



In June 2018, the European Investment Bank (EIB) approved a €60 million loan for the Spanish company Greenalia, S.A. to build a 50-Megawatt wood-burning electricity-only power station in Curtis-Teixeiro, A Coruña, Galicia. The power station, permitted to burn 546,000 tonnes of wood a year,¹ was officially commissioned in March 2020.²

The EIB's decision to award a loan to Greenalia for this plant has been strongly criticised by Galician and EU campaign groups: in Galicia, the environmental association Petón do Lobo has petitioned the European Commission for an investigation into the EIB's decision,³ and the NGO ClientEarth has sought an order to annul the EIB's decision to refuse a review of the loan award in the European Court.⁴

EIB loan awarded for a plant even less efficient than the 'low efficiency' the EIB admitted to:

According to the EIB's own documentation, the plant's gross efficiency is 35.6%, which makes it too expensive to operate within the "applicable Bank's economic threshold value for mature renewable energy technologies".

Building a 35.6% efficient power station means that out of 100 tonnes of wood, energy from 64.4 tonnes of that wood is wasted entirely as uncaptured heat.

The actual situation is worse: the 35.6% figure bears no resemblance to data in Greenalia's environmental

permit, available on the EIB's website.⁵ Firstly, the efficiency figure that matters is not gross but net efficiency. Net efficiency compares the amount of energy contained in the biomass burned with the amount of electricity supplied to the grid.¹ Net efficiency is what the Industrial Emissions Directive – and therefore environmental permitting authorities in member states – are concerned with. Gross efficiency, on the other hand, compares the amount of energy contained in the biomass with the amount of electricity fed into the grid PLUS the amount of electricity used to keep the power station itself running. In this case, it is a difference of 13.64%, as confirmed in Greenalia's environmental permit document uploaded on the EIB website.⁶

The plant's net efficiency is a meagre 27.49%. By comparison,

Far from helping to prevent wildfires, wood sourcing for this plant may make them more likely:

the minimum net electrical efficiency stipulated in the European Commission's Implementing Decision for the Industrial Emissions Directive for new biomass plants (such as Greenalia's Curtis plant) is 33.5% - or, for very moist feedstock, 32%.⁷

There is no evidence that the EIB has looked at whether minimum efficiency arising from the Industrial Emissions Directive are met – nor indeed, that they have checked the figures supplied to them at all.

Incidentally, the EIB also failed to realise that, as the figures in the environmental permit show, the plant's capacity is far less than 50 MW.



Fire at Puente Sampayo, Pontevedra, Galicia, August 2017, Photo: Contando Estrelas

The EIB justified financing a plant above its economic threshold value with "an additional benefit, in the form of forest fire prevention".

40% of all wildfires in Spain occur in Galicia, which covers just 6% of the

country's territory.⁸ The climate crisis is worsening droughts and heat waves, making devastating fire seasons – such as the deadly fires across Portugal and Galicia in 2017⁹ – more common. This, however, does not explain why Galicia is particularly

¹ This is a simplified definition adapted to a power station that does not capture heat and that does not

supply electricity to off-grid customers, i.e. a power station such as the Curtis Biomass Plant.

severely affected amongst Spanish regions. The reason is that large areas of the country are covered in non-native eucalyptus trees and pine plantations which burn easily and are adapted to thrive on fire.^{10;11}

According to the Galician administration, the region has 433,954 hectares of pine and 307,984 hectares of eucalyptus plantations. A further 250,934 hectares are covered by "mixed plantations" where eucalyptus, pine and other vegetation are spreading into or have been established on what used to be agricultural land.¹²

On the other hand, forests of native, mostly deciduous trees offer protection from fires. Analysis of official data about forest fires in Galicia (years 2001-2010) shows that the incidence of fires in eucalyptus and pines plantations is more than three times higher than in natural deciduous forests with oak and other native species.¹³

Mixed plantations (e.g. eucalyptus plus pine) with dense understory – are highly flammable. Forestry industry and the regional government are promoting large-scale removal of the understory in order to 'reduce fuel load', but those practices wipe out remaining wildlife habitats across large region, and they accelerate the trend towards larger and larger eucalyptus or pine monocultures, with no protection for soils and water conservation. They thus perpetuate rather than address the underlying cause of Galicia's worsening wildfires.

