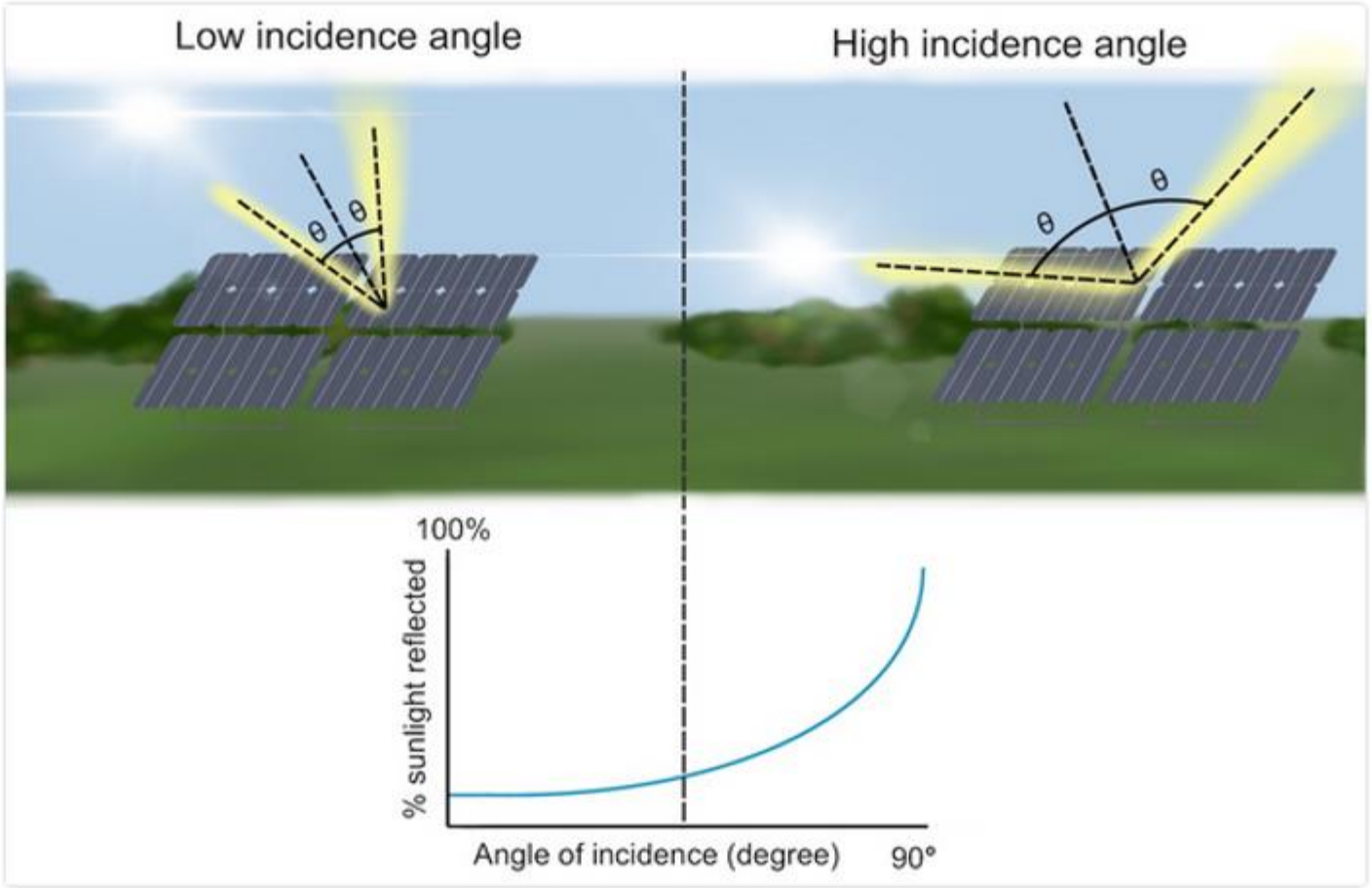
Difference Between Glint and Glare

Glint and glare differ only in duration. For example, a source of reflection would appear as glint to a motorist driving by, whereas it would appear as glare to a stationary observer viewing it for a longer period of time.

