Rule 007 Consultation - 2025

Green Cat Renewables Comments

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1 Scope of Comments

Green Cat Renewables (GCR) are a specialized engineering consultancy, and have been providing technical, regulatory, and engineering consulting support to renewable energy developments for 20 years. GCR do not own or operate renewable energy projects in Canada; however, the GCR team have a comprehensive understanding of both renewable energy development, and the AUC application process. As such, GCR have focused its comments on the technical assessments that it has significant experience with, and has provided expert testimony to the AUC on; in particular:

- Shadow Flicker Assessment (SFA) Requirements (WP17 & WP18)
- Solar Glare Hazard Assessment (SGHA) Requirements (SP14, SP15 & SP16)
- Visual Impact Assessment (VIA) Requirements WP28, SP26, TP26, OP26, & HE21

1.1 Shadow Flicker Assessment Comments

To date, the AUC has not adopted shadow flicker thresholds or limitations. This issue was considered in the AUC's Rule 007 updates in 2020 and 2021, with GCR having been retained to present the AUC with an overview of other jurisdictional requirements for shadow flicker assessments and residential shadow flicker limits.

GCR agree that both a "Worst-Case Scenario" and an "Adjusted Case Scenario" should be modelled to assess shadow flicker, as described in the Blackline Version. This has already become typical practice for shadow flicker assessments submitted to the AUC as part of wind power plant applications.

Overall, GCR disagree that a limit on shadow flicker is required, and GCR consider that the AUC could continue to operate on the requirement that developers respond to any complaints registered relating to shadow flicker. However, if the AUC intends to adopt a threshold, GCR consider that a comparison of the adjusted-case impacts to a threshold of 30 hours of shadow flicker predicted annually is a reasonable approach that aligns with other jurisdictions in Canada and other countries; however, GCR do not agree that the worst-case results should be compared to a threshold of 30 minutes per day, as proposed in WP17.

The Worst-Case Scenario presents an overly conservative assessment of predicted results, to the point of becoming unrealistic. While it is conceivably possible predictions in excess of 30 minutes of flicker per day in the worst-case could be experienced after a project begins operating, this is very unlikely to occur routinely or regularly due to the modelling conservatisms inherent to the worst-case scenario. GCR suggest that a daily shadow flicker limit based on the worst-case should not be implemented as it could be overly burdensome for a situation that may never be realized.

Notwithstanding, GCR recognize the AUC's intention to establish a threshold against which to compare projects. GCR suggest the AUC consider maintaining the 30-hour annual threshold for the adjusted-case as the only threshold to determine whether a project must evaluate and commit to mitigation measures, as outlined in the Blackline Version of WP18. Should mitigation be required to meet the threshold, GCR suggest that a concept plan be developed during the permitting stage, while a detailed mitigation plan is developed based on final project designs to ensure effective mitigation of impacts.

1.2 Solar Glare Hazard Assessment Comments

The AUC considered solar glare impacts and thresholds in 2020 and 2021, as part of the amendment to Rule 007 at that time. The AUC retained an expert consultant (Zehndorfer Engineering GmbH) to provide a report outlining recommended solar glare modelling parameters, and thresholds established in other jurisdictions. The AUC chose not to incorporate any such parameters or thresholds in the 2021 Rule 007 Update. At that time, many solar projects with predicted solar glare impacts had been approved by the AUC, though few projects had been constructed.

The first utility scale solar project, Brooks Solar Project, was constructed eight years ago in 2017, sited directly adjacent to Highway 1, which is one of the most heavily and frequently travelled roads in Alberta. In the time since Brooks Solar was constructed, 41 utility-scale solar projects are now fully constructed and operational[1], most of which with modelled glare that could potentially be observed at nearby receptors and routes. A typical condition of approval established by the AUC for a solar project is for the operator to provide the AUC a report of any complaints it received regarding solar glare in the first 13 months of operation. It is GCR's understanding that the developers report filed have indicated no complaints have been received for operational solar projects, and that no solar glare complaints have been filed with the AUC.

As such, there is no evidence to suggest that adjacent stakeholders, or the wider public of Alberta, are experiencing adverse solar glare impacts from solar projects. Given the inherent, and sometimes unrealistic, conservatism in SGHA modelling, it should not surprise the AUC, or any other party, that complaints or issues have not been raised relating to glare from operational solar projects. While it is relevant to consider the potential for solar glare impacts during the permitting and design of a project, GCR do not consider the changes to Rule 007 reasonable or beneficial to determine whether solar projects are in the public interest.

