Organisation name: Environment Centre NT Inc

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Please see submission attached.

Acknowledgement

I agree for my submission to be published

Environment Centre NT

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Submitted via online consultation portal and by email

To Whom it May Concern

Submission: Australia-Asia Powerlink Draft EIS

The Environment Centre NT (**ECNT**) is the peak community sector environment organisation in the Northern Territory of Australia, raising awareness amongst community, government, business and industry about environmental issues, holding government to account on environmental issues, improving environmental governance and regulation, and assisting people to reduce their environmental impact and supporting community members to participate in decision-making processes and action.

ECNT welcomes the opportunity to comment on the Draft Environmental Impact Statement ("**EIS**") for the Australia-Asia Powerlink project ("**The Project**") lodged by Sun Cable. Below, ECNT has outlined some concerns and comments regarding individual sections of the EIS.

1. Greenhouse gas emissions

ECNT welcomes SunCable's objective to "minimise greenhouse gas emissions so as to contribute to the NT Government's target of achieving net zero greenhouse gas emissions by 2050". The estimation that the project will result in net emissions of -110 million CO2e is positive.

However, ECNT retains major concerns regarding the foreshadowed supply of electricity to fossil fuel power generators. Chapter 12 raises the following possibility: *"The AAPowerLink proposes to supply electricity to users in the Darwin-Katherine region, and although activities to support this are currently out of scope for the project, this could potentially include customers on the DKES as well as industrial customers, who typically utilise behind the meter power generation from nonrenewables sources."*

In particular, ECNT is concerned by the objective of "*Pursuing power purchase agreements with large fossil fuel power generators in the NT."* The provision of power to the fossil fuel export industry may reduce emissions of the operations of those activities, but this emissions reduction is far outweighed by the continuation of those industries to export vast quantities of fossil fuels overseas and to the east coast of Australia. ECNT recognises that *"GHG emissions outside of the scope of this estimate are those generated from activities outside of Australia"* (12-5), however we submit that this should not preclude a consideration of the potential emissions profile of exporting industries that may be enabled by the provision of power, i.e., the LNG export industry. The exclusion of emissions

generated outside of Australia from the project's estimations will distort the actual climate impacts of the provision of power to the fossil fuel industry, occluding the genuine damage that would occur should the proponent, for example, electrify the LNG export industry at Middle Arm.

As such, **Sun Cable should not pursue any power purchase agreements that enable new fossil fuel projects or the expansion of existing fossil fuel projects**. As it stands, a declaration that the proponent intends to seek pursue *"power purchase agreements with large fossil fuel power generators in the NT*" considerably undermines the proponent's social license.

There are many scenarios under which Sun Cable pursuing power purchase agreements with fossil fuel projects will substantially increase overall emissions in the long term, all of which must be categorically avoided. If, for example, Sun Cable was to provide power to the Middle Arm Sustainable Development Precinct (MASDP) and electrify the production of petrochemicals using offshore and fracked gas as a feedstock, this could secure the demand for gas into the future and legitimise the further development of offshore gas reserves in the Timor Sea. SunCable must provide an early guarantee that it will not pursue agreements of this kind that serve to enable the continuation of fossil fuel developments.

Whilst ECNT recognises that commercial decisions around the supply of power to industrial customers are "*currently out of scope for the project*", ECNT believes these decisions are of such fundamental importance to the project's stated objective to *"minimise greenhouse gas emissions"* that it would be remiss to not discuss them at this stage of the project. In short, if power from the Australia-Asia Powerlink Project is provided to the gas industry to electrify gas processing, gas export, and the production of petrochemicals using fracked gas as a feedstock, this would constitute such an egregious departure from the original intent and objective of the project that it would undermine the proponent's stated intentions to meet the net zero target, and indeed scupper the Territory's possibility of meeting this target at all. The intended positive impact of the project, stated in Table 12.3 as being an *"Overall reduction in GHG emissions from generation of renewable energy",* requires the imposition at an early stage of a clearly defined framework establishing the nature of industries to which power will and will not be provided.

2. The mitigation hierarchy – avoid, mitigate, offset

ECNT Is concerned that the EIS does not apply the mitigation hierarchy appropriately, particularly with respect to the offsetting of residual impacts. This is the case for biodiversity impacts and greenhouse gas emissions.