Modelling Assumptions

No terrain, building or other obstructions between PV array panels and observation points.
Flat ground and no undulations in terrain on which solar array is built
No excessive variance around observation point heights which have been considered


Low incidence angle
High incidence angle
θ
θ
θ
θ
100%
% sunlight reflected
Angle of incidence (degree)
90°

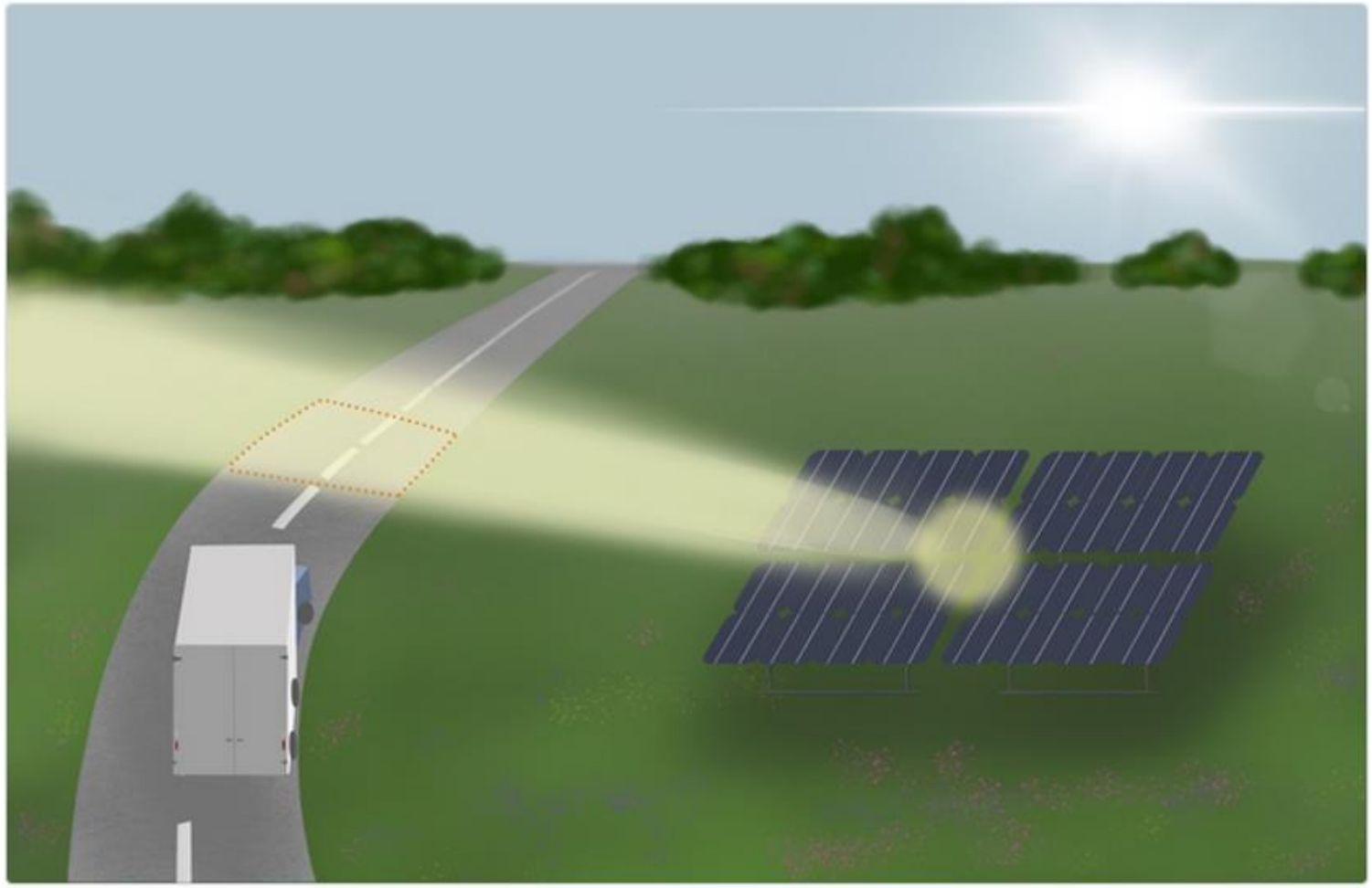
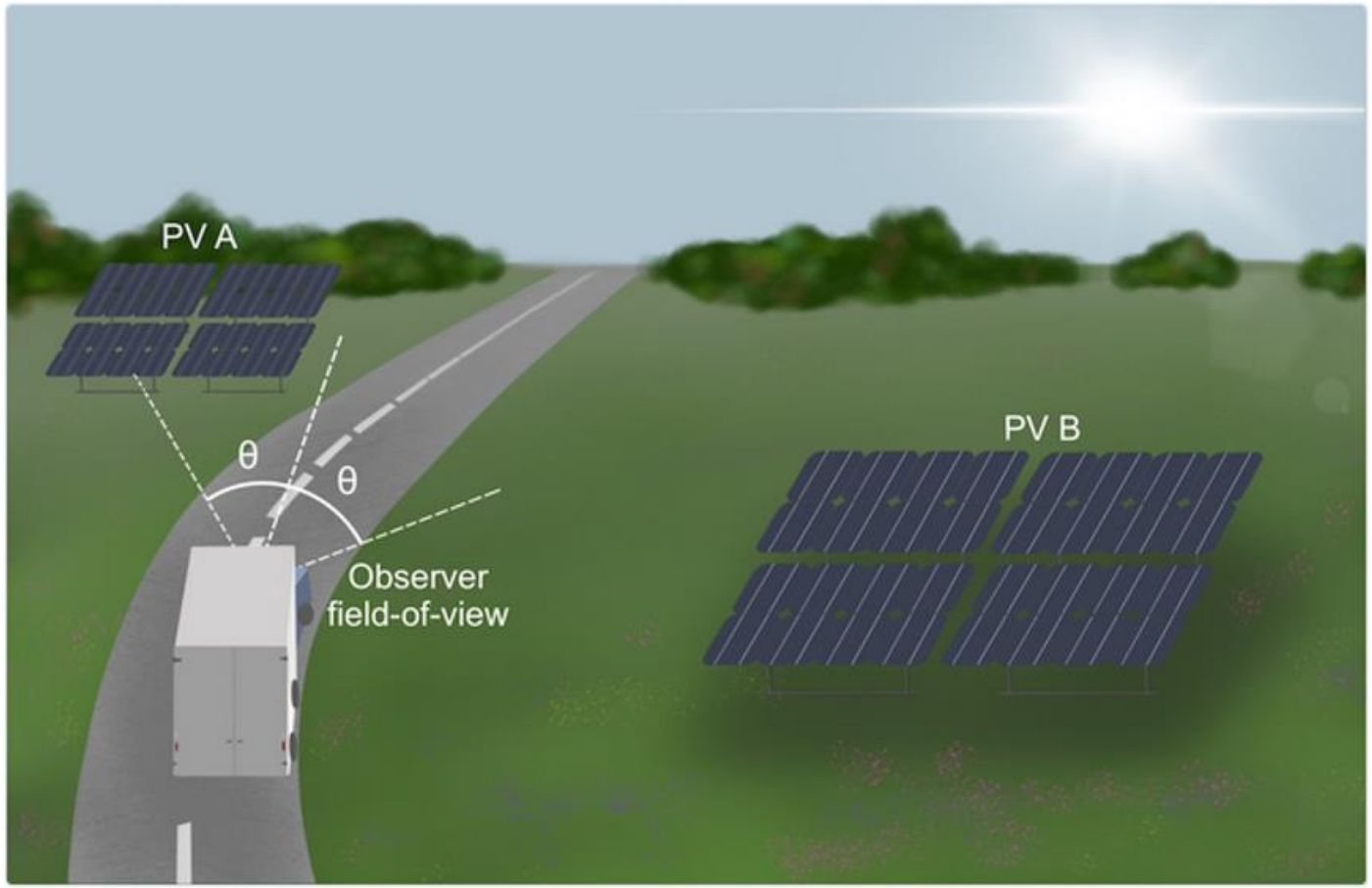