Glare Modelling Parameters

SP14 of the Blackline Version outlines the requirements for an SGHA, with several new inclusions on intersections and aerodrome runways. However, the AUC has also provided required field-of-view (FOV) parameters for the varying route and flight path receptors, as outlined in Table 4.3.

Glare impacts on pilots were considered in a study conducted by the Federal Aviation Administration (FAA) for solar projects proposed on airport lands.[2] This study assessed the potential for glare within varying FOVs to adversely impact a pilot's ability to land their aircraft while on final approach to an aerodrome. The study indicates it would be prudent to avoid producing glare within the ±25° FOV of a pilot on final approach to limit risk, while glare at 50° or farther from heading is not impactful. Glare between 25°-50° of heading may have an impact, but this diminishes rapidly as the angle increases, and it is tempered by the host of conservatisms in the models. To the best of GCR's knowledge, this is the only applicable scientific study that has considered the potential for glare to impact pilots, though it is not directly applicable to drivers of motor vehicles on the ground. Furthermore, the FAA's most recent 2021 guidance states that solar PV glare generally does not present any more of a hazard to pilots than other glare sources they routinely experience and navigate successfully, including water bodies, glass-façade buildings, parking lots, and similar features. As such, the FAA has rescinded their requirement to assess glare impacts on pilots for proposed solar projects.[3]

[1] http://ets.aeso.ca/ets_web/ip/Market/Reports/CSDReportServlet
[2] *Evaluation of Glare as a Hazard for General Aviation Pilots on Final Approach* (Rogers, J.A., et al., July 2015).
[3] *Federal Aviation Administration Policy: Review of Solar Energy System Projects on Federally-Obligated Airports* (FAA, 2021).

Glare impacts for drivers on major highways were considered in a study by Leden et al., which considered the impact of glare within varying FOVs of drivers operating motor vehicles.[4] The study showed that glare may have an adverse impact on motor vehicle operation if it occurs within 10° of heading, but glare at 20° or beyond does not have an impact. Therefore, evaluating glare within a driver's ±15° FOV is conservative and sufficient to assess potential glare hazards for any type of road. To the best of GCR's knowledge, this is the only applicable scientific study that has considered the potential for glare to impact drivers. Furthermore, GCR cited additional peer-reviewed scientific evidence supporting the fact driver FOV decreases at higher speeds, which further solidifies that the ±15° FOV is the appropriate criterion.[5] This is contrary to the Blackline Version's assertion that major roads should use a wide ±25° FOV to assess impacts to drivers and vehicle operation, which was presented without reference to supporting scientific evidence.

GCR would strongly urge the AUC to consider what information it is seeking to understand to assess the impacts of glare on roads and flight paths. If the intent of modelling roads and flight paths is to understand the safety risk to drivers and pilots, it is not conservative to model a wider FOV, as this will simply introduce error and present glare potential that does not affect vehicle operation or operator safety. If the intent of modelling is to determine the potential for glare in the peripheral range, which may be considered a nuisance but not a safety risk, then a wider range may be acceptable.

As it relates to safety, it is not conservative or proactive to assess glare using a wider FOV than the critical FOV. Doing so increases the risk that results are misinterpreted to be impactful and unsafe, which is unsupported by scientific reasoning or defendable rationale. If the intent of the AUC is to understand and mitigate safety risks to drivers, then it must consider and assess a ±15° FOV for ground-based route receptors, and a ±25° FOV for final approach flight paths. Consideration of a conservative or peripheral FOV should only be utilized for context, as the potential for glare outside of the critical FOV could only be considered a potential nuisance as opposed to a potential safety risk.

It has been suggested that using a wider FOV for route receptors will account for glare that may affect a driver's ability to see oncoming traffic at an intersection. GCR submit that modelling an intersection point in an SGHA is more appropriate, rendering a wider FOV unnecessary.

Furthermore, Alberta Transportation and Economic Corridors (TEC), which is the governing regulatory body that oversees major highways in the province, have established guidance stating that glare should not occur within the critical ±15° FOV as it can be a potential safety risk. However, TEC has issued multiple permits for solar projects with green and yellow glare in the ±15° FOV after reviewing the full context of the associated SGHAs.[6] It is recommended that the AUC align its regulations with TEC for consistency in provincial regulatory standards. Specifically, GCR agree that ±15° is the applicable FOV for local roads, and this should also be the requirement for major roads, railways, etc. The results for the ±15° FOV should also be considered within the full context of the specific situation and glare modelling conservatisms, as demonstrated by TEC.

