Renewal of Nuclear Plants Regarding LaSalle County Station, Units 1 and 2**

NOTE: Where changes to draft text are suggested, proposed inserts are in ***bolded italic*** font and proposed deletions are in ~~strikethrough~~ font.

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IMPACTS ON AQUATIC ORGANISMS IN THE LSCS COOLING POND				
1	4.7.1.2	4-38		Clarify the 2 nd paragraph in Section 4.1.7.2 on p. 4-38 by adding a new sentence after the sentence on the 3 rd and 4 th lines in the paragraph, as follows: "Impingement can kill organisms immediately or contribute to a slower death resulting from exhaustion, suffocation, injury, and other physical stresses. <i>However, impingement survival is common and impinged organisms often include those that are previously moribund, injured, or otherwise in poor health.</i> "
2	4.7.1.2	4-40		Clarify the 2 nd paragraph under the heading "LOE 1: Impingement Studies" on p. 4-40 by adding a sentence in the 6 th line as follows: "... (<i>Pimephales notatus</i> ; 5 percent). <i>All other impinged species comprised less than 5 percent of the impinged fish (EA 2015).</i> Gizzard shad was the most commonly impinged species and ..."
3	4.7.1.2	4-40		In the 4 th paragraph under the heading "LOE 1: Impingement Studies" on p. 4-40, delete the 2 nd sentence, as follows, because, as a result of the preceding comment, it will appear in the 2 nd paragraph under the same heading: "Both round goby and threadfin shad are invasive species. All other impinged species comprised less than 5 percent of the impinged fish (EA 2015). "
4	4.7.1.2	4-41		Clarify the conclusion in the 2 nd paragraph under the heading "LOE 1 Conclusion" on p. 4-41 by revising it as follows: "... the impacts of impingement on the aquatic community within the cooling pond are unknown because, they have not been addressed in studies <i>as a wastewater treatment system, the LSCS closed-cycle, recirculating, cooling pond is exempt from impingement and entrainment monitoring requirements under Section 316(b) of the Clean Water Act (CWA). Accordingly, studies have not been conducted.</i> "
5	4.7.1.2	4-41		Clarify the conclusion in the 2 nd paragraph under the heading "LOE 2 Conclusion" on p. 4-41 by revising it as follows: "...the impacts of entrainment on the aquatic community within the cooling pond are unknown because, they have not been addressed in studies <i>as a wastewater treatment system, the LSCS closed-cycle, recirculating, cooling pond is exempt from impingement and entrainment</i>

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				<i>monitoring requirements under Section 316(b) of the Clean Water Act (CWA). Accordingly, studies have not been conducted.</i>
6	4.7.1.2	4-44		Clarify the 1 st full sentence in the partial paragraph at the top of page 4-44 by revising it as follows: “... The cooling pond system is similar to a closed-cycle cooling system , <i>which is similar to cooling towers</i> in that water in the pond continues to be recirculated through the plant for cooling, and only makeup water (water lost to evaporation or discharged as blowdown) is drawn directly from the Illinois River.”
7	4.7.1.2	4-45		Clarify the 1 st sentence in the last paragraph under the heading “Overall Impingement and Entrainment Conclusion” on p. 4-45 by revising it as follows: “Although fish and aquatic biota are also impinged and entrained at the cooling pond screen house when cooling pond water is drawn into LSCS’s cooling system <i>pond intake structure</i> , the impacts of impingement <i>and entrainment</i> on the aquatic community within the cooling pond are unknown because, Exelon has not conducted any impingement or entrainment studies at the cooling pond intake, nor have any consistent fish monitoring studies been implemented in the cooling pond. <i>as a wastewater treatment system, the LSCS closed-cycle, recirculating, cooling pond is exempt from impingement and entrainment monitoring requirements in Section 316(b) of the Clean Water Act (CWA).</i> ”
8	4.7.1.2	4-45		Clarify the last sentence in the last paragraph under the heading “Overall Impingement and Entrainment Conclusion” on p. 4-45 by revising it as follows: “... The NRC staff notes that the use <i>at LSCS’s cooling pond intake structure of a shad net</i> , bar grills, and traveling screens with 3/8-in. (0.95-cm) openings would effectively reduce <i>reduces</i> the impacts from impingement and entrainment in the cooling pond.”
9	4.7.1.3	4-49 to 4-51	NA	Exelon Generation does not agree with the Staff’s decision to consider (under LOE 5) thermal impacts on aquatic organisms in the LSCS cooling pond, and in particular with the determination that thermal impacts on gizzard shad and threadfin shad (shad) due to continued operation of LSCS would be MODERATE. Exelon disagrees with the need to consider these impacts within the LSCS cooling pond for the following reasons: 1. <u>There is no requirement for the staff to evaluate thermal impacts on organisms in the LSCS cooling pond.</u> The Draft Supplemental Environmental Impact Statement (DSEIS) states that, “NRC’s regulations at 10 CFR Part 51 concerning license renewal reviews and the GEIS [Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Rev. 1] direct the NRC to consider all

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				<p>aquatic resources that may be affected by plant operations, regardless of the type of water body in which such resources reside.” DSEIS at 4-45. The DSEIS does not identify what regulation specifically provides this direction, nor has Exelon Generation identified which regulation in Part 51 supports this statement. The statements of consideration for the final rule also do not clarify this issue. See 78 Fed. Reg. 37,282, 37,304 (June 20, 2013). On the contrary, 10 CFR 51.53(c)(3)(ii)(A), which is quoted below, specifically discusses the <i>withdrawal of makeup water from a river</i> and the resulting <i>aquatic impacts on stream communities</i>, but establishes no requirements for impacts within cooling ponds:</p> <p style="padding-left: 40px;">If the applicant’s plant utilizes cooling towers or cooling ponds and withdraws makeup water from a river, an assessment of the impact of the proposed action on water availability and competing water demands, the flow of the river, and related impacts on stream (aquatic) and riparian (terrestrial) ecological communities must be provided. . . .</p> <p>Exelon Generation recognizes that the GEIS (p. 3-52) defines <i>surface water resources</i> to include “man-made reservoirs or other impoundments,” but that definition does not apply to <i>aquatic resources</i>, which is the relevant topic here. There is also a reference in the GEIS (p. 3-139) to potential adverse human health effects from microorganisms in thermal effluents, but again, that topic is not relevant to impacts on aquatic resources. And finally, the GEIS itself is not codified in regulation—only its conclusions are, most pertinently in the text quoted above.</p> <p>2. <u>The staff should not evaluate thermal impacts on organisms in the LSCS cooling pond, because the cooling pond is a wastewater treatment system.</u> As the DSEIS acknowledges, the LSCS cooling pond is a “wastewater treatment system,” and therefore, is not a “water of the United States” under the Clean Water Act (CWA) or a “water of the State” under Illinois law. See DSEIS at 3-42. The DSEIS also notes on page 3-68, that “The cooling pond can be characterized as a highly managed ecosystem in which fish stocking by the IDNR [Illinois Department of Natural Resources] and other human activities primarily influence the species composition and population dynamics.” Therefore, the NRC should not be evaluating impacts on the aquatic environment in the cooling pond from LSCS’s thermal additions to the cooling pond water. Section 316(a) of the CWA, as its title states, provides “Effluent limits that will assure protection and propagation of balanced, indigenous population of shellfish, fish, and wildlife.” The CWA effluent limits, however, do not apply to influents into the LSCS cooling pond, which has no indigenous populations. Accordingly, there is no CWA requirement</p>