Illustration of reflected glare impacting a route (road)

Slide 3



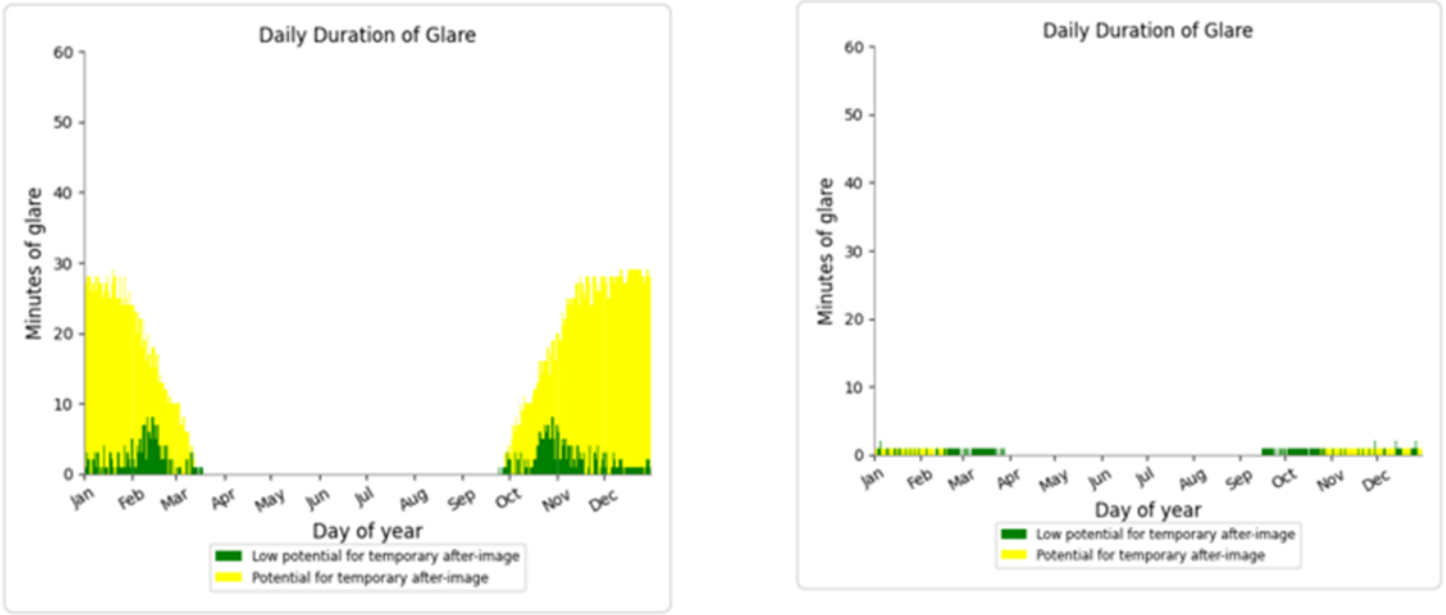
*Route receptor field-of-view is defined by view angle (theta) to left and right. Default FOV is 100° (i.e. 2 * 50° view angle).*

Figure 4. Road Impact Assessment Sample

The assessment of potential glare on road traffic is taken for the roads indicated R1, R2, R3 and R4. The intersection of roads for R1, R2 and R3 was an important consideration given potential safety risk at this junction with regard to glare when turning onto it and approaching traffic.

	Stage A Array (PV1). Glare		Stage B Array (PV2). Glare		Stage C Array (PV3) Glare		Comments
	am	pm	am	pm	am	pm	
R1	Yes	No	Yes	No	Yes	No	Some glare conditions in the morning only. Mitigation recommended.
R2	No	No	No	No	No	No	No significant glare conditions expected for road traffic along R2
R3	Yes	Yes	Yes	Yes	Yes	No	Significant glare conditions expected for road traffic. Mitigation recommended.
R4	No	No	No	No	No	No	No significant glare conditions expected for road traffic along R4

With regard to R1 (Dunsandel and Brookside Road) and R3 (Buckleys road) the above results indicate that glare conditions could be expected if there was insufficient obstructions such vegetation along the roadside to shield glare effects from the PV arrays.



(a) (b)

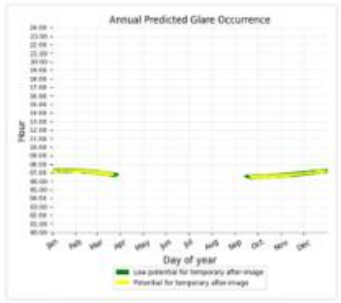
Figure 5.2. Impact of glare on Buckleys Road (R3) from Stage A PV development with no 2m high plantings (a) and with 2m high plantings (b)

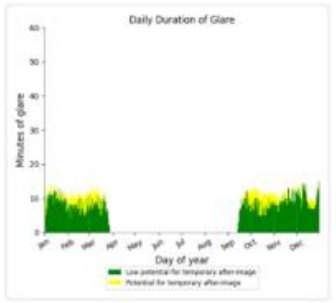
Figure 3. Development Stages A (PV1), B (PV2) and C (PV3) for Brookside Solar Farm and sample of Dwellings locations 1 to 10 used in this assessment.