[4] *Verhinderung von Sonnenreflexionen in Lärmschutzwallen – ein Laborexperiment [Obstruction of sun reflections in noise barriers - laboratory experiment]* (Leden, N. & Alferdinck, J.W.A.M. & Toet, Alexander, 2015).

[5] *AUC Rule 007 Consultation Comments* (Green Cat Renewables Canada Corp., September 2024), pg. 10.

[6] Lone Butte Solar Project Exhibit 29380-X0013.01; Harvest Sky Solar Project Exhibit 29274-X0151; Jumbo Solar with Storage Project Exhibit 29317-X0013; Sweetgrass Solar with Storage Project Exhibit 29372-X0013.

Glare Limits

SP15 introduces "limits on acceptable glare impacts", which are defined based on receptors in Table 4.4. No evidence or information is provided on how these limits were determined.

With the exception of air traffic control towers (ATCTs), GCR acknowledge that the AUC has sensibly omitted any limits on green-level glare as it is generally agreed glare at this level is not considered a hazard.

The limit of 30 minutes per day and 30 hours per year appears to have been misappropriated from shadow flicker limits at residences. It should be noted that the limits on shadow flicker were determined based on the potential for nuisance and relate to the flickering/strobing effect observed within residences. Similar considerations cannot be applied to solar glare, which is a completely different experience as glare does not flicker or result in the same degree of ambient light changes.[7] Furthermore, the same considerations cannot be applied to moving route receptors such as roads or flight paths, which is elaborated in the text below. There is no defendable basis for the AUC to utilize shadow flicker limits for solar glare, as the two phenomena are not comparable.

As it relates to routes or flight paths, the SGHA modelling determines all instances that glare may intersect a route or flight path for the given parameters, but it does not relate to the total time a driver or pilot will experience glare. Instead, it represents the times in which a driver or pilot has the potential to experience glare, and by extension, the likelihood glare may be observed. A driver or pilot will always be passing through a modelled portion of a road while travelling at moderate to high speeds, so a vehicle operator will only be in the right area, at the right time, under the right conditions to experience glare for a few seconds. As such, there is no practical or frequently occurring situation in which a vehicle operator will experience glare for more than a few seconds while travelling along a route. Therefore, daily limits on glare on roads and flight paths are not helpful to the AUC, nor are they beneficial for limiting the risk to safety.

While the SGHA model assesses the potential for glare to be observed along a route, it does not clearly provide quantifiable details on exactly how long each individual segment of a road has the potential to receive glare. As such, longer roads or flight paths may have higher results than shorter routes, but this does not necessarily mean the longer route is more impacted by glare.[8] This highlights an additional factor to suggest that blanket limits on annual and daily glare for route receptors are not reasonable, and the nuance and full context of each situation must be considered.

There is no evidence to conclude that glare presents a health or safety risk for residents at a dwelling, so there is no basis for a safety-related glare limit at dwellings. At most, solar glare may have the potential to become a nuisance at a dwelling, which will be subjective and unlikely to be addressed by setting an arbitrary limit. Given all of the conservatisms typical in SGHA modelling, it is unreasonable to prescribe a glare limit based on modelling as only a small portion of predictions will be observed or even occur in practice.

While glare projected toward an ATCT should be avoided, GCR assert that an AUC-defined limit is not the most effective course of action. Instead, it is more prudent for the airport authority to be consulted regarding potential glare impacts, and they can determine if they have any concerns that need to be mitigated. This is in line with FAA guidance related to solar PV glare and ATCTs.[9]

[7] To illustrate, imagine turning on a lamp (glare) versus periodically flicking the lamp on and off (shadow flicker). These are two very different experiences.

[8] Consider a hypothetical case where a 5m long route is assessed to receive 100 minutes of annual glare over 2 days, versus a 5km long route predicted to receive 1,000 minutes of annual glare across various parts of the road and spread over 200 days of the year. Based solely on the annual minutes, the 5km route is more impacted, but considering the full context of each situation, logic dictates that the shorter route is more impacted.

[9] *Federal Aviation Administration Policy: Review of Solar Energy System Projects on Federally-Obligated Airports* (FAA, 2021).

Given the inherent and sometimes unrealistic conservatism in SGHA modelling, combined with the fact that no complaint has ever been filed relating to an operating solar project in Alberta, GCR suggest that glare limits are not required for the AUC to determine whether a project can be operated safely. However, GCR recognize that the AUC endeavours to limit glare-related safety risks for drivers and pilots; therefore, GCR suggest that the AUC could adopt glare limits for critical FOVs relating to driver and pilot safety.