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				<p>to protect organisms in the pond. To suggest otherwise through a National Environmental Policy Act (NEPA) analysis would be to suggest that an environmental standard impermissibly applies within a wastewater treatment system that is itself exempt from that standard.</p> <p>3. <u>Not evaluating thermal impacts on organisms in the LSCS cooling pond would be consistent with prior analyses for LSCS.</u> The LSCS Final Environmental Statement at the Operating License stage (FES-O) noted that the conclusions regarding aquatic impacts in the FES at the Construction Permit stage remained valid, including the conclusion that "aquatic impacts from operation of the station will be confined to the Illinois River." FES-O at 5-12. For the reasons stated above, Exelon Generation believes this conclusion remains valid at the license renewal stage.</p> <p>4. <u>The conclusion of "MODERATE" impacts on shad populations is oversimplified, and misleading.</u> If the staff analyzes aquatic impacts within the LSCS cooling pond at all, the analysis of such impacts should begin from the premise that no aquatic populations (whether stocked or not) would exist in this location without the LSCS because the cooling pond was constructed to serve that plant. Also, Exelon Generation leases land near the pond to the IDNR for fish hatchery operations. Considering that baseline, any impacts on cooling pond organisms due to LSCS operation would necessarily be smaller than shutting the plant down, after which the hatchery and the organisms in the cooling pond may be eliminated entirely. Therefore, it is misleading and serves no use for agency decision making to assign a MODERATE impact for continued operation while assigning a SMALL impact for the No-Action Alternative. At a minimum, even if the SEIS were to consider thermal impacts on aquatic organisms in the cooling pond, it should recognize this complexity by either assigning a SMALL impact for continued operation but a MODERATE impact for the No-Action Alternative, or by not using the SMALL, MODERATE, and LARGE designations to characterize the impacts, as has been done elsewhere in the DSEIS for special status species and historic and cultural resources.</p> <p>5. <u>Considered on its own merits, the conclusion of "MODERATE" impacts on shad populations is not supported by facts.</u> The basis provided by the Staff for MODERATE impacts are the declines in shad populations after fish kills "each summer." DSEIS at 4-50. While these events may have temporarily reduced the number of shad, even regular fish kills every year have not destabilized or noticeably altered any important attribute of the shad <i>resource</i>, as shown by the regular recovery of populations. Moreover, shad are not a desirable fish for the cooling pond. They are not stocked fish, and instead, as the DSEIS states, certain recreationally fished species are stocked "in part to <i>limit</i> the size of shad populations."</p>

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				<p>DSEIS at 3-68 (emphasis added). This need to further limit shad populations, beyond the decreases in population inadvertently caused by fish kills, in order to protect the overall aquatic health of the cooling pond, suggests that the shad population should not be evaluated at all for impacts from operation of the LSCS.</p> <p>Furthermore, if IDNR were to determine that the aquatic health of the cooling pond required an increased shad population, there is no reason to believe that shad could not be stocked to accommodate the need, as the DSEIS reports is done for other species. DSEIS at 4-50.</p> <p>6. <u>Past NRC practice is not dispositive.</u> The DSEIS points to prior examples where the Staff considered aquatic impacts within cooling ponds in other license renewal SEISs, including Braidwood and other plants with environmental reviews based on the 1996 GEIS. Exelon Generation objected on the record to this approach in the Braidwood SEIS, and the mere existence of prior Staff practice does not require the NRC to, going forward, impermissibly evaluate aquatic impacts on the LSCS cooling pond. Errors in legal interpretation should not be carried forward into new analyses.</p>
SITE-SPECIFIC AND CUMULATIVE IMPACTS FROM GREENHOUSE GAS EMISSIONS				
10	Ex. Sum.	xxi	Table ES-1	<p>Table ES-1, labeled "Summary of NRC Conclusions Relating to <u>Site-Specific Impacts</u> of License Renewal," (emphasis added) on p. xxi in the Executive Summary, indicates that Global Climate Change Cumulative Impacts are "MODERATE." As explained further in comments below regarding Section 4.16.11, this entry in Table ES-1 is misleading to decision makers and the public in that it fails to meaningfully inform them about either the non-site-specific nature of cumulative impacts from GHG emissions or the net beneficial contribution of site specific LaSalle County Station (LSCS) GHG emissions. Accordingly, the table should be modified to clarify these points of confusion.</p>
11	4.15.3.1	4-105	10	<p>Table 4-21 on p. 4-105 reports an incorrect value for GHG emissions from purchased electricity at LSCS during 2011. The amount of GHG emissions from 2011 purchased electricity reported in Table 4-21 erroneously duplicates the value for 2012 (i.e., 36,066 MT/yr of CO₂e). The 2011 value should be 33,493 MT/yr of CO₂e. This error in the 2011 "Purchased Electricity" column also causes an error for 2011 in the "Total" column. Hence, the total LSCS GHG emissions for 2011 should be 37,424 MT/yr of CO₂e.</p>
12	4.15.3 and 4.15.3.2	4-104 and 4-107 to 4-113		<p>The introduction to Section 4.15.3 on p. 4-104 states that the subsections within Section 4.15.3 "discuss GHG [Greenhouse Gas] emissions released from operation of LSCS and the environmental impacts that could occur from changes in climate conditions. The cumulative impacts of GHG emissions on climate are discussed in Section 4.16.11" Section 4.15.3.1 then describes GHG emissions that would result from the proposed action (i.e., LSCS license renewal) and alternatives, and Section 4.15.3.2 provides an extended discussion</p>

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				<p>of the impacts of general climate change on resource areas.</p> <p>The purpose of Section 4.15.3.2, is unclear. Accordingly, it should be either deleted or revised to more clearly explain how extraordinarily small the contribution of LSCS GHG emissions during operation is to general climate change impacts in comparison to the global, U.S., Illinois state, and other LaSalle County GHG emissions, as shown in Table 4-23. In addition, given that all of the power generation alternatives (except new nuclear) would produce annual GHG emissions several orders of magnitude <i>greater</i> than LSCS operation (see Table 4-22), Section 4.15.3.2 should point out that the proposed action would have a net beneficial effect on global climate change because LSCS produces miniscule GHG emissions. Accordingly, continued operation of LSCS would serve to reduce emissions from base load power generation in comparison to most replacement power alternatives. It is only through base load, clean energy, such as nuclear power, that significant reductions in GHG emissions can be achieved. Without noting such information in Section 4.15.3.2, the reader is left with the impression that GHG emissions from LSCS have some measurable causal relationship to the climate change impacts discussed the section, when no such relationship exists. As a result, Section 4.15.3.2 is misleading to the public as written and not helpful for agency decision-making.</p>
13	4.16.11	4-129 to - 132		<p>The evaluation of cumulative impacts of greenhouse gas (GHG) emissions from continued operation of LSCS on Global Climate Change in this section and the resulting conclusion of "Site-Specific" MODERATE impacts as reported in Table ES-1, leave the reader with the incorrect impression that LSCS's operation for another 20 years would have some measurable, negative impact on global climate change, when it could not. As presented, and as explained in detail below, the overall analysis and conclusion is not helpful to an agency decision maker nor does it accurately inform the public, because it fails to convey the fact that nuclear power is one of the few base load electricity solutions to avoid release of GHG emissions and, therefore, the net effect of the proposed action will be beneficial.</p> <p>Exelon recommends that the NRC resolve this misinformation by abandoning the categories of SMALL, MODERATE, and LARGE to label cumulative Global Climate Change impacts. These three categories are inapplicable for this topic and detract from, rather than inform, the NEPA analysis. There is no requirement for the DSEIS to shoehorn all impact areas into these three categories. Nor does the license renewal GEIS specify the use of these categories for all analyses, or for cumulative Global Climate Change impacts in particular. Moreover, there is precedent for the NRC to take an alternative approach. For example, the LSCS DSEIS itself does not use these three categories for impacts in the following areas: Special Status Species and Habitats, Historic and Cultural Resources, Environmental Justice, or cumulative Socioeconomic or Environmental Justice impacts. Instead, in Table ES-</p>

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				<p>1 the NRC provides a high-level tailored summary of the impacts in each of these areas. Thus, there is a well-worn, viable path for the NRC to discuss the beneficial impacts on Global Climate Change of operating LSCS for another 20 years. Consistent with the Staff's conclusions in these other areas, and as explained below, Exelon recommends the following conclusion for cumulative Global Climate Change impacts: "The proposed action would result in reduced GHG emissions in comparison to the reasonable alternatives and would have a beneficial effect on overall cumulative global climate change impacts and goals."</p> <p>Another alternative would be to not discuss cumulative impacts on Global Climate Change in the SEIS at all. There is precedent for a federal agency to not perform, or include in an EIS a discussion of, a cumulative impacts analysis when the net effect of the proposed action is shown to be beneficial.</p> <p>The approaches suggested above are acceptable for the following reasons:</p> <ol style="list-style-type: none"> 1. To reach its finding of MODERATE impacts, the Staff has added the miniscule GHG emissions from ancillary operations at LSCS (e.g., backup diesel generators) to the total GHGs released in the State of Illinois and elsewhere, while simultaneously ignoring the millions of metric tons of GHG emissions that will be avoided by having clean, nuclear energy generation from LSCS continue for another 20 years. See DSEIS, Tables 4-22 and 4-23; see also The White House, Office of Press Secretary, "Fact Sheet: Obama Administration Announces Actions to Ensure that Nuclear Energy Remains a Vibrant Component of the United States' Clean Energy Strategy" (Nov. 6, 2015) ("Nuclear power, which in 2014 generated about 60 percent of carbon-free electricity in the United States, continues to play a major role in efforts to reduce carbon emissions from the power sector"), available at https://www.whitehouse.gov/the-press-office/2015/11/06/fact-sheet-obama-administration-announces-actions-ensure-nuclear-energy; The Brattle Group, "Pennsylvania Nuclear Power Plants' Contribution to the State Economy," at 11-12 (Sept. 2015) (calculating the "substantial carbon dioxide and criteria pollutant emissions" prevented by operating nuclear power plants), available at http://www.nuclearmatters.com/resources/reports-studies/document/Nuclear-Matters-Report_Pennsylvania-Value-of-Nuclear.pdf. Ignoring the net beneficial effect of the proposed action on Global Climate Change when compared to the effects of other reasonable alternatives is a clear failure to consider relevant facts. <p>The NRC states that it derived the NEPA impact categories of SMALL, MEDIUM, and LARGE from CEQ regulations. See, e.g., Final Report, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants," NUREG-1437, Rev. 1, at S-6 ("The NRC's standard of significance for impacts uses the Council on Environmental Quality (CEQ) terminology for "significantly" (40 CFR</p>