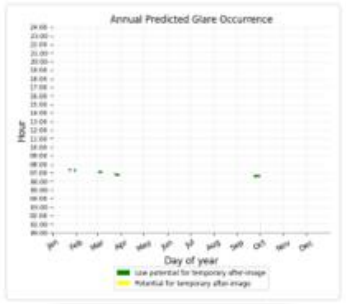
Figure 5.1 2m high virtual hedge row 'Obstruction' model surrounding Brookside Solar Farm

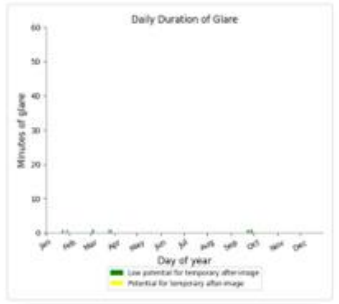
OP3: No 2m Landscape on boundary | Development Stage | OP3: Includes 2m Landscape on Boundary

PV1

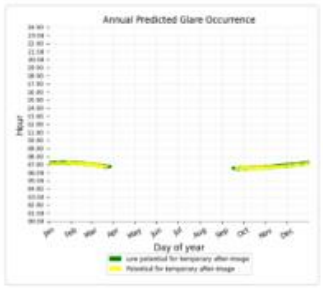


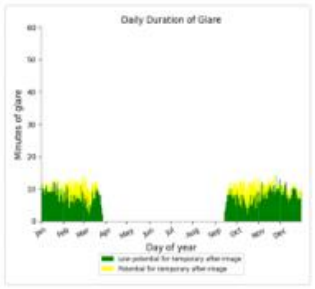


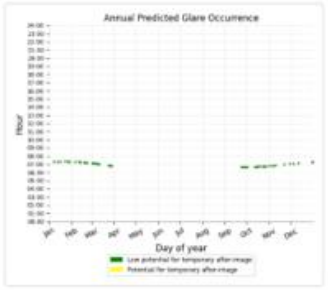




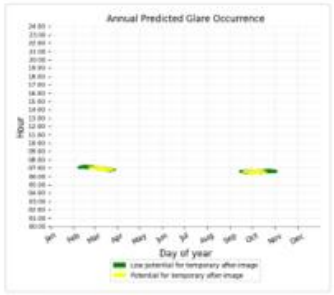
PV2

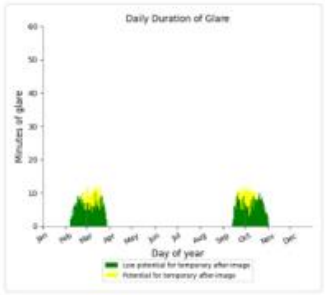


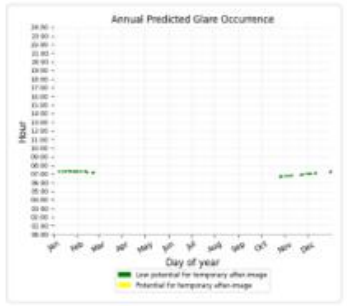


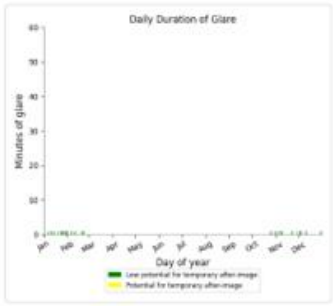


PV3

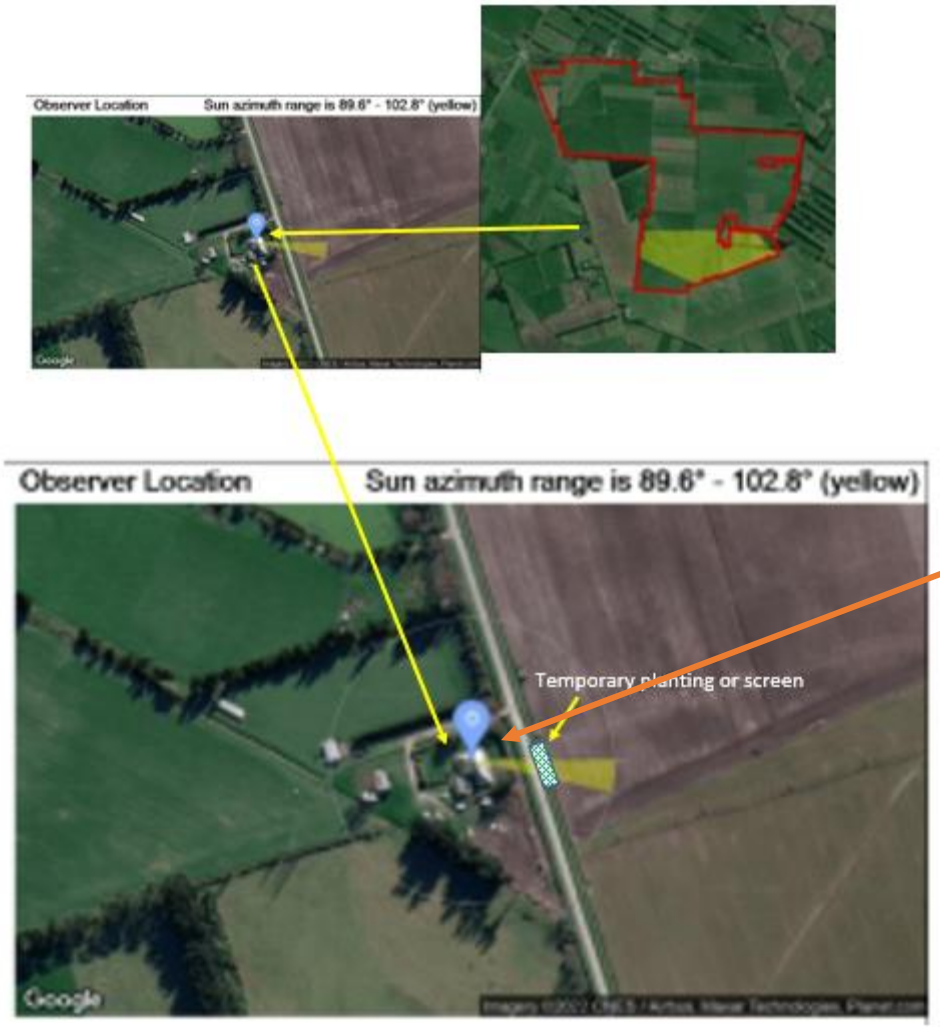








Slide 10



Proposed landscaping screening screening does not take into account any vegetation already surrounding residences which could further mitigate any potential solar glare that may be experienced.