Glare Mitigation Requirements

There are many glare mitigation options that can be considered, and they will depend on multiple factors like: the terrain and topography of the project site; the racking technology being considered; the proximity and orientation of receptors; and whether the receptor is ground-based or not. Typical options that are recommended include resting angle limitations, fencing, tree/vegetative screening, or other physical obstructions. Not all of these mitigation measures can be accurately modelled.

While the SGHA software allows modelling of physical obstructions, these obstructions can only be modelled as fully opaque barriers up to the specified obstruction height. It is important to note that tree screening, which is often cited as an effective potential glare mitigation option, cannot be accurately modelled within the software as vegetation does not necessarily provide an opaque, year-round barrier. However, it is also important to note that tree screening can still be an effective way of reducing glare and has generally been accepted by both stakeholders and the AUC.

Notwithstanding, the SGHA modelling software can estimate how tall tree screening or other obstructions would need to be to reasonably screen glare, as well as where it should be sited. As a result, options for mitigation can be considered and designed based on modelling; however, it is not reasonable to provide the AUC with modelled verification that mitigation has eliminated the potential for glare. Additionally, it is not appropriate to develop a detailed mitigation plan at the time of an AUC application as the design of the project is still subject to change based on the detailed engineering and design of the project. A detailed mitigation plan will be most effective when based on actual glare observations, or otherwise final project designs at a minimum.

Furthermore, GCR note that the majority of receptors identified (flight paths and aerodromes, highways, and local roads) are under the jurisdiction of other government agencies (NAV Canada/Transport Canada, TEC, and the local Municipality, respectively). These agencies are consulted as part of the Participant Involvement Program (PIP), so the AUC should defer to their judgements on glare impacts as the authorities having jurisdiction over their respective receptors. GCR recommend the AUC encourage consultation and enforce the requirements of these agencies instead of overruling them in its decision-making process.

GCR recognize that the AUC want to establish a proactive and standard approach to addressing glare impacts, but GCR strongly encourage the AUC to consider that no complaints have been filed, and no practical glare issues have been identified in nearly 10 years of utility-scale solar project operation in Alberta. GCR submit that addressing impacts at such an early stage in the design/permitting process is only sensible when there is recorded and verified evidence of glare having an actual adverse impact on stakeholders, but there is no evidence to suggest this is the case. While modelling suggests an impact is theoretically possible, there is no evidence showing that this ever becomes a reality. As such, it is not proactive, effective or efficient practice to mitigate or eliminate glare at the AUC application submission stage if, in the expert opinion of an experienced glare assessment practitioner, the project is unlikely to have a practical adverse impact. If the AUC mandate mitigation despite a project receiving such an evaluation, the requirement would be an unnecessary hinderance on a development that is well sited and designed.

1.3 Visual Impact Assessment Comments

The Government of Alberta have introduced the *Electric Energy Land Use and Visual Assessment Regulation* (LUVAR), which identified specific Buffer and Visual Impact Assessment (VIA) Zones. The LUVAR provides a list of identified legal land locations that fall within the identified Buffer and VIA Zones, which have been identified based on proximity to National Parks, and UNESCO World Heritage Sites; specifically, all lands within a 35km radius of these locations. As such, these lands have been identified solely through proximity to these National Parks and UNESCO sites, and not because there is inherent scenic value in the land parcels themselves.

As the proposed rule changes are currently written, it is unclear what the objective of the assessment is, and what specific information the AUC is seeking to understand to evaluate assessments.

Assessment of Buffer Zone or VIA Zone

It is unclear what is meant by an "assessment on the buffer or VIA zone" as these zones cumulatively encompass an area of approximately 3,850 km^2. It is not viable or reasonable to assess the impact to all potential views and landscape within the overall buffer or VIA zone area, nor is it reasonable or beneficial for the AUC to consider such an assessment. GCR recommends that a VIA should focus on the areas of importance to the wider public within the National Parks and UNESCO sites, only.

A VIA is designed to assess the visual impacts on defined viewscapes and specific locations of scenic or cultural importance, not to assess a wide encompassing area without notable landscape features. As such, it is recommended that the visual requirements be revised to have a VIA include an evaluation of the anticipated visual impacts on the National Parks and UNESCO Sites, as identified in the LUVAR, that have been deemed to require a Buffer or VIA Zone.