Greenalia Group has vested interests in eucalyptus and pine plantations. It manages nearly 6,000 hectares of 'forests', mostly pine and eucalyptus plantations,¹⁴ as well as carrying out logging and 'residue' removal for other forest owners. Their **interests run counter to what needs to happen to protect Galicia from destructive wildfires, which is to remove flammable invasive plantation trees and restore native deciduous forests.**



Mixed plantation with undergrowth – Photo: Salva la Selva



Monoculture eucalyptus plantation – Photo: Salva la Selva

Removing too many logging residues harms soils and water:

The EIB based its conclusion that the plant would help to reduce fire risks in part on a Galician law which, they claim, mandates the removal of all logging residues from forests (including plantations), in order to

reduce fossil fuel use and avoid fires. Creating an additional demand for over 500,000 tonnes of residues a year would incentivise forest owners to implement the law.

In fact, the law in question¹⁵ does not mandate that logging residues have to be removed. It states that crushing such residues and leaving them on the ground is always an acceptable alternative. Furthermore, it lists many circumstances in which logging residues should be left on the forest – or tree plantation – soil without any treatment. Those include areas at risk of soil erosion and mountainous terrain, which means much of Galicia.

Traditionally, logging residues in Galicia have been left behind to decompose in order to protect soils, many of which are acidic, low in nutrients, and prone to erosion. Removing too many of those residues deprives soils of nutrients as well as carbon. In mountainous areas, it causes greater run-off of topsoil, and agrottoxins, thus polluting waterways and harming freshwater species. As the layer of mulch is reduced, forestry machinery causes more soil

compaction, all of which reduces the regrowth of trees.¹⁶

Demand for logging residues is already high in Galicia: there are two pulp mills, each of them co-located with a biomass cogeneration plant operated by the forestry, pulp and paper and bioenergy company ENCE one in Galicia, the other in neighbouring Asturias; there are at least four pellet mills in the region and Greenalia supplies wood from a large woodchip mill across the north west of Spain.

This leaves Greenalia with two options for the Curtis Biomass Plant: either they have to increase the removal of residues from forests and plantations across and likely beyond Galicia well in excess of what is possible without causing serious harm to soils, freshwater and to future tree growth. Or they must resort to roundwood. Both of those bad options could be combined.

Burning trees and not just logging residues?

During a visit on 8th February 2020, i.e. shortly before the plant was officially opened, *Salva la Selva* observed not just residues but also significant quantities of timber, i.e. roundwood, stored on the site. The timber clearly came from trees of mixed ages; most of the stems had a

diameter of 20-30 cm, but some were as wide as 1m.

Photos of roundwood waiting to be chipped and burned can also be seen on the websites of two different technology providers for the plant.¹⁷

EIB failure to verify whether the plant will meet the EU's legal air emissions limits:



Curtis Biomass Plant, 8th February 2020 – Photo: Salva la Selva



Curtis Biomass Plant, 8th February 2020 — Photo: Salva la Selva

The EIB expressed its satisfaction with Greenalia's environmental permitting document uploaded which the bank on their website stating that this would ensure compliance with the Industrial Emissions Directive. We have already seen that this is not the case in relation to efficiency standards. It is not true for the limits on air pollutant emissions either. According to the permitting document published by the EIB, Greenalia would be permitted to emit significantly more oxides of nitrogen, small particulates (PM₁₀) and

sulphur dioxide than is allowed under EU legislation.¹⁸ For example, the level of PM₁₀ emissions cited is five times above the European legal limit. The bank's due diligence procedures failed to pick up on this discrepancy and to question the legality of the proposed emissions limits. Note that the results of air emissions monitoring in Galicia are not published, which means that there is no information available about what the plant is presently emitting.

Conclusions:

The EIB has justified granting a €60 million loan to Greenalia by claiming that the plant would be burning nothing other than logging residues from the nearby region, which would help to implement Galician legislation to prevent wildfires by reducing fuel load in tree plantations and forests. This 'benefit', they argued, outweighed the fact that the supposed efficiency of 35.6% pushed the scheme below the Bank's own economic threshold.

