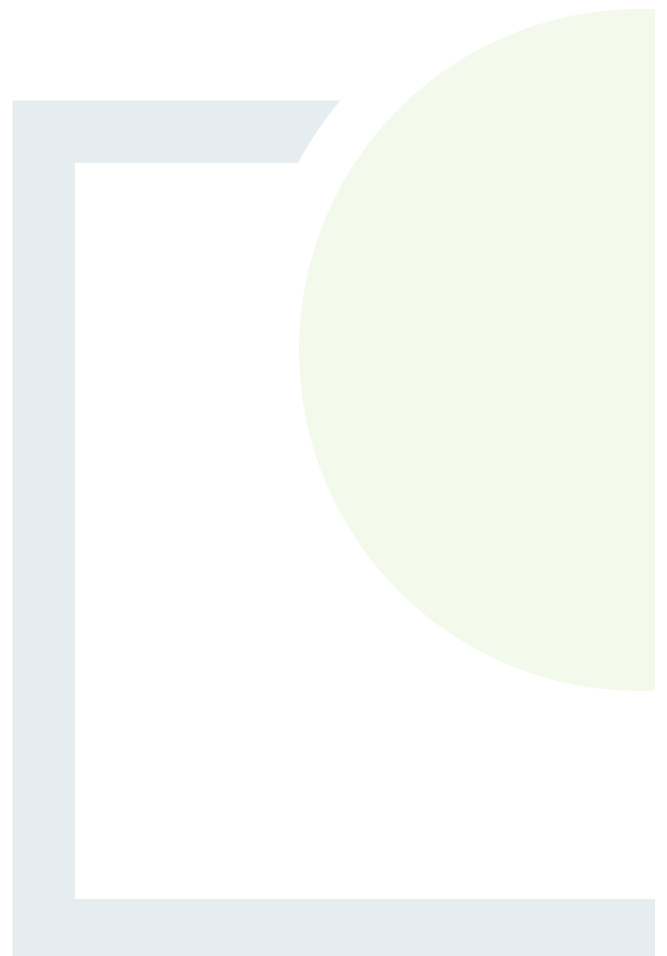




DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX 7.1

TII Carbon Calculation Inputs



Calculating the Carbon Footprint of Development Projects, as required by the revised Environmental Impact Assessment (EIA) Directive 2014/52/EU

Purpose	Informing EIAR Climate Impact Assessment	
Carbon Calculation Tool	TII Carbon Assessment Tool - https://tiicarbonbontool.azurewebsites.net/	
High-level Instruction	Identify Input Data as set out below. Make a record of this input spreadsheet in the project folder. Enter input data onto the TII Carbon Assessment Tool to give an estimation of construction and operational phase Greenhouse Gas (GHG) emissions. Notes on the use of this spreadsheet and the TII Carbon Tool are contained in a separate worksheet.	
	Input Data	Notes and Assumptions
General Information		
Name of Project	Coom Green Energy Park Grid Connection	
Project Lifetime	30	
Construction start date	2027	
Construction end date	2028	
Construction phase duration (months)	12	
Construction Cost	50 million euro	Estimate produced based on previous projects of a similar scale and existing information of Proposed Development. Accurate project costs can only be firmly established when the design process has been completed in full.
Pre-construction		
Site clearance area - Mixed forest (ha)	17.80	
Land use loss - Mixed forest (ha)	2.34	Substation - 23,407 m ²
Land use loss - Natural grassland (ha)	0.02	5 passing bays - assumed 5x 3mx10m + 1/2(5)(3)
Product Stage		
Concrete input (kg)	14,446,080	20 no. 100kv Joint Bays - assumed 6m x 2.5m x 2.05m (assumed hollow cuboid with 200mm thick walls) Assumed 500mm raft slab foundation for IPP Control Building and EirGrid Substation assumed density: 24,000 kg/m ³
Fill material input (Pavement base in tool) (kg)	9,483,750	Assumed 500mm fill in both building's foundation buildup Assume compacted fill density of 2250 kg/m ³ Assume 3.2km new access tracks, 300mm imported aggregate buildup, 4m wide
Steel input (tonne) (rebar)	27	Assuming 36kg/m ² steel rebar in foundations Eirgrid Control Building: 450m ² single storey IPP Control building 300m ² single storey
Steel input (tonne) (hot dipped galvanised fence)	17	115 x 145m substation compound surrounded by 32kg/m 2.6m high Steel Palisade fencing
HGV Transport Distance (km)	239,299	Assume Materials listed transported by HGV in 20 t loads (1196 loads) Conservatively estimated that materials will be transported 100 km from source building material supply site(s) to the development site. (plus return journey)