The Buffer and VIA zones are established as surrounding specific National Parks and UNESCO sites. GCR recommends clarity in the rules that only the views within these specified National Park/UNSECO site should be assessed, as these are the views of concern that have been deemed to necessitate the buffer and VIA zones.

Key Vantage Point Definition

As it relates to "*key vantage points"* the Blackline version defines these *as locations with valued viewscapes determined to have a major or major/moderate severity of impact ranking in the visual impact assessment. If desired, visualizations may also be provided for other viewpoints in the project area so that a range of views at different distances and in different landscapes may be presented. Some of these additional visualizations can include viewpoints from nearby residences*."

GCR has three key concerns with the proposed definition:

- Firstly, there is no definition provided in the Blackline Version for "valued viewscapes", and it is unclear what would constitute a valued viewscape to the AUC. GCR's recommendation is to define key vantage points as the specific National Parks and UNESCO Sites identified in the LUVAR, that have a Buffer or VIA Zone.
- Secondly, the condition of only providing a visual simulation for a valued viewscape determined to have a "major" or "major/moderate" severity of impact is not clear. There is no definition provided in the Blackline Version for "major" or "major/moderate", nor is there any guidance provided on how such an assessment and analysis should be determined.

- "Major" and "Major/Moderate" are overall levels of visual effect, as outlined in the GCR Expert Report.[10] These terms are only applicable to an assessment if the methodology outlined in the GCR Expert report is adopted by the AUC. It is recommended that the AUC include specific guidance on how visual impacts should be assessed and how the overall level of visual effect is to be determined.

- Thirdly, GCR raises significant concern about the inclusion of optional visualizations from around a project area, and particularly from residences, as a part of these specific requirements relating to the LUVAR lands. While GCR agree that the suggested visualization locations are generally helpful in understanding the localized visual impacts of a project, the AUC must recognize the triggering factor for a VIA requirement is whether a project is sited within a Buffer or VIA Zone, as identified in the LUVAR.

Local Visual Impacts

Local visual impacts, particularly those from residences, are inherently subjective and specific to landowners in proximity to projects. The need for assessment and proposed mitigation for localized visual impacts must be done in consultation with stakeholders, as individual stakeholders' consideration will be case-specific and based in personal preference. Local visual impacts are generally addressed through the PIP, in which more specific consideration of local visual impact concerns can be noted and consulted on. If specific visual impact concerns are raised, it should be discussed between the developer and stakeholder(s) to determine if a visualization, impact assessment, or mitigation is required.

The Blackline Version currently proposes that projects sited within a Buffer and VIA zone may be required to prepare visualization and conduct a VIA of neighboring residences and localized lands to demonstrate compliance with the Rule 007. However, this presents an unfair discrepancy, for both developers and stakeholders, in how projects that are assessed for compliance. For example, a project outside these zones would not need to provide any consideration of such localized impacts, simply because it is sited outside of the LUVAR identified lands.

Local and residential visual impacts are common concerns, regardless of siting, and tying the assessment of such impacts to the arbitrarily identified lands in the LUVAR presents an unreasonable and unfair approach for the AUC to assess local visual impacts.

More simply, GCR recommend that visual concerns specific to local and residential areas should be addressed and considered in consultation, whereas visual impacts to National Parks and UNESCO Sites should be assessed as part of the VIA requirements in Rule 007.

Mitigation

The Blackline Version includes requirements for mitigation, and specific mitigation details. While GCR agrees that in certain situations, consideration of visual mitigation may provide a benefit, the AUC should recognize that mitigation measures for valued viewscapes, as defined above, should be considered carefully. It is possible that mitigation measures may introduce visual impacts of their own, which should be balanced against the impact being mitigated. As well, the final engineering and design of a project is not complete at the time of an AUC application, meaning the specific location of mitigation, and the type of mitigation, is subject to change as part of detailed engineering.

[10] Exhibit 28501-X0419, Renewable Generators Alliance - Appendix F - Expert Report of Green Cat Renewables Canada Corporation

It is not clear on what basis the AUC will deem visual mitigation is required. GCR have previously recommended mitigation options may be considered to minimize impacts assessed on a viewscape on a case-by-case basis. However, it should be noted that more significant effects assessed would not necessarily deem a development unacceptable, or in need of specific mitigation. Consideration should be given to the impact on viewscape as a whole.

