



## A Better Environment

Lignor endorses plantations and managed forests as a sustainable, renewable resource. Whilst the timber is growing, its function in the environment is critical in helping reduce salinity, soil erosion and nitrogen run-off from farms into streams and rivers.



Lignor  
Environmental Matters



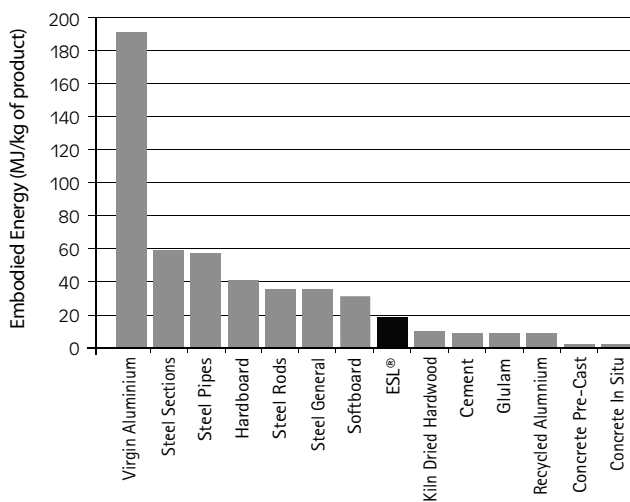
ESL® and ESB® will be produced from logs that are supplied from blue gum grown in plantations in the Great Southern Region of Western Australia, in addition to jarrah, karri and marri thinnings and residues from sustainably managed regrowth native forest operations by the Western Australian Department of Environment and Conservation in accordance with the Forest Management Plan.

Both ESL® and ESB® maximise the use of sustainable plantation resources by converting over 70% of the log compared to other engineered processes which convert less than 50% which provides Lignor with environmental and cost advantages. The remaining 30% of the log is used to generate thermal energy for the drying process, thereby 100% of the log is utilised.

Embodied energy is the total amount of energy used to make a product available in the market place. In the case of ESL®, this includes the energy required to transport the logs to the plant and the final product to distributors and energy consumed in the production process.

Total embodied energy in ESL® is 16-21 MJ/kg which is less than aluminium, steel, hardboard and softboard. ESL® represents a high strength, low embodied energy alternative to steel in residential and small commercial construction.

### Embodied Energy Values for building products



Source: URS 2007 "Emission benefits associated with Lignor's products".

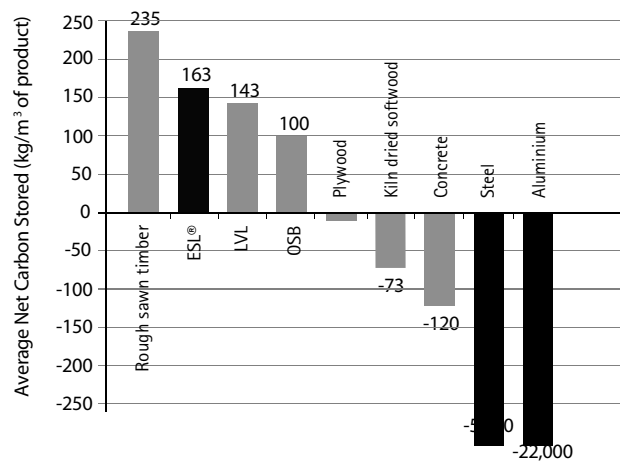
ESL® stores more net carbon than other engineered wood products and non-timber building products, lower only to rough sawn timber.

ESL® is estimated to generate cumulative greenhouse gas emissions of 1,000-1,200kg CO<sub>2</sub>-equivalent per cubic metre from forest regeneration through to wood product manufacture. Emissions resulting from transportation between life cycle stages and with raw materials, fuels and electricity production are also included.

The production process emits less Volatile Organic Chemicals (VOC's) than all other engineered wood products researched. VOC's are substances that vaporize at room temperature and pressure and are generally carcinogens or suspected carcinogens with the potential to cause damage to human and ecological health. Generated during the drying, pressing and cooling (curing) stages in the production of engineered wood products, VOC's emissions are also produced in some amount through the natural drying process of wood as is the case with kiln dried timber.

ESL®'s low level of emissions is due to the pMDI resin, lower pressing and resin curing temperatures used, and faster curing rate than for typical processes using urea formaldehyde and phenol formaldehyde resins. pMDI resin does not contain formaldehyde and methanol emitting between 2.8 and 5.9 times less VOC's than urea formaldehyde and phenol formaldehyde.

### Net Carbon Stored by various building materials



Source: URS 2007 "Emission benefits associated with Lignor's products".  
Note - The carbon stored in engineered wood products excludes fossil carbon in the resin (due to a lack of comparable data).

Level 6, 10 Queen Street  
Melbourne, Victoria 3000

Tel: +61 3 9629 1936  
Fax: +61 3 9629 4991

sales@lignor.com  
www.lignor.com



**LIGNOR**  
L T D