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				<p>1508.27), which requires consideration of both "context" and "intensity." Based on this, the NRC established three levels of significance for potential impacts: SMALL, MODERATE, and LARGE."). As applied to cumulative impacts on Global Climate Change, however, the NRC's approach is inconsistent with CEQ's regulations. See 40 CFR 1500.1(c) ("Purpose" of CEQ regulations) ("The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment."); 40 CFR 1500.2 ("Policy" in CEQ regulations) ("Federal agencies shall to the fullest extent possible: . . . (b) Implement procedures to make the NEPA process more useful to decisionmakers and the public;").</p> <p>2. The Staff concluded in the DSEIS that the impacts of GHG emissions from past, present, and foreseeable future actions on global climate change are MODERATE with or without the operation of LSCS for another 20 years. However, reporting this finding of MODERATE cumulative impacts in the DSEIS is misleading to the public and meaningless to decisionmakers, because no applicable frame of reference has been provided. The DSEIS lacks a discussion of the frame of reference for GHGs suggested in the Draft CEQ guidance on how GHGs should be addressed in NEPA documents. See CEQ, Revised Draft Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews, 79 Fed. Reg. 77,802 (Dec. 24, 2012). That guidance states:</p> <p>Finally, when discussing GHG emissions, as for all environmental impacts, it can be helpful to provide the decisionmaker and the public with a frame of reference. To provide a frame of reference, agencies can incorporate by reference applicable agency emissions targets such as applicable Federal, state, tribal, or local goals for GHG emission reductions to provide a frame of reference and make it clear whether the emissions being discussed are consistent with such goals. For example, Bureau of Land Management projects in California, especially joint projects with the State, look at how the agency action will help or hurt California in reaching its emission reduction goals under the State's Assembly Bill 32 (Global Warming Solutions Act), which helps frame the context for the BLM NEPA analysis.</p> <p>Id. at 77,826; see also USEPA, "Consideration Of Cumulative Impacts In EPA Review of NEPA Documents," EPA 315-R-99-002 (May 1999) ("EPA reviewers should recommend that the proper spatial scope of the analysis include geographic areas that sustain the resources of concern. Importantly, the geographical boundaries</p>

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				<p>should not be extended to the point that the analysis becomes unwieldy and useless for decision-making.”), available at https://www.epa.gov/sites/production/files/2014-08/documents/cumulative.pdf.</p> <p>The DSEIS should compare the cumulative impacts of the proposed LSCS license renewal with the cumulative impacts of the reasonable alternatives. And the benefits of LSCS license renewal in meeting Illinois public policy goals for controlling GHG emissions should be discussed in comparison to the reasonable alternatives. See, e.g., Illinois Governor’s Office, Executive Order on Climate Change and Greenhouse Gas Reduction, 2006-11 (Oct. 5, 2006) (establishing a Climate Change Advisory Group and stating that “Illinois is a national leader in addressing climate change by . . . proposing an aggressive energy independence plan that includes strategies to reduce carbon emissions, . . .”), available at http://www.illinois.gov/Government/ExecOrders/Documents/2006/execorder2006-11.pdf.</p> <p>3. Similarly, Federal courts have interpreted NEPA to require a “useful analysis of the cumulative impacts of past, present, and future projects.” <i>City of Carmel-by-the-Sea v. U.S. Dept. of Transp.</i>, 123 F.3d 1142, 1160 (9th Cir. 1997). This means that the EIS must analyze the combined effects of proposed actions in sufficient detail to be “useful to a decisionmaker in deciding whether, or how, to alter the program to lessen cumulative impacts.” <i>Id.</i> (quoting <i>Natural Res. Def. Council v. Hodel</i>, 865 F.2d 288, 299 (D.C. Cir. 1988)). The conclusion of MODERATE cumulative impacts without context is not useful for a decisionmaker or to the public.</p> <p>4. As indicated in Exelon’s ER (Section 4.12), the NRC regulations governing the cumulative impacts analysis for license renewal are focused on the cumulative impacts of actions “occurring in the vicinity of the nuclear plant” and on “regional resource characteristics” (quoting 10 CFR 51.53(c)(3)(ii)(O) and 10 CFR Part 51, Subpart A, Appendix B, Table B-1). There is no regulatory requirement for the NRC to consider the cumulative impacts of GHG emissions on Global Climate Change. If the NRC proceeds to evaluate such impacts, however, it must do so in a manner that is useful to agency decisionmakers and informs the public. See <i>Hodel</i>, 865 F.2d at 299. To evaluate and report the findings of cumulative impacts on global climate change in the manner done in the DSEIS, without focusing on the net benefits of the proposed action and placing the impacts in the context of meeting public policy goals for controlling GHG emissions, would neither be useful to decisionmakers nor inform the public.</p> <p>5. Other agencies take a different approach for dealing with the same topic. For example, the Federal Energy Regulatory Commission (FERC) very recently assessed the cumulative impacts on global</p>

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				<p>climate change from a natural gas pipeline expansion project. See FERC, Southeast Market Pipelines Project, Final Environmental Impact Statement at 3-295 to 3-298 (Dec. 2015), available at http://elibrary.ferc.gov:0/idmws/file_list.asp?document_id=14409956. FERC stated that because natural gas emits less CO2 than other fuel sources, such as fuel oil or coal which could reasonably be the fuel of choice at electric generating stations if the pipeline was not extended, it anticipated that the project would “reduce current GHG emissions” Emphasis added. Similarly, FERC noted that the overall lifecycle GHG emissions from natural gas plants are significantly lower than other fuel source alternatives (e.g., coal). Based on this comparison to alternatives, and focusing on the CEQ regulations to assess significance, FERC concluded that the gas pipeline project it evaluated “would not significantly contribute to cumulative global climate impacts.” Id. at 3-298; see also 40 CFR 1508.27 (explaining that the assessment of the significance of an environmental impact requires consideration of both context and intensity, including whether an action “is related to other actions” that could have cumulatively significant impacts).</p> <p>FERC did not find it necessary or appropriate to reach a conclusion on the cumulative impacts of all projects worldwide on global climate change (including the incremental contribution of the new pipeline), as the DSEIS does for LSCS license renewal. Such a vague, broad and all-encompassing inquiry into projects related and unrelated to the proposed action is not informative to decisionmakers. FERC also did not assess the project as a contributor of GHGs despite the obvious fact that fossil-fuel-powered construction and inspection equipment—that would release GHGs—would be used for the project. FERC’s approach provides a relevant line of inquiry and formulation of the conclusion for decisionmakers and the public. See also Christopher, “Success by a Thousand Cuts: The Use of Environmental Impact Assessment in Addressing Climate Change,” Vt. J. of Env’tl. L. 549, 594 (2008) (noting that EISs for wind farms often consider climate impacts by comparing a baseline alternative in which CO2 emitters continue operations with a zero emissions alternative offered by wind energy).</p> <p>6. Courts have held that when a proposed action will lead to a net beneficial environmental impact in a particular area, then the environmental review need not address the cumulative impact of the proposed action in that particular area. This is because a cumulative impacts analysis and discussion in an EIS helps identify mitigating actions. See generally 40 CFR § 1508.25(b)(3) (scope includes mitigating actions). When a proposed action has a net beneficial effect in a particular area, however, there is no logical reason to modify that beneficial project or mitigate the beneficial impact, simply because other past, present, or reasonably foreseeable future</p>