Yet none of those claims are borne out by the facts: the net efficiency of the plant is well below the minimum efficiency standard in the Industrial Emissions Directive. Even the total electricity output of the plant is far lower than what the Bank believed it to be. Those figures are contained in documents the EIB published on its own website, but evidently failed to scrutinise. The EIB further misinterpreted the Galician law about residues removal, ignoring the fact that this law sets out to protect soils

and waterways from excessive and environmentally destructive removal of logging residues. Perhaps most seriously, the Bank's due diligence process failed to ensure that the plant would only burn residues, as three pieces of evidence of large-scale roundwood sourcing show.

The result of the EIB's due diligence failures is a biomass plant which fails

to meet the minimum efficiency standards set out in European legislation. The EIB loan supports a company that is invested in eucalyptus and pine plantations, and a development which is likely to contribute to further spread of highly flammable plantations in a region already suffering from recurrent and worsening wildfires.

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¹ eib.org/attachments/registers/95460396.pdf

² greenalia.es/greenalias-first-135-me-biomass-plant-goes-into-operation/

³ polit-x.de/en/documents/2444169/europa/english/european-parliament/committees/peti/notices-to-members-2019-10-17-notice-to-members-petition-no-01452019-by-ismael-antonio-lopez-perez-spanish-on-behalf-of-the-peton-do-lobo-environmental-association-requesting-information-on-a-review-of-the-loan-granted-by-the-eib-to-the-company-greenalia-biomass-power-curtis-teixeiro-la-coruna-galicia

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curia.europa.eu/juris/document/document.jsf?text=&docid=211069&pageIndex=0&doclang=en&mode=req&dir=&occ=first&part=1&cid=9776217

⁵ eib.org/attachments/registers/95460396.pdf

⁶ According to the figures contained in Greenalia's environmental permit (eib.org/attachments/registers/95460396.pdf), "The plant will operate continuously, with an annual guaranteed operation of 8,000 hours, a gross annual production of 375,695 MWh of which 324,434.5 MWh will be transferred to the grid. The estimated energy consumption of the facility itself will be about 51,260 MWh (13.64% of the energy generated)".

⁷ See eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D1442&from=EN, Table 8. For high-moisture biomass feedstock, the minimum net electrical efficiency is 32%, but it would be difficult to argue that woodchips such as those burned by Greenalia could be classified as 'high-moisture'.

⁸ ncbi.nlm.nih.gov/pmc/articles/PMC6163030/

⁹ nytimes.com/2017/10/16/world/europe/portugal-spain-fires.html

¹⁰ neobiota.pensoft.net/article/7015/%20re%20Acacia%20delbata%20and%20abc.museocienciasjournals.cat/volumen-40-1-2017-abc/eucalypt-plantations-reduce-the-diversity-of-macroinvertebrates-in-small-forested-streams/?lang=en%20re%20eucalyptus%20species

¹¹ afs-journal.org/articles/forest/abs/1999/06/AFS_0003-4312_1999_56_6_ART0008/AFS_0003-4312_1999_56_6_ART0008.html

¹² mediorural.xunta.gal/sites/default/files/temas/forestal/plan-forestal/1_REVISION_PLAN_FORESTAL_CAST.pdf

¹³ adega.gal/novas.php?id=637&idioma=gl&sec=116

¹⁴ fsc.force.com/servlet/servlet.FileDownload?file=00Pf3000011fWL7EAM

¹⁵ xeg.xunta.gal/sites/default/files/documentos/2012_Ley_de_Montes_de_Galicia.pdf

¹⁶ secforestales.org/publicaciones/index.php/cuadernos_secf/article/view/9656/9574 and inia.es/sitemapa/revistas/iaspf/2000/vol9-2/BRANAS.pdf

¹⁷ bmh.fi/references/biomass-fuel-handling-solution-delivered-to-curtis-spain/, and vilferelectric.com/en/2019/09/20/curtis-teixeiro-biomass-plant/, both accessed 23rd July 2020

¹⁸ See eib.org/attachments/registers/95460396.pdf and eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D1442&from=EN