With respect to greenhouse gas emissions, ECNT notes that the Project footprint is vast, at approximately 13800 hectares. Sun Cable's Greenhouse Gas Management Plan states that 3 million tonnes of greenhouse gas emissions will be generated in the first four years of the project, and half a million tonnes over the life of the project.

However, Chapter 12 of the EIS states that *"Offsets pertaining to atmospheric processes are not required as there are no overall residual negative impacts relating to GHG emissions from the AAPowerLink project when emissions over the Project's life cycle are contemplated."* ECNT believes that the emitting activities of the Project, such as land-clearing, should be independently and directly offset, and that it is inadequate for the proponent to rely on "avoided emissions". ECNT rejects 'avoided emissions' as a category of offset. To achieve the goal of being a "net zero infrastructure

project" the proponent must develop and implement a GHG offset strategy that proposes genuine offsetting of emissions from e.g., land clearing.

ECNT also notes that Sun Cable does not propose any biodiversity offsets, despite the very significant area of land to be cleared and the significant biodiversity impacts associated with this (see further below). It is important that Sun Cable commits to biodiversity offsets so that there is no net loss of biodiversity as a consequence of the Project.

3. Terrestrial Biodiversity impacts

ECNT is concerned by the scant assessment provided of impacts of the projects on terrestrial biodiversity, and proposals to mitigate or offset these impacts. The project is one of the largest projects ever undertaken in the Territory in terms of its spatial footprint. The amount of land which will be cleared is vast, at approximately 13,800 hectares (12,000 hectares for the Solar Precinct, 1,734 hectares for the OHTL, and 64.5 hectares at the Darwin Converter and Cable Transition Facilities).

Despite its size, the impacts of the Project on terrestrial biodiversity are, by and large, minimised in the EIS. In addition, it appears that in many case biodiversity surveys have not been undertaken at all, or are not yet complete. This makes it impossible to appraise the likely impacts of the Project on biodiversity, including Sun Cable's proposals to monitor, mitigate or offset these impacts.

ECNT notes that land clearing is a fundamental pressure on the environment. Land clearing causes the loss, fragmentation and degradation of native vegetation, and a variety of impacts on soils (eg erosion, salinity, loss of nutrients and acidification) and disrupts essential ecosystem processes.[1] Threats to biodiversity from land clearing and habitat loss are one of the greatest threats to threatened species in Australia, and to the environment more generally.[2]

Recent research which indicates that Northern Australia's tropical savannas are one of 19 ecosystems in Australia that meet the criteria of being under collapse.[3] Bergstrom et al suggest that it is imperative to understand how different threatening processes combine cumulatively (acting in what they term "threat webs") to further threaten Australia's collapsing ecosystems. As habitats become increasingly fragmented, populations become more vulnerable to other threatening processes, such as climate change, changes in stream flow regimes, predation by invasive species and destructive fires, and they lose the ability to recolonise suitable habitat.

The Northern Territory Government's published guidance material makes clear that, while Northern Australia has the largest and most intact tropical savanna system in the world, this value could be "readily compromised by excessive removal of native vegetation".[4] Further, this guidance makes clear that the highly seasonal environment of northern Australia means that it is more important to

[1] State of the Environment Australia 2016. "Land Theme: Regional and landscape-scale pressures: Land clearing." https://soe.environment.gov.au/theme/land/topic/2016/regional-and-landscapescale-pressuresland-clearing.
[2] Neldner et al. 2017. Scientific review of the impacts of land clearing on threatened species in Queensland. Queensland Government, Brisbane.
[3] Bergstrom et al. 2021. "Combating ecosystem collapse from the tropics to the Antarctic." Global change biology 27(9):1692-1703.
[4] https://nt.gov.au/__data/assets/pdf_file/0009/204210/vegetation-management-habitat-loss-fragmentation-english.pdf.

retain a higher proportion of native vegetation in the landscape than for a less seasonal environment. The guidance refers to research undertaken for the Department in 2009 which showed significant impacts on biodiversity at a landscape scale (approximately 3000ha) if more than 50% of native vegetation is cleared. In particular, the research notes that clearing of this extent "may reduce the diversity of plants and animals to a point where some populations may fall to unsustainable levels".[5]