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				<p>projects in the area may have negative effects.</p> <p>For example, in <i>San Francisco Baykeeper v. U.S. Army Corps of Engineers</i>, the court considered challenges to the environmental review of proposed dredging and seaport renovations. Baykeeper argued that the Corps' NEPA reviews omitted a cumulative impacts discussion about the effect of the dredging and renovations on the introduction of invasive marine species. Baykeeper argued that the invasive species would be introduced to the bay through discharge of ballast water from ships, and that the dredging and renovations would increase the number of ships and, therefore, the volume of ballast water discharged. But smaller ships require more ballast water than larger, more stable ships. The Corps had concluded that the larger ships that would be able to visit the port after the dredging and renovations would, over time, replace the smaller, more numerous ships that required more ballast water. Accordingly, the Corps concluded that the proposed actions would reduce the cumulative volume of ballast water being discharged to the bay, and thereby have a beneficial effect on the risk of introducing invasive marine species transported in ballast water. See 219 F.Supp.2d 1001, 1008-14 (N.D.Cal. 2001).</p> <p>The court rejected Baykeeper's arguments, holding that because the proposed action would have a beneficial effect on the risk of invasive species introduction, there was no obligation to discuss the cumulative impacts of invasive species in detail. See <i>id.</i> at 1013-14. In dicta, the court suggested that it would have rejected the challenge even if, during one of the transitional years of the renovation, there was an increase in ballast waste discharge. <i>Id.</i> at 1017 n.9; see also <i>Defenders of Wildlife v. Babbitt</i>, 130 F.Supp.2d 121, 137 (D.D.C. 2001) (holding that because the "net effect" of the proposed actions on pronghorn species will be beneficial, there was no need for a cumulative impacts analysis of other projects for this proposed action). The contribution of LSCS to Global Climate Change is similar to the port renovations considered in <i>San Francisco Baykeeper</i>: LSCS's contribution has a net benefit to Global Climate Change when compared to reasonable alternatives. Accordingly, the NRC could prepare the SEIS without an analysis of cumulative impacts.</p> <p>7. Exelon provided similar comments on the DSEISs for Braidwood. See NUREG-1437, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 55, Regarding Braidwood Station, Units 1 & 2 at A-92 to A-93 (Nov. 2015). The NRC staff did not accept those comments, primarily because, citing 40 CFR 1508.7, the NRC staff concluded that the relevant inquiry focused on the "cumulative impact of GHG emissions resulting from continued operation of Braidwood on global climate change when added to the aggregate effects of other past, present, and</p>

Item #	Section #	Page #	Line #	Comment
				<p>reasonably foreseeable future actions” Id. at A-93. Exelon does not agree with the manner in which the staff has applied that regulatory provision. As previously noted, the incremental impact of additional GHG emissions from continued operation is de minimis, and as stated in the LSCS DSEIS and in the FSEIS for Braidwood, climate change is projected to occur “with or without” continued operation. This is not a case where the proposed project has a small but noticeable contribution to a larger impact. Quite the opposite. Like the proposed port renovations in San Francisco Baykeeper, which would lead to a reduction in the risk of invasive species impacts, and the S.E. Market pipeline analyzed by FERC, the most notable environmental result of LCSC’s operation of another 20 years would be millions of tons of avoided emissions (i.e., a beneficial impact). See 219 F.Supp.2d at 1013-14. The analysis used and conclusions reached in the DSEIS disregard this critical fact and, as such, fail to be useful to decisionmakers or inform the public.</p> <p>Commentators have recognized that “even the most miniscule emission becomes significant when added to the cumulative impact of global emissions.” See Wishnie, Student Article, “EPA for a New Century: Climate Change & the Reform of the National Environmental Policy Act,” 16 N.Y.U. Env’tl. L.J. 628, 646 (2008). But without a reasonable process, the cumulative impact analysis would create an “unworkable burden for agencies” as they consider smaller and smaller impacts. Id. Therefore, the analysis must focus on the relevant question of what the environmental impacts of the proposed action will be, in comparison to alternatives and in the context of public policy goals for controlling GHG emissions. See Gold and Imwalle, “Accounting for Climate Change in Environmental Review Documents,” Trends, Newsletter of the ABA Section of Environment, Energy, & Resources, at 8 (Jan. 2008).</p> <p>Exelon provides some suggestions for text edits in the comments that follow. A holistic revision to the DSEIS’ discussion about cumulative impacts on Global Climate Change is, however, required.</p>
14	4.16.11	4-129	8 to 9	<p>Revise lines 8 and 9 on p. 4-129 as follows:</p> <p>“... addresses the impact of GHG emissions resulting from <i>worldwide past, present, and reasonably foreseeable human activities</i> continued operation of LSCS on global climate change when added to the aggregate effects of other past, present, and reasonably foreseeable future actions.”</p> <p>As it appears in the DSEIS, the text implies that operation of LSCS provides some substantial contribution to the GHG emissions discussed in section 4.16.11, but as shown in Tables 4-22 and 4-23, it does not. As a further example, <i>none</i> of the 94.1 MMT of CO₂ emissions reported in Illinois from electricity</p>

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				generation in reference EIA 2015a, which is cited by the NRC Staff in the DSEIS, came from nuclear power plants.
15	4.16.11	4-130	2	Revise the text in line 2 on p. 4-130 as follows: “... performance rate standards for non-nuclear power plants that should be achieved by 2030. Future actions ...”
16	4.16.11	4-130	5	Revise the text in line 5 on p. 4-130 as follows: “... non-nuclear electricity generation, industrial processes, and agriculture. As presented in Section 4.15.3, ...”
17	4.16.11	4-130	6	Revise the text in line 6 on p. 4-130 as follows: “...direct GHG emissions from combustion sources resulting from ancillary operations at LSCS range from ...”
18	4.16.11	4-130	7	Revise the text in line 7 on p. 4-130 as follows: “... and total annual emissions range from 34,228 to 39,997 38,623 MT CO ₂ eq. In ...” This change is necessary because there are errors in Table 4-21 (p. 4-105), from which the information in line 7 on p. 4-130 was taken. The value in Table 4-21 for the 2011 LSCS GHG emissions from purchased electricity should be 33,493 MT CO ₂ e instead of 36,066 (see reference Exelon 2015d). As a result, the associated LSCS 2011 total GHG emissions should be 37,424 MT CO ₂ e. After the correction is made, the 2014 total of 38,623 MT CO ₂ e becomes the upper bound for the range of potential annual GHG emissions at LSCS. Therefore, 38,623 MT CO ₂ e per year should be used in the discussion in Section 4.16.11 on p. 4-130.
19	4.16.11	4-130	10	Revise line 10 on p. 4-130 as follows: “...level, GHG emissions from LSCS are minor miniscule relative to these inventories; this is evident, as ...”
20	4.16.11	4-130	11	Revise the sentence that begins in line 11 on p. 4-130 as follows: “The emissions impact of a single source on climate change— both additions of GHGs and avoided GHGs —requires ...”
21	4.16.11	4-130	14	Revise the sentence that ends in line 14 on p. 4-130 as follows: “...the year 2030) is dependent on past GHG emissions and, necessarily, avoided emissions. ...”
22	4.16.11	4-130	15	Revise the text in line 15 on p. 4-130 as follows: “... occur with or without the present and future GHG emissions from LSCS and the avoided GHG emissions that LSCS provides. In fact, as shown in Table 4-22, in comparison to replacement power scenarios, other than new nuclear, continued operation of LSCS would lead to the avoidance of GHG emissions that are far larger (by orders of magnitude) than LSCS’s GHG emissions. The NRC staff concludes ...”
23	4.16.11	4-130	25	Revise the text in line 25 on p. 4-130 as follows: “Therefore, the cumulative impact of GHG emissions on climate change from all sources throughout the world is noticeable but not ...”

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24	4.16.11	4-130	26-27	Revise the text in lines 26 and 27 on p. 4-130 as follows: " ... destabilizing. The NRC staff concludes that the cumulative impacts of GHG emissions from past, present, and reasonably foreseeable future actions are MODERATE. However, as As ..."
25	4.16.11	4-130	29	Revise the text in line 29 on p. 4-130 as follows: "... LSCS, when compared to global emissions, are minor. A <i>significance level characterization for such emissions during the LSCS license renewal term, however, is not meaningful to agency decision makers because cumulative impacts of GHG emissions on global climate change will take place with or without continued operation of LSCS, and because continued operation of LSCS would have a net beneficial effect on GHG emissions and thus on overall cumulative global climate change. Therefore, the staff has not assigned a significance level characterization to cumulative Global Climate Change impacts. ... "</i>
26	4.16.11	4-130	Table 4-23	In footnote (d) of Table 4-23 on p. 4-130, the DSEIS cites the wrong reference for the LSCS GHG emissions. The LSCS GHG emissions data (presented in Table 4-21 of the DSEIS) was provided in Exelon's response to RAI MA-07 (ML15195A350), which is reference "Exelon 2015d" in section 4.18.