Hence consideration that for residences where there are some expressed concerns, these could be addressed on a case by case basis in terms of how landscaping may resolve any potential glare issue.
Such concerns need to be evidence based.

General Consideration

Solar glare hazard analysis (SGHA) is based on potential to cause damage to any observer's eyes.

The chart in the figure below applies a colour code of green, yellow or red depending on the hazard potential. Any PV arrays causing issues to designated observation points.

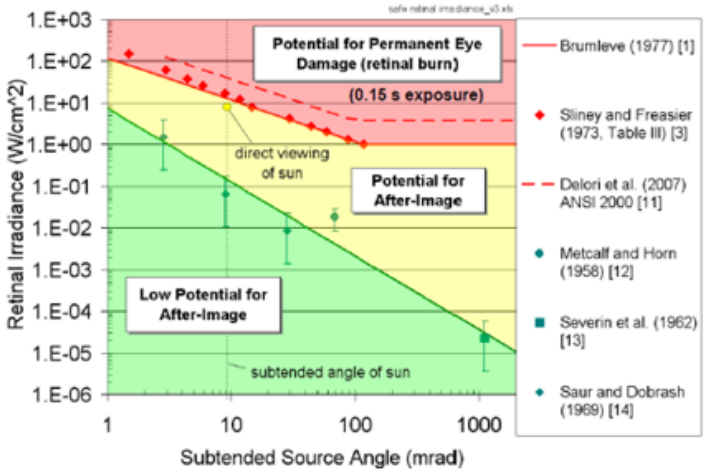


Figure 5.1: Potential ocular impact

"**Green zone**" glare is considered to have low potential to cause after –image (flash blindness) when observed prior to a typical blink response.

"**Yellow zone**" glare is considered to have potential to cause after image (flash blindness) when observed prior to a typical blink response time.

"**Red Zone**" glare is considered to have high potential to cause permanent eye damage.