Very little analysis is provided in the EIS of the biodiversity impacts of clearing 12,000ha of native vegetation at the Solar Precinct, beyond a statement that "the loss of such an area is likely to have a minor impact on regional diversity" (p 5-34). This is inadequate, and inconsistent with the research above. The impacts of habitat fragmentation at the Solar Precinct are "not assessed". Similarly, there is no analysis given of the edge effects of clearing for the Project as a whole, except for a statement that: "it is assumed that the open, sparsely vegetated habitats within the Solar Precinct footprint will not experience any significant or substantial edge effects – certainly not such that will impact at an ecosystem level" (p 5-38). This is an inadequate and likely incorrect assumption. As acknowledged by the Scientific Inquiry into Hydraulic Fracturing int eh Northern Territory, next to nothing is known about "edge effects" of clearing in the Northern Territory. A proliferation of habitat edges can impact the abiotic environment (including microclimate, light and wind) for up to 500m or more from cleared areas, significantly increasing the area impacted by a project. The Fracking Inquiry acknowledged this significant knowledge gap and recommended studies be undertaken regarding the impacts of habitat fragmentation on biodiversity. Baseline studies are thus currently underway as part of the Fracking Inquiry to understand the biodiversity baselines and projected impacts of proposed development in the region. A GISERA study is currently underway to understand and manage impacts to biodiversity from land clearing and edge effects associated with roads and pipelines in the Beetaloo Basin. Sun Cable should, at the very least, refer to this research and explain its relevance or otherwise to its Project.

ECNT is concerned by Sun Cable's proposal for the OHTL to intersect (and therefore clear) the following areas of high biodiversity value and conservation significance (see page 5-34):

(a) Manton Dam Recreation Area (18a)
(b) Black Jungle Conservation Reserve (3.1 ha)
(c) Shoal Bay Coastal Reserve (6.1 ha)
(d) Yinberrie Hills site of conservation significance (42ha)
(e) Shoal Bay site of conservation significance (18 ha)
(f) Howard Sand Plains site of conservation significance (18 hectares); and
(g) Adelaide River coastal floodplain 13 hectares).

Of note, the Project includes an area which has been categorised as "high risk" and "moderate" on biodiversity at Gunn Point (5-35).

[5] https://nt.gov.au/__data/assets/pdf_file/0009/204210/vegetation-management-habitat-lossfragmentation-english.pdf, referring to "Landscape design for maintaining ecosystem services in tropical agricultural landscapes: the response of fauna and flora to landscape mosaics and implications for land clearing policy" Griffiths, A.D, Stewart, A.J., Calnan, T, Venn, S, Brooks, K, & Rankmore, B, (2009) Report to Land and Water Australia. Department of Natural Resources, Environment, the Arts and Sport, Darwin.

There is little in the EIS to demonstrate how biodiversity impacts will be avoided, mitigated or offset. No rationale is given for why some areas of high biodiversity value and conservation significance must be cleared, or what alternatives have been considered. There are few references to buffers being retained for sensitive vegetation or any assessment of indirect impacts given (for example in the high conservation significance areas of Gunn Point). A one line explanation is given for why wildlife corridors that would provide connectivity at the Solar Precinct have not been pursued: "wildlife corridors were considered but were ruled out as a major fire risk for the proposal infrastructure and because they could cause shading of the arrays." These shortcomings must be interrogated and addressed.

ECNT is concerned about the risks to the Kohoonir Adit colony of ghost bats, which is the largest known maternity site for Ghost Bat and will be located just 400m to the west of the OHTL. While Sun Cable accepts this is an important population, it makes assumptions about the impact of construction and operation of the Project (principlally, the overhead transmission lines) on this colony. For instance, Sun Cable states that the species is too small to have negative interaction with powerlines, and that the only way the proposal could have a negative impact is through noise disturbance during construction. This assumption must be interrogated and substantiated.