Exelon Generation Company, LLC
Corrections to Supplement 57 to the Draft Generic Environmental Impact Statement for
License Renewal of Nuclear Plants Regarding LaSalle County Station, Units 1 and 2

NOTE: Where changes to draft text are suggested, proposed inserts are in ***bolded italic*** font and proposed deletions are in ~~strikethrough~~ font.

Item #	Section #	Page #	Line #	Correction
1.	A&A	xxvii	16	In line 16 on p. xxvii, correct the text as follows: “APE averted public exposure <i>area of potential effect ...</i> ”
2.	2.2.2	2-6	17	Correct the sentence in lines 15 to 17 on p. 2-6, as follows: The [Illinois] law also includes an energy efficiency standard that requires utilities to implement cost-effective energy efficiency measures to meet energy savings of 1.2 percent by calendar year 2016 and thereafter (ILGA 2011). SB 1652, Section 5/8-103 (ILGA 2011, page 46) sets the energy savings goal for Illinois utilities at 2 percent of energy delivered in the year commencing June 1, 2015 and thereafter.
3.	2.2.2.1	2-9	6 to 8	Correct the sentence in lines 6 to 8 on p. 2-9 as follows: Twelve nuclear power plants operate in the ROI; eight <i>ten</i> applicants have received renewed licenses, and three <i>two</i> additional applicants have applied for renewed licenses from the NRC (including LSCS) (NRG 2015 <i>http://www.nrc.gov/reactors/operating/licensing/renewal/applications.html</i>). The corrections reflect renewals of the Byron and Braidwood Stations' operating licenses in November 2015 and January 2016, respectively (see http://www.nrc.gov/reactors/operating/licensing/renewal/applications.html).
4.	2.2.2.4	2-16	18	The sentence in lines 17 to 18 on p. 2-16 reads as follows: For the solar portion of this combination alternative, approximately 7,397 ac (2,993 ha) would be required to support an installed net capacity of 227 MWe. In the Combination Alternative column of Table 2-1 on p. 2-8, the Land Requirements row reads, in part, as follows for the 227 MWe installed solar PV facility portion: [S]olar PV facilities would require 6,749 ac (2,731 ha) (Ong et al. 2013). The inconsistency between Table 2-1 and the sentence in lines 17 to 18 on p. 2-16 with respect to land requirements should be corrected or explained.

Item #	Section #	Page #	Line #	Correction
5.	2.4	2-24	1 to 2	<p>The sentence in lines 1 to 2 on page 2-24 reads as follows:</p> <p style="padding-left: 40px;">The environmental impacts of the proposed action ... would be SMALL for all impact categories."</p> <p>However, in the "Proposed Action" column of Table 2-2 on p. 2-25, the "Aquatic Resources" row contains the words "SMALL to MODERATE."</p> <p>The inconsistency between Table 2-2 and the sentence in lines 1 to 2 on page 2-24 with respect to impact level characterization should be corrected based on the resolution of Exelon Generation's comments regarding section 4.7.1.2 in the DSEIS, which are presented in Enclosure 1 (Items 1 through 9) to this comment letter.</p>
6.	2.4	2-26	Table 2-2	<p>The "Key" for Table 2-2 on p. 2-26 should be corrected as follows:</p> <p style="padding-left: 40px;">Key: IGCC = coal-integrated gasification combined-cycle (alternative), NGCC = natural gas combined-cycle (alternative), NRHP = National Register of Historic Places, APE = area of potential effect, CRMP = Cultural ResponseResources Management Plan, and IHPA = Illinois Historic Preservation Agency.</p>
7.	3.1.1	3-1	16	<p>Correct the text in line 16 on p. 3-1, as follows:</p> <p style="padding-left: 40px;">" ... Braidwood Generating Station in Braceville, Illinois. Interstate Highway 80 is 8 mi (13 km) north ..."</p>
8.	3.1.1	3-1	22 to 24	<p>Correct the sentence in lines 22 to 24 on p. 3-1 as follows:</p> <p style="padding-left: 40px;">The Chicago, Rock Island and PacificCSX Railroad, which runs parallel to, and slightly north of, the Illinois River, is the closest railroad line in this area.</p> <p>Exelon Generation provided this updated railroad ownership information in response to RAI LU-03 (ML15185A375). Also, DSEIS Section 3.1.6, p. 3-20, reflects the updated railroad information.</p>
9.	3.1.3	3-7	20	<p>In line 20 on p. 3-7, correct the text as follows:</p> <p style="padding-left: 40px;">" ... the a natural levee of the Illinois Rivercreated by existing topography forms the fourth side."</p>
10	3.1.3	3-11	1	<p>In line 1 on p. 3-11, correct the text as follows:</p> <p style="padding-left: 40px;">" ... water supplied to the facility from the UHS portion of the cooling pond to 101.25 °F (38.5 °C)within diurnal temperature limits based on the time of day, but that are no higher than 104 °F (40 °C) ..."</p> <p>This correction is needed because Tech Spec 3.7.3 was revised by Letter from NRC to Exelon Generation (B. Hanson) dated 11/19/2015, ADAMS Accession No. ML15202A578.</p>

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11	3.1.3	3-11	4	Correct the text in the parenthetical on p. 3-11, line 4, as follows: “... (3.36 million m ³ /d) ...”
12	3.1.3	3-11	11	In line 4, on p. 3-11, correct the text as follows: “... openings. Trash rakes prevent larger debris and aquatic biota from entering the system. The ...” The deleted sentence is incorrect because bar grills, not the trash rake, prevent larger debris from entering the system. The trash rake is used to remove such debris from the bar grill. The bar grills are sometimes referred to collectively as the trash rack.
13	3.1.3	3-11	44 to 46	Correct the sentence in lines 44 to 46 on p. 3-11 as follows : “Nevertheless, the blowdown line radwaste discharge line is equipped with a radiation monitor that will automatically isolate close the radwaste discharge line valve in the event of a high-radiation signal ...” See LSCS UFSAR, subsection 11.2.2.6, p. 11.2-19.
14	3.1.3	3-11	46	The reference “Exelon 2014b” is cited in line 46 on p. 3-11. This appears to be an error because Section 3.14 in the Draft SEIS identifies “Exelon 2014b” as follows:: [Exelon] Exelon Generation Co. LLC. 2014b. Illinois Water Inventory Program [LaSalle County Station report submitted to the Illinois State Water Survey for calendar year 2013]. ADAMS No. ML15195A385. The document identified as Exelon 2014b contains no information about the LSCS radwaste processing system.
15	3.1.3	3-12	2 to 3	In lines 2 to 3 on p. 3-12, correct the text as follows : “...lined swale that connects with the Illinois River at RM 249.4 (RKm 401) and just upstream downstream of the LSCS river screen house...”
16	3.1.5	3-18	13 to 14	In line 14 on p. 3-18, correct the text as follows: “... nuclear power plants generate both hazardous and nonhazardous wastes that are not contaminated with either radionuclides or hazardous chemicals. ” This correction is needed because contamination with hazardous chemicals is not the only criteria for a nonradioactive waste to be classified as hazardous waste, and because this section addresses nonradioactive wastes that are both hazardous and nonhazardous.
17	3.1.5	3-18	34 to 35	In lines 34 to 35 on p. 3-18, correct the text as follows because nonradioactive industrial wastewaters are not processed at the sewage treatment plant : “... Nonradioactive industrial wastewater is also processed at the a