Construction Stage		
Soil excavation (m ³)	32,971	13.9km HV Underground, 15.8 km MV Underground, 1m for each control building foundations
Construction diesel usage - Generators (litres)	129,600	The following generator operation has been conservatively assumed: Operation of 1 x on-site generator with a run time of 50% of the working day (12 hours) for the entire duration of the construction period (288 working days) at a fuel consumption rate of 75 litres/hour per generator.
Construction diesel usage - Plant (litres)	75,168	The following plant operation has been conservatively assumed: Operation of 1 forklift with a run time of 50% of the day (12 hour working day) for the duration of construction (288 working days) with a fuel consumption rate of 15 litres/ hour per unit of plant. Operation of an average of 1 MEWP with a run time of 5% of the day (12 hour working day) for the duration of site clearance, earthworks and construction (288 working days) at a fuel consumption rate of 15 litres/hour per unit of plant. Operation of an average of 1 Mini-crane with a run time of 5% of the day (12 hour working day) for the duration of site clearance, earthworks and construction (288 working days) at a fuel consumption rate of 15 litres/hour per unit of plant. Operation of an average of 1 Tele-handler with a run time of 25% of the day (12 hour working day) for the duration of site clearance, earthworks and construction (288 working days) at a fuel consumption rate of 45 litres/hour per unit of plant.
Construction water usage (litres)	1,340,640	Assumed 35 construction staff working over construction period (288 working days), using on average 133 litres per day.
Total distance travelled by workers during construction (km)	892,800	Conservatively assumed that construction workers will travel 50 km to the site on average (100 km in total to and from the site). Estimated that 31 LDVs will come to and from the site per day in line with traffic predictions. Construction period duration - 288 working days
Total distance travelled by LGV's during construction phase	2,016,000	35 staff conservatively 100km each way, 288 working days

Operational Stage		
Electricity demand (kWh per annum)	9,000	Assumption based on lighting, CCTV only
Operational water use (litres per annum)	0	Bottled water and rainwater harvesting to serve toilet facilities
Waste generation - Organic waste (tonne)	1	Conservative estimate, toilet facilities are tanked, to be removed and treated offsite, but will only see very occasional use with no permanent staff at the facility
Waste Generation - Distance to Waste Facility (km)	50	Several suitable waste facilities located within this buffer. One way, twice a year (100 inputted in tool)
Decommissioning Stage		
Diesel Use for Plant (litres)	7,830	<p>The following plant operation has been conservatively assumed:</p> <p>Operation of 1 forklift with a run time of 50% of the day (12 hour working day) for the duration of construction (30 working days) with a fuel consumption rate of 15 litres/ hour per unit of plant.</p> <p>Operation of an average of 1 MEWP with a run time of 5% of the day (12 hour working day) for the duration of site clearance, earthworks and construction (30 working days) at a fuel consumption rate of 15 litres/hour per unit of plant.</p> <p>Operation of an average of 1 Mini-crane with a run time of 5% of the day (12 hour working day) for the duration of site clearance, earthworks and construction (30 working days) at a fuel consumption rate of 15 litres/hour per unit of plant.</p> <p>Operation of an average of 1 Tele-handler with a run time of 25% of the day (12 hour working day) for the duration of site clearance, earthworks and construction (30 working days) at a fuel consumption rate of 45 litres/hour per unit of plant.</p>
Diesel Use for Generator (litres)	13,500	<p>The following generator operation has been conservatively assumed:</p> <p>Operation of 1 x on-site generator with a run time of 50% of the working day (12 hours) for the entire duration of the decommissioning period (30 working days) at a fuel consumption rate of 75 litres/hour per generator.</p>
Mixed C&D waste (tonne)	15.8	MV Cable the only part of development to be decommissioned, assumed 1 tonne of mixed C&D Waste per km to be decommissioned Assumed 100km average transport by HGV
WEEE (tonne)	32	MV Cable the only part of development to be decommissioned, assumed 2 tonne of WEEE Waste per km to be decommissioned Assumed 100km average transport by HGV