ECNT is also concerned by the paucity of biodiversity surveys undertaken by Sun Cable. For example, there appears to have been just one targeted survey undertaken in the Solar Precinct (of the Greater Bilby). In other cases, surveys are yet to be undertaken. For example, Chapter 5 states that: "*There is currently insufficient spatial information available to confirm whether the proposal is likely to have a significant impact on eight threatened species. That information will be collected in first half of 2022, for inclusion in the Supplementary EIS. Preliminary significant impacts assessments in this chapter conclude that it is possible that the sub-population of Typhonium praetermissum within the Darwin Converter Site and Cable Transition Facilities could be impacted upon, with 6.8% of the subpopulation recorded within the direct disturbance footprint.*" (5-92). It is unclear why or how the EIS has been submitted in the absence of this information.

ECNT submits that there must be baseline studies undertaken of native vegetation, threatened species and ecological communities, water quality and quantity, aquatic ecosystems, terrestrial ecosystems, and social and cultural studies, or integration of the baseline studies undertaken as part of the Strategic Regional Environmental Baseline Assessment into the EIS.

4. Marine Impacts

(a) Marine Ecosystems

Shoal Bay remains the most at risk near shore marine ecosystem under the current AA Powerlink proposal. Shoal Bay consists of a large network of drying sandbars interlaced with tidal channels and fringed by large, healthy mangrove ecosystems. The rocky reef at the end of Tree Point provides unique habitat for the region and attracts a wide variety of reef fish that would otherwise be absent.

The Shoal Bay ecosystem is an important nursery system for a wide array of species because of the productive macrotidal habitat offering protection from predation during any tide level. Many species present are not accounted for in appendix T (Marine ecology report). For example, juvenile stages of the commercially valuable narrow-barred Spanish mackerel (Scomberomorus commerson) can be found in significant numbers within Hope Inlet during the dry season indicating the importance of

protecting this habitat for commercial fishing. Recreationally important species such as Northern Mulloway, Bluenose Salmon, Golden Trevally, Queenfish, Barramundi and Mudcrabs are prolific within the area and present some of the most exciting fishing opportunities within the greater Darwin region.

Protected coastal dolphins are regularly sighted within Shoal Bay and a Dolphin protection zone exists within Hope inlet. Large pods of the Vulnerable listed Australian Humpback Dolphins (Sousa Sahulensis) frequent the coastline between Gunn point and Hope Inlet and these dolphins regularly hunt within Hope Inlet during high tide. Sightings of Snubfin Dolphins (Orcaella heinsohni) are also common but usually found further offshore.

Elasmobranch species are also very common within Shoal Bay with sightings of large Winghead Sharks (Eusphyra blochii) and subsequent captures of newly born juveniles along the shoreline indicating the region is critical breeding/nursery habitat for the species (pers obs J Fowler, pers comm P. Kyne). Winghead sharks are globally endangered and Vulnerable listed in Australia and yet the desk top report conducted for this EIS (appendix T) does not consider these species. Clearly further biodiversity surveys of the region are required and the desk top report provided in this EIS is not adequate to assess protected species impacts.

(b) Seasonality and water temperature

Little attention is given to minimising the impacts on important marine species during cable laying activities. Species movement within Shoal Bay is dominated by tidal movement and water temperature. During the wet season water temperatures usually range from 30 - 32 degrees which exceeds the tolerance levels for many species in shallow inshore environments. Throughout the past 5 years wet season water temperatures during January to March have been so high that there has been an absence of most large predatory fish. At the onset of easterly trade winds in April/May water temperatures rapidly drop and large numbers of species such as Bluenose Salmon and Northern Mulloway move into shallower waters in Shoal Bay. Many species reach peak spawning activity during the early wet season which may mean significant quantities of fish larval stages are present. Fish larvae experience greater morbidity when exposed to sediment plumes than adult fish as their gills are poorly developed and less capable of clearing particulate matter. Further research is required to identify low periods of predator abundance and spawning activity so that impacts from cable laying activities in the near shore environment can be minimised.

(c) Tidal Influence

Tidal movement is also poorly considered in this EIS. Tidal information within Appendix S relies on data from one IMOS buoy in the middle of the Beagle Gulf providing a very coarse indication of currents. Tidal movement within Shoal Bay is far more complex than what is captured by the single IMOS buoy as significant currents exist along the shoreline and are influenced by water draining out of Hope Inlet and the prominent reef at Tree Point. As Hope Inlet completely dries out on low spring tides nearly all marine species leave Hope Inlet and move across the cable corridor. Cable laying activity during periods of spring tides may very well exacerbate sediment deposition on surrounding coral and seagrass substrate on either side of the Murrumujuk site and have the greatest impact on marine species. Metocean data loggers should be deployed to ascertain optimal times for cable laying activities which take into consideration the observations listed above.