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				separate onsite wastewater treatment plant, and the treated effluent is also discharged into the cooling pond.
18	3.1.6.1	3-19	12 to 15	In lines 12 to 15 on p. 3-19, correct the text as follows because LSCS has five, rather than six, diesel generators to supply standby a-c power: “... LSCS has six five diesel generators, (three for each nuclear unit) that can each Two diesel-generators each are provided for Units 1 and 2. The other diesel-generator is arranged to serve essential auxiliaries for either Unit 1 or Unit 2 (Exelon 2014g, Section 1.2.2.6.7). Each diesel-generator is designed and installed to provide up to 4.16 kV of power, which is ample capacity to supply all power required for the safe shutdown of both units in the event of a total loss of offsite power (Exelon 2014g, Section 8.3.1.2).”
19	3.1.6.3	3-19	39	In line 39 on p. 3-19, correct the text as follows: “... for potable water and other uses.”
20	3.1.6.4	3-20	11	In line 11 on p. 3-20, correct the text as follows: “... Lock and Dam at Marseilles, Illinois, and the Dresden Island Lock and Dam south of Channahon, ...”
21	3.1.6.4	3-20	12 to 13	In lines 12 to 13 on p. 3-20, correct the sentence as follows: “... These lock and dam sites are part of the Illinois Waterway, which flows from Chicago, Illinois, to Grafton, Illinois, slightly upstream from St. Louis, Missouri, and is composed of seven water systems: ...” See DSEIS Section 3.5.1.1, pg 3-35, line 43.
22	3.2.1.1	3-21	18	In line 18 on p. 3-21, correct the text as follows because the cooling pond is located on the eastern side of the LSCS site: “A cooling pond occupies the western eastern side of the site and accounts for about half of the site area.
23	3.2.2	3-24	3 to 4 and 12	Correct the sentence in lines 3 to 4 on p. 3-24 as follows: “... The site’s grade elevation is approximately 216 m (710 ft) above MSL, which is one of the highest points within a 3-km (5-mi) radius. This correction is needed because, in line 12 on p. 3-24, the DSEIS describes wind turbines located within 5 miles of LSCS and indicates them to be at slightly higher elevations (725 to 750 ft) than the LSCS site. Also, the LSCS License Renewal Environmental Report (ER) (p. 3-9) and the UFSAR on which it is based (e.g., Section 2.3.2.3) indicate the plant is one of the highest points, but does not designate

Item #	Section #	Page #	Line #	Correction
				<p>it as the highest point, within a 5-mile radius.</p> <p>The ER (page 3-9) goes on to describe the slightly higher ground west and east of LSCS as the site of several wind turbines.</p>
24	3.3.1	3-24	25	<p>Correct the sentence in line 25 on p. 3-24 as follows:</p> <p>“LSCS is located in LaSalle County in northeastern Illinois, approximately 7075 mi (113120 km) southwest of downtown Chicago and 35 mi (56 km) southwest of Joliet, Illinois. ...”</p> <p>This correction is needed for consistency with the estimated distance to Chicago provided on p. 3-21 in the DSEIS, and to provide an approximate point of reference within the Chicago city limits for the measurement.</p>
25	3.3.2	3-26 to 3-27	22 to 24 and 1 to 9	<p>Correct the paragraph that begins in line 22 on p. 3-26 and ends in line 9 on p. 3-27 as follows because a renewed LSCS FESOP Permit No. 099802AAA was issued on January 7, 2016:</p> <p>“Illinois air pollution control rules are issued under Title 35 of the IAC. Air emission sources at LSCS are regulated under a Federally Enforceable State Operating Permit (FESOP) (Permit No. 099802AAA, issued in December 2000 January 7, 2016) (IEPA 2016). issued by the IEPA (IEPA 2000). A source is eligible for a FESOP (also known as “synthetic minor” air permit) if the potential to emit from the source triggers CAA permit program requirements but if maximum actual emissions are below, or can be restricted to remain below, major source thresholds. LSCS’s FESOP permit was issued in December 2000, and expired in December 2005. In accordance with 35 IAC Part 201 and the Illinois Environmental Protection Act of 1970 (415 Illinois Compiled Statute (ILCS) 5/39), Exelon submitted a renewal application for the FESOP permit (on July 15, 2005) to the IEPA 90 days before the expiration of the permit; therefore, the conditions of the FESOP are administratively extended. On April 7, 2015, the IEPA issued a draft FESOP permit for LSCS for public review and comment (IEPA 2015).”</p>
26	3.3.3	3-27	Table 3-4	<p>Correct the entry in the “2013” column and “CO” row of Table 3-4 on p. 3-27 as follows:</p> <p>1.91.6</p> <p>This correction is needed because the value reported in the 2013 LSCS Annual Emissions Report is 1.754656 tons of CO or approximately 1.6 metric tons (see Response to RAI MA-05 in Letter to NRC from Exelon Generation (M. Gallagher) dated 7/02/2015).</p>
27	3.5.1.1	3-39	17	<p>In line 17 on p. 3-39, correct the text as follows:</p> <p>“... sanitary effluent. These lagoons are clay and geotextile-lined</p>

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				<p>impoundments and are located to the north ..."</p> <p>This correction is needed to accurately characterize the design of the sewage treatment lagoons, as described in the LSCS License Renewal Environmental Report, section 2.2.8, p. 2-16.</p>
28	3.5.1.2	3-39	46	<p>In line 46 on p. 3-39, correct the text as follows because LSCS has a cooling pond rather than a cooling tower :</p> <p>"... essential cooling water systems. Cooling towerpond blowdown and other permitted effluent streams ..."</p>
29	3.5.1.2	3-40	Table 3-6	<p>Correct the "Sources" cited for Table 3-6 as follows:</p> <p>"Sources: Exelon 2011a, 2012a, 2013a, 2014a, 2014d2014b"</p> <p>This correction is needed because the 2013 Illinois water survey report is listed in section 3.14 of the DSEIS as "Exelon 2014b.".</p>
30	3.5.1.2	3-41	17	<p>In line 17 on p. 3-41, correct the text as follows:</p> <p>"... vicinity of LSCS (Figure 3-53-11) and are listed in the Illinois Water Inventory Program. These are ..."</p> <p>This correction is needed because Figure 3-5 does not show the locations of the two industrial facilities mentioned in the text.</p>
31	3.5.1.3	3-43	11	<p>In line 11 on p. 3-43, correct the text as follows because the plant's outfalls are summarized in Table 3-7 rather than on the cited figure:</p> <p>"...through the plant's outfalls to the Illinois River, as summarized in FigureTable 3-7. The location of ..."</p>
32	3.5.1.3	3-43	11 to 12	<p>In lines 11 to 12 on p. 3-43, correct the text as follows:</p> <p>The location of the LSCS's primary outfall (001) to the Illinois River is shown in Figure 3-53-11.</p> <p>This correction is needed because Figure 3-5 does not show the location of LSCS Outfall 001.</p>
33	3.6.3	3-54	29	<p>In line 29 on p. 3-54, correct the text as follows because the cooling pond is located on the eastern side of the LSCS property:</p> <p>"A cooling pond occupies the western<u>eastern</u> side of the site and accounts for about half of the site area."</p>
34	3.7.1	3-60	2	<p>In line 2 on p. 3-60, correct the text as follows:</p> <p>"... intake, and the Marseilles Lock and Dam, 2.4 mi (3.5 km) downstream of the LSCS discharge ..."</p> <p>This correction is needed because, while the Marseilles Dam is 2.4 mi downstream from the LSCS discharge, the Marseilles Lock is 4.9 mi (7.9 km) downstream.</p>

Item #	Section #	Page #	Line #	Correction
35	3.7.1.1	3-65	Table 3-10	In Table 3-10, because the species " <i>Micropterus dolomieu</i> smallmouth bass" is not a member of the "Catostomidae" family, but rather is a species within the "Centrarchidae" family, the row containing " <i>Micropterus dolomieu</i> smallmouth bass" should be moved up to below the row containing " <i>Lepomis macrochirus</i> bluegill," within the family "Centrarchidae."
36	3.7.2.1	3-68	10 to 11	In lines 10 to 11 on p. 3-68, correct the text as follows: "...to the cooling pond started operations, at which point IDNR started stocking the cooling pond with species from the hatchery (EA 2002). IDNR assumed management of the hatchery in 1984. Initially, IDNR stocked the LSCS cooling pond with ..."
37	3.7.2.1	3-68	19	In line 19 on p. 3-68, correct the text as follows: "... species, such as walleye and tiger -muskellunge."
38	3.7.3.1	3-70	13 to 14	In lines 13 to 14 on p. 3-70, correct the text as follows: "... study at the LSCS river intake. In response to this collection, Exelon noted that EA Engineering intends to request a scientific collector's permit report from IDNR file a scientific collectors report with IDNR. This species was not ..."
39	3.7.3.1	3-72	3	In line 3 on p. 3-72, correct the text as follows: "... boating commercial barge accident (Kanter 2013). This species was not collected during LSCS preoperational ..."
40	3.7.4	3-72 and 3-73	39 to 46 and 1 to 3	Either re-name section 3.7.4 as discussed below, or move the information about bryozoans to either section 3.7.1.1 or section 3.7.2.1 in the DSEIS. This correction is needed because, although bryozoans may be nuisance species, they are actually native to waters of Illinois including the Illinois River. As such, the inclusion of bryozoans in the section 3.7.4, Non-Native Species, discussion is inaccurate. Perhaps the easiest edit is to re-title the section as "Non-Native and Nuisance Species." Bryozoans were described in the ER (Section 3.7.1.6, Invasive/Non-native Species) because they are invasive.
41	3.10.1	3-83	Table 3-15	Correct the "Source" cited for Table 3-15 on p. 3-83 because, while "Exelon 2014" is cited, there is no corresponding entry for "Exelon 2014" in the reference list in section 3.14. The source for the data presented in Table 3-15 is Exelon Generation's response to RAI SE-01, which was provided to NRC in a letter dated July 2, 2015 (ADAMS Accession No. ML15195A403).
42	3.10.1	3-83	9	In line 9 on p. 3-83, the text citing the LSCS License Renewal Environmental Report (i.e., "Exelon 2014a") should be corrected because the workforce information being presented is not based on Exelon 2014a. Rather, it is based on Exelon Generation's response to RAI SE-01, which was provided to NRC in a letter dated July 2,