It is not reasonable to require developers to retain specific landscape consultants, arborists and soils experts to consider and design a detailed visual screening plan, without regulatory certainty and a final engineered design. While indicative visual screening renderings provide potential options on mitigation strategies, these are designed to demonstrate how potential screening may reduce or screen a visual impact. These visualizations should not be relied upon as a detailed visual screening plan, as there are numerous factors that need to be considered, many of which are not known or finalized at the time of an AUC application. As such, the AUC must consider any screening plan at this stage in project development, to be potential or indicative. GCR suggests that any visual mitigation should be considered on a case-by-case basis and should be considered to reduce or limit a specific impact noted in the VIA.

2 GCR Recommended Rule Changes

WP17 - Provide a table comparing predicted shadow flicker durations to 30 hours per year for the adjusted-case scenario.

WP18 - If predicted shadow flicker durations exceed the above 30 hour per year threshold for one or more receptors, determine mitigation measures that could be implemented to reduce the duration of shadow flicker to comply with the threshold value, and evaluate the effectiveness and feasibility of the mitigation measures via modelling. Confirm in the application that shadow flicker mitigation measures will be implemented during project construction and/or operations (as appropriate).

SP14 – Table 4.3 – FOV for Route and Flight Path Receptors

Receptor	Field of View (± from Heading)	
	Critical FOV	Peripheral FOV
Ground Based Routes (Highways, Local Roads, Railways, Aircraft Runways)	15°	25°
Final Approach Flight Paths	25°	50°

SP15 – Table 4.4 – Limits on potential glare impacts

Receptor	Field of View (± from Heading)	Limit (yellow glare) (minutes/year)
Ground Based Routes (Highways, Local Roads, Railways, Aircraft Runways)	15°	0
Final Approach Flight paths	25°	0
Air Traffic Control Tower	N/A	0

Note: The Commission retains the discretion to determine or establish an acceptable glare limit in difference to the values identified in Table 4.4 based on case-specific application evidence and submissions.

SP16 – The solar glare assessment must determine and describe potential mitigation measures as below.

- If predicted glare is expected within the critical FOVs identified in Table 4.3, determine mitigation measures that could be implemented to reduce glare within the glare limits, and evaluate the effectiveness and feasibility of the mitigation measures via modelling, where practical within the limitations of the model/software. For example,
  - For a project with a tracking system, describe the minimum resting angle that will be used during project operation to eliminate or mitigate the predicted glare on receptors.
  - For a project with fixed-tilt racking system, describe physical screening options as mitigation measures to eliminate or mitigate the predicted glare on receptors.
- Confirm in the application that the results of the SGHA modelling and any proposed mitigation have been discussed with the applicable government agencies (NAV Canada, Transport Canada, Alberta Transportation and Economic Corridors, the local Municipality, etc.), and they have no outstanding concerns.
  - Confirm in the application whether applicable agencies required mitigation and confirm that any required mitigation measures will be implemented during project construction and/or operation.

- For all other receptors where yellow glare is predicted, describe potential mitigation measures that could be implemented to eliminate glare from the project in the event of a complaint, and verify the effectiveness and feasibility of the recommended glare mitigation measures via modelling, where practical within the limitations of the model/software.

WP28, SP26, TP26, OP26, & HE21 - If the project is located within a buffer zone or a visual impact assessment zone, as defined in Schedule 2 and Schedule 3 of the *Electric Energy Land Use and Visual Assessment Regulation*, submit a visual impact assessment. The visual impact assessment must include:

- An evaluation of the anticipated visual impacts on the National Parks and UNESCO Sites, as identified in the LUVAR, that require a Buffer or VIA Zone;
  - The visual impact assessment must include a methodology section outlining how impacts have been assessed;
- Visual Simulations from the National Parks and UNESCO Sites, as identified in the LUVAR, illustrating the potential visual impact of the project.
  - Visualizations must include an accurate representation of:
    - The existing viewscape, without the Project;
    - The viewscape with the Project as proposed, with no potential mitigation;
    - The viewscape with the Project as proposed, with any proposed indicative mitigation measures, if assessed to be recommended, that may be implemented;
  - The visualizations should include an explanation of how they were prepared, how they are to be viewed, and what was done to ensure they were prepared accurately. A map must be provided that shows the location and direction of each visualization;
- Where mitigation has been recommended, include proposed mitigation measures to minimize or offset specific adverse visual effects on the assessed National Park or UNESCO Site.

WP29, SP27, TP27, OP27, & HE22

Where mitigation is proposed, describe the potential mitigation measures that may be implemented, including their indicative location, predicted effectiveness during the project's full life cycle, and whether the potential mitigation measures have been discussed with adjacent landowners. If vegetation screening is being considered, confirm that the final plan has been, or will be, discussed with local authorities.

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