(d) Thermal Radiation

The impacts of thermal radiation is poorly considered in the EIS. Providing examples of heat impacts from HVDC cables in Bass Strait, Baltic Sea and Monterey Bay, California provides a poor indication of potential impacts in the much hotter tropical seas of the Beagle Gulf. With sea temperatures reaching new heights in northern Australia in recent years, a corridor of increased temperature along the seafloor may well act as a barrier to bottom dwelling species. Further data is required to assess the impacts of thermal radiation throughout the cable corridor in the Beagle Gulf and the Timor Sea.

(e) Electromagnetic Radiation

Shoal Bay and the Beagle Gulf contains large numbers of bottom dwelling elasmobranchs such as Rays and Guitar fish. These large species are a very important part of the inshore marine ecosystem as they modify habitat by digging holes and plough through the soft substrate in search of food. Creating multiple bands of electromagnetic radiation across tidal streams may well affect behavioural patterns of these bottom dwelling species as they are highly evolved to detect prey in soft substrate. Impacts on bottom dwelling elasmobranchs may have profound effects on ecosystem productivity as they are the largest and most abundant animals in the nearshore environment. Further research is essential to understand how elasmobranch behaviour may be affected in the shallow tropical seas of northern Australia as current research is limited to Bass Strait in Tasmania. The assumption of a minor impact of cable operation (table 10-8) from heat and EMR cannot be scientifically justified with the evidence provided.

5. Justice and engagement concerns

Sun Cable's early indication that they wish to avoid the predominate frame of exploitative industry practice is welcome but must be supported by tangible commitments.

Appendix I of the Social Impact Assessment, identifies that numerous stakeholder groups raised concerns with the project related to energy justice and the nature of benefits that would be experienced by communities residing near the project area.

Material and direct benefits must be felt by the communities in and near the Project. Communities along each area of the project, from the solar precinct, along the overheard transmission line, and at the Darwin convertor site, experience a range of socio-economic disadvantages, including, relevantly, energy poverty. It is reasonable that these communities may have an expectation that their energy needs will be addressed by a large-scale solar project on or near their land.

It is welcome to see the proponent's plans for the development of a "*Territory Benefit Plan, Preliminary Social Impact Management Plan, and Regional (Aboriginal) Legacy Strategy*", but ECNT expects a more detailed commitment to the affected communities surrounding the nature and extent of benefits they can expect to receive from this development. At the very least, a timeline which details when the contents of these plans may be available should be produced, so that communities currently being engaged in consultation can assess the expected benefits to them whilst they are being consulted.

6. Local employment quotas

Chapter 13 recognises "*the importance of training, capacity-building, and employment for local people"*; to this end, ECNT recommends that the proponent consider implementing local employment quotas for the project to concretise the commitment to addressing unemployment in the relevant regions.

7. Copper usage

ECNT notes that the volume of copper required for the construction of the Project is likely to be significant. The increase in demand for copper will mean a greater demand placed on the extraction of this mineral. This is problematic insofar as the Northern Territory's mining laws are not currently fit-for-purpose, and internationally the extraction of copper is frequently associated with environmental and human rights impacts.[6] Whilst an initial increase in demand for some minerals may be unavoidable, ECNT encourages Sun Cable to develop a plan for the sustainable sourcing of copper, including an investigation of the possibility of using recycled materials wherever possible. It is paramount that Sun Cable makes commitments to ensure ethically sourced materials at each stage of the supply chain for the materials of the project.

8. Responsiveness to climate impacts

ECNT is concerned that the Appendix E – Impact Assessment Register does not contain the phrase "climate change" even once. Given the 70-year project span, contingency planning for various climate scenarios must be integral to impact assessment and risk planning and mitigation processes of the proponent. Sites that are mentioned as being potential customers for electrification, such as Middle Arm's industrial hub, will be underwater due to climate change before the conclusion of the project's lifespan.[7] ECNT urges the proponent to more thoroughly embed an awareness of escalating and severe climate impacts into the project plan and the Supplementary EIS.