Item #	Section #	Page #	Line #	Correction
				2015 (ADAMS Accession No. ML15195A403).
43	3.10.5	3-94	Table 3-27	Correct the "Source" cited for Table 3-27 on p. 3-94 because, while the text cites the LSCS License Renewal Environmental Report (i.e., "Exelon 2014a") as the source for the 2013 tax data being presented, the data were not based on Exelon 2014a. Rather, the data are based on Exelon Generation's response to RAI SE-02, which was provided to NRC in a letter dated July 2, 2015 (ADAMS Accession No. ML15195A404).
44	3.10.5	3-95	1	In line 1 on p. 3-95, correct the text as follows: "In addition, Exelon makes annual payments to the Illinois Emergency Preparedness Management Agency for ..."
45	3.10.5	3-95	Table 3-28	Correct the "Source" cited for Table 3-28 on p. 3-95 because, while the text cites the LSCS License Renewal Environmental Report (i.e., "Exelon 2014a") as the source for the annual payments to IEMA being presented, the data were not based on Exelon 2014a. Rather, the data are based on Exelon Generation's response to RAI SE-04, which was provided to NRC in a letter dated July 2, 2015 (ADAMS Accession No. ML15195A406).
46	3.10.6	3-95	20	In line 20 on p. 3-95, correct the text as follows: "... the site. The Chicago, Rock Island & Pacific CSX Railroad is the closest railroad line to LSCS. It ..." This updated railroad information was provided in Exelon Generation's response to RAI LU-03, which was provided to NRC in a letter dated July 2, 2015 (ADAMS Accession No. ML15195A375).
47	3.11.5	3-100	22 to 23	In lines 22 to 23 on p. 3-100, correct the text as follows because section 3.11.5 does not address electric shock hazards : "Two additional human health issues are addressed in this section: This section addresses physical occupational hazards and electric shock hazards applicable only to workers."
48	3.12.1	3-102	30	In line 30 on p. 3-102, correct the text as follows because the ROI minority population data for 2014 is located in Table 3-21: "... 7.4 percent) and now comprise 30.5 percent of the ROI population (see Table 2-10.3-33-21). The ..."
49	4.2.6.1	4-5	2 nd line, 1 st ¶	In the 2 nd line of the 1 st paragraph in Section 4.2.6.1 on p. 4-5, correct the text as follows: "... as discussed for the NGCC alternative in Section 4.3.3.1 4.2.5.1 . Accordingly, the impacts to land use ..."
50	4.2.6.2	4-5	2 nd line, 1 st ¶	In the 2 nd line of the 1 st paragraph in Section 4.2.6.2 on p. 4-5, correct the text as follows: "... than those described in Section 4.3.3.2 4.2.5.2 for the NGCC

Item #	Section #	Page #	Line #	Correction
				alternative and, therefore, would be ..."
51	4.3.5.1	4-14	Last bulleted item; and 1 st line, last (partial) ¶	In the last bulleted item on p. 4-14 (Section 4.3.5.1), the CO ₂ e emissions from the NGCC alternative are stated to be "9.8 million tons per year." This value is incorrect. The CO ₂ e emission rate of 8.2 million MT per year is correct based on the cited emissions factor. However, 8.2 million MT converts to approximately 9 million tons, not 9.8 million tons. The incorrect value appears twice –once in the bulleted list and again in the last (partial) paragraph at the bottom of page 4-14, and should be corrected in both locations.
52	4.3.6	4-16	1 st ¶ in Sec. 4.3.6, 4 th line	In the 4 th line of the 1 st paragraph in Section 4.3.6 on p. 4-16, the text states that the NGCC portion of the Combination Alternative would have "a total net capacity of 360 MWe." That net capacity is consistent with the description of the combination alternative in Section 2.2.2.4 (see DSEIS page 2-14, lines 9 and 22). However, on page 4-17, in the partial paragraph before the bulleted list, the text states that the projected air emissions for the NGCC portion of the Combination Alternative were estimated "[a]ssuming a total <u>gross</u> capacity of 360 MWe" (emphasis added), and the values for the emission rates presented in the bulleted list on p. 4-17 were calculated using 360 MWe as the gross capacity (306 MWe net). Accordingly, the NGCC emissions in the bulleted list are inconsistent with Section 2.2.2.4, and they need to be recalculated using a total <u>net</u> capacity of 360 MWe.
53	4.5.1.1	4-23	1 st full ¶ on p. 4-23, 8 th to 9 th lines	In the 8 th and 9 th lines of the 1 st full paragraph on p. 4-23, correct the text as follows: "... Agrium U.S., Inc., and PCE PCS Phosphate, Marseilles Operation. These facilities are discussed in Section 3.5.1.2 and shown in Figure 3– 53-11 ." These corrections are needed because Figure 3-5 does not show the locations of the two industrial facilities mentioned in the text and because the name "PCE Phosphate" is incorrect.
54	4.5.1.2	4-25	1 st full ¶ on p. 4-25, 4 th line	In the 4 th line of the 1 st full paragraph on p. 4-25, correct the text as follows: " ... a maximum of 750 milligrams per liter (mg/L) a concentration below the applicable State of Illinois water quality standard for receiving waters as set forth in 35 IAC 302 , which is less than half the total dissolved solids ..." This correction is needed due to recent LSCS operational procedure changes.
55	4.6.4	4-35	3 rd ¶ in Sec. 4.6.4, 14 th to	In the 14 th to 15 th lines of the 3 rd paragraph in Section 4.6.4 on p. 4-35, correct the text as follows: "... The effects of climate change on terrestrial resources are

Item #	Section #	Page #	Line #	Correction
			15 th lines	discussed in Section 4.13.3.24.15.3.2. ..."
56	4.6.5	4-36	3 rd ¶ in Sec. 4.6.5, 5 th to 6 th lines	In the 5 th to 6 th lines of the 3 rd paragraph in Section 4.6.5 on p. 4-36, correct the text as follows: "... The effects of climate change on terrestrial resources are discussed in Section 4.13.3.24.15.3.2. ..."
57	4.6.6	4-36	1 st ¶ in Sec. 4.6.6, 2 nd line	In the 2 nd line of the 1 st paragraph in Section 4.6.6 on p. 4-36, correct the text as follows: "... as discussed for the NGCC alternative in Section 4.3.3.14.6.5. Accordingly, the impacts to terrestrial ..."
58	4.7.1.2	4-39	Last ¶ on p. 4-39 in Sec. 4.7.1.2, 7 th line	In the 7 th line of the last paragraph on p. 4-39 (Section 4.7.1.2), the text discussing the WOE approach incorrectly references "NRC 2013b" (Event Reporting Guidelines). It appears the staff intended to reference the SEIS for the South Texas Project license renewal, which is "NRC 2013c." Accordingly, correct the text as follows: "... (e.g., NRC 2010, 2013b 2013c , 2015a, 2015b). Menzie et al. (1996) defines WOE as "... the process ..."
59	4.9.4	4-63	1 st ¶ in Sec. 4.9.4, 1 st line on p. 4-63	In the 1 st line of the 1 st paragraph on p. 4-63 (in Section 4.9.4), correct the text discussing the IGCC Alternative as follows: "...alternative is sited on the approximately 250 350 ac (101 142 ha) of undeveloped land on the LSCS site, ..." This correction is needed because the amount of undeveloped land was updated to 350 ac in Exelon Generation's response to RAI LU-01, which was provided to NRC by a letter dated July 2, 2015 (ADAMS Accession No. ML15195A373), and in Section 3.2 (p. 3-5) of the ER revisions, which were provided to NRC with a letter dated July 31, 2015 (ADAMS Accession No. ML15212A259). Note that Section 3.2.1.1 on p. 3-21, line 21 of the DSEIS identifies the correct acreage for undeveloped land.
60	4.9.5	4-63	1 st ¶ in Sec. 4.9.5, 5 th line	In the 5 th line of the 1 st paragraph in Section 4.9.5 on p. 4-63, correct the text as follows: "... be used. If the power plant is sited on the approximately 250 350 ac (101 142 ha) of undeveloped land ..." This correction is needed because the amount of undeveloped land was updated to 350 ac in Exelon Generation's response to RAI LU-01, which was provided to NRC by a letter dated July 2, 2015 (ADAMS Accession No. ML15195A373), and in Section 3.2 (p. 3-5) of the ER revisions, which was provided to NRC with a letter dated July 31, 2015 (ADAMS Accession No. ML15212A259). Note that Section 3.2.1.1 on p. 3-21, line 21 of the DSEIS identifies the correct acreage for undeveloped land.