9. Hydrological processes

Appendix N contains modelling that shows the possibility of flooding during extreme weather events could see Lake Woods "swell such that it would inundate a small portion of the north-east corner of the Solar Precinct." As have been observed with floods around Australia recently, the frequency of extreme weather events has increased and will continue to increase as a result of climate change, and so the possibility of flooding of the Solar Precinct Site must be seriously engaged with. ECNT notes that climate change assessment in Appendix N is based on "the midpoint of the percentage rainfall increase" from IPCC modelling. However, modelling under different, including more severe, scenarios should be conducted.

10. Coastal erosion and sea level rise

Whilst modelling has been undertaken for the possibility of flooding at Lake Woods, similar modelling should be undertaken for coastal erosion and sea level rise at the Darwin Convertor site at Murrumujuk. It is mentioned that Erosion and Sediment Control Plans will be implemented; these

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[6] For instance in Myanmar https://www.amnesty.org/en/latest/press-release/2017/02/myanmar-suspend-copper-mine-linked-to-ongoing-human-rights-abuses/#:~:text=February%2010%2C%202017-,Myanmar%3A%20Suspend%20copper%20mine%20linked%20to%20ongoing%20human%20rights%20abuses,today%20in%20a%20new%20report.; Zambia https://www.hrw.org/news/2011/11/03/zambia-workers-detail-abuse-chinese-owned-mines ; Papua New Guinea.

[7] https://www.ecnt.org.au/media_release_middle_arm

plans should include climate modelling. SunCable should be aware that coastal erosion is intensifying in Shoal Bay with the large sand spit at Tree point being washed away earlier this year, now Tree Point would more accurately be called Tree Island. Dozens of large Casuarina trees were also washed away at nearby Lee point in February 2022 and 5 meters of beach front was lost. Further evidence of coastal erosion can be seen within Hope Inlet (behind the proposed converter site) as the mangrove fringe is steadily collapsing. These impacts occurred during a period of no tropical cyclone activity.

The storm surge modelling developed in 2010 and presented in appendix S, 3.7.2, is out of date and needs to be remodelled on current sea level observations. For a project expecting to operate until 2070 serious consideration will need to be given as to whether Murrumujuk is an appropriate site.

11. Culture and heritage impacts

Chapter 14 states that *"As there were no archaeological materials present, archaeological significance assessment was not undertaken."* ECNT notes that the appendix acknowledges that *"[t]o date no Pleistocene occupational areas have been recorded in the surrounding region however some potential has been noted at Lake Woods"*, and as such recommends further investigation of the potential archaeological significance of the solar precinct area. ECNT does not believe that the proponent has engaged with the "Newcastle Waters Region: Community Report" (2019) by the Centre of Australian Biodiversity and Heritage.[8] In this report it is noted that there are times in the past that Lake Woods was much larger than present, indicated by the presence of old shoreline ridges. The historical spatial expanse of Lake Woods contains much historical and cultural evidence, and is highly valuable for scientific, archaeological, and climatic studies. Archaeological investigations that commenced in 2019 within this historic shoreline by the Centre of Excellence for Australian Biodiversity and Heritage indicate that potentially thousands of undocumented heritage sites are located within the catchment of Lake Woods (CABAH, 2019). It may be the case that a full archaeological survey needs to be undertaken prior to approval or construction; this possibility should be investigated.

If you have any questions, please contact Kirsty Howey on kirsty.howey@ecnt.org or Shar Molloy at shar.molloy@ecnt.org.

Yours sincerely

[8] This report may be accessed as an appendix to the following document: https://ehq-production-australia.s3.ap-southeast-2.amazonaws.com/bc8b4db80426793c35ec823d026ccdc43dc799d9/documents/attachments/000/110/839/original/Protect_Country_Alliance_submission.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIBJCUKKD4ZO4WUUA%2F20220714%2Fap-southeast-2%2Fs3%2Faws4_request&X-Amz-Date=20220714T054541Z&X-Amz-Expires=300&X-Amz-SignedHeaders=host&X-Amz-Signature=042521ed55bfe8fe1ce8114d0f65690da8a0b9b21294452c7f560284e606ca94

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