Item #	Section #	Page #	Line #	Correction
61	4.10.5.2	4-69	1 st ¶ in Sec. 4.10.5.2, 1 st line	<p>In the 1st line of the 1st paragraph in Section 4.10.5.2 on p. 4-69, correct the text as follows:</p> <p style="padding-left: 40px;">“Transportation impacts associated with construction and operation of a threefive-unit, NGCC power ...”</p> <p>This correction is needed because the NGCC alternative as described in Section 2.2.2.3 of the DSEIS would require five 560-MWe NGCC units to replace the generating capacity of the LSCS.</p>
62	4.11.1.1	4-73	Last two lines on p. 4-73	<p>In the last sentence on p. 4-73, correct the text as follows:</p> <p style="padding-left: 40px;">“... The permit limitsrequires monitoring and reporting of the average monthly and daily maximum rates of blowdown discharges to the river (Outfall 001) to a maximum rate of 45 gallons per minute (gpm) (0.17 m3 per minute (m3/min)), ...”</p> <p>This correction is needed because the NPDES permit does not set a maximum flow rate for the LSCS blowdown. The correct NPDES permit conditions are described in Section 3.5.1.3 of the DSEIS, and this change is consistent with that DSEIS section.</p>
63	4.11.1.2	4-78	Item (4) in 2 nd full ¶ on p. 4-78	<p>In the list of SAMA evaluation components provided in the 2nd full paragraph on p. 4-78, under the heading “Overview of SAMA Process,” insert a new component between the existing items (2) and (3), and renumber the list, as follows:</p> <p style="padding-left: 40px;">(3) Exelon screened out SAMA candidates that are not applicable to the LSCS plant design or are of low benefit in boiling water reactors (BWRs) such as LSCS, as well as candidates that have already been implemented at LSCS or whose benefits have been achieved at LSCS using other means.</p> <p style="padding-left: 40px;">(3)(4) Exelon estimated the costs of implementing the unscreened SAMA candidates, and those whose estimated implementation cost exceeded the maximum possible averted cost-risk were also screened out.</p> <p style="padding-left: 40px;">(5) Exelon estimated how much each remaining unscreened SAMA could reduce risk. Referred to as potential benefits of implementing each SAMA, those estimates were developed in terms of dollars in accordance with NRC guidance for performing regulatory analyses. The costs of implementing the candidate SAMAs were also estimated. Sensitivity analyses were performed by Exelon to quantify effects on the SAMA evaluation.</p> <p style="padding-left: 40px;">(4) Exelon compared the implementation cost andwith the benefit offor each remaining unscreened SAMA candidate to determine whether it was potentially cost beneficial (the</p>

Item #	Section #	Page #	Line #	Correction																																				
				<p>benefits of the SAMA exceeded its cost). <i>Sensitivity analyses were then performed by Exelon to quantify effects on the cost-benefit evaluation.</i></p> <p>This correction is needed because, as written, item (4) states that “Exelon compared the cost and benefit of each <u>remaining</u> SAMA to determine...” (emphasis added), but there is nothing in the list that describes the early screening steps, which cause there to be such “remaining” SAMAs.</p>																																				
64	4.11.1.2 and F.2.1	4-79 and F-3	Table 4-14 and Table F-1	Table 4-14 on p. 4-79 and Table F-1 on p. F-3 both contain a row indicating that “Loss of Feedwater” contributes 1.1E-8/yr to the CDF. The entry in each table should be replaced by <i>1.2E-7/yr</i> . See Table F.2-2 in Appendix F to the LSCS ER.																																				
65	4.11.1.2	4-83	2 nd ¶ on p. 4-83, 4 th to 6 th lines	<p>In the 2nd paragraph on p. 4-83, correct the text as follows:</p> <p>“... Table 4–16 summarizes the assumptions used to estimate the risk reduction for each evaluated<i>potentially cost-beneficial</i> SAMA, the estimated risk reduction in terms of CDF percent reduction, population dose, offsite economic cost, and the estimated total benefit (present value) of the averted risk. ...”</p> <p>This correction is needed because Table 4-16 in the DSEIS only addresses the potentially cost beneficial SAMAs. Appendix F in the DSEIS contains a table that includes all of the evaluated SAMAs.</p>																																				
66	4.15.3.1	4-105	Table 4-21	<p>In Table 4-21 on p. 4-105, correct the “Purchased Electricity” and “Total” columns in the “2011” row as follows:</p> <table><tr><th>Year</th><th></th><th></th><th>Purchased Electricity</th><th></th><th>Total</th></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2011</td><td></td><td></td><td>36,066<i>33,493</i></td><td></td><td>39,997<i>37,424</i></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> <p>See DSEIS Section 4.18, References, Exelon 2015d (ADAMS Accession No. ML15195A350).</p>	Year			Purchased Electricity		Total							2011			36,066 <i>33,493</i>		39,997 <i>37,424</i>																		
Year			Purchased Electricity		Total																																			
2011			36,066 <i>33,493</i>		39,997 <i>37,424</i>																																			
67	4.16.11	4-130	Table 4-23	<p>In Table 4-23 on p. 4-130, correct footnote (d) as follows:</p> <p>(d) Emissions rounded from and obtained from Exelon 2015e<i>2015d</i>.</p> <p>This correction is needed because the LSCS GHG emissions data (presented in Table 4-21 of the DSEIS) was provided to the NRC in Exelon’s response to RAI MA-07 (ADAMS Accession No.</p>																																				

Item #	Section #	Page #	Line #	Correction																																																	
				ML15195A350), which is listed as "Exelon 2015d" in DSEIS Section 4.18, References.																																																	
68	F.1	F-1	16	As is stated in Section 4.11.1.2 of the DSEIS (p. 4-82), the number of SAMA candidates initially identified for LSCS is 26 rather than 27."																																																	
69	F.1	F-1	16-19	As documented in section 4.11.1.2, page 4-82, 26 SAMAs were originally identified and 2 were originally screened on cost. As was documented in RAI responses (ADAMS Accession No. ML15149A370), one of these 2 SAMAs was subsequently determined to not be screened on cost in Phase 1 due to modeling corrections.																																																	
70	F.2	F-6	15	<p>In line 15 on p. F-6, correct the text as follows:</p> <p>"... open supporting requirements, threefour are related to documentation and three have a relatively ..."</p> <p>This change is needed because DA-C10 is a documentation issue.</p>																																																	
71	F.4	F-33	Table F-6	<p>In Table F-6 on p. F-33, correct the entry in the column labeled "Baseline (Internal + External)," and row labeled "6 – CREATE ECCS SUCTION STRAINER BACKFLUSH CAPABILITY WITH RHRSW" as follows:</p> <table><tr><th>Individual SAMA and Assumption</th><th></th><th></th><th></th><th>Baseline (Internal + External)</th><th></th><th></th></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>6 – CREATE ECCS SUCTION ...</td><td></td><td></td><td></td><td>\$88K\$87K</td><td></td><td></td></tr></table>	Individual SAMA and Assumption				Baseline (Internal + External)																																						6 – CREATE ECCS SUCTION ...				\$88K \$87K		
Individual SAMA and Assumption				Baseline (Internal + External)																																																	
6 – CREATE ECCS SUCTION ...				\$88K \$87K																																																	
72	F.4	F-34	Table F-6	In Table F-6 on p. F-34, the modeling description for SAMA 11 provided in the column labeled "Individual SAMA and Assumption" is incorrect. The text appears to be the same as for SAMA 8, and it should be replaced with text appropriate for SAMA 11.																																																	
73	G.3.1	G-5	Table G-2	In Table G-2 on p. G-5, the column labeled "Source" cites "Exelon 2015a, 2015b" in two rows—the row labeled "Dose rate at 1 m from vehicle, mrem/hr" and the row labeled "Packaging dimensions, m." However, Section G.5, References (p. G-13), contains only a single "Exelon 2015" entry (Exelon Generation's response to RAI TR-09, ML15240A002). Accordingly, reference information for "Exelon 2015b" should be added in Section G.5.																																																	