TOBIN

Rooaunalaghta Green Energy Project

Chapter 15-1
Climate Calculation Data

ROOAUNALAGHTA
Green Energy

BUILT ON KNOWLEDGE

Materials

AWN Category	Material	Tii Category	Tii Sub- Category	Quantity	Unit	kg CO2e per unit	Embodied tCO2e	Comments
Earthworks	Aggregates and sand, from virgin land won resources, bulk, loose	Series number: 600 - Earthworks	Backfill/Fill	30,616,000	kg	0.004	133	Aggregate for road construction
Earthworks	Aggregates and sand, from virgin land won resources, bulk, loose	Series number: 600 - Earthworks	Backfill/Fill	22,318,800	kg	0.004	97	Aggregate for substation and compounds
Earthworks	Aggregates and sand, from virgin land won resources, bulk, loose	Series number: 600 - Earthworks	Backfill/Fill	57,537,675	kg	0.004	251	Aggregate for turbin hardstand
Earthworks	Aggregates and sand, from virgin land won resources, bulk, loose	Series number: 600 - Earthworks	Backfill/Fill	207,915	kg	0.004	1	Aggregate for met mast hardstand
Concrete	In-Situ Concrete, General	Series number: 1100 - Kerbs, Footways and Paved Areas	Footway - concrete	112,800	kg	0.10	12	Concrete for post foundations
Concrete	In-Situ Concrete, General	Series number: 1100 - Kerbs, Footways and Paved Areas	Footway - concrete	34,696,425	kg	0.10	3,586	Concrete for turbine hardstands
Concrete	In-Situ Concrete, General	Series number: 1100 - Kerbs, Footways and Paved Areas	Footway - concrete	8,545,320	kg	0.10	883	Concrete for contractor compound
Steel	Steel, engineering steel			1,482,000	kg	1.64	2,430	Steel for turbine foundations
Steel	Steel/wire/chain fence (includes posts)			640	m	10.01	6	Fencing
Total							**7,401**	
Earthworks	Aggregates and sand, from virgin land won resources, bulk, loose	Series number: 600 - Earthworks	Backfill/Fill	10,940,160	kg	0.004	48	Aggregate fill for GCR
Concrete	In-Situ Concrete, General	Series number: 1100 - Kerbs, Footways and Paved Areas	Footway - concrete	62,400	kg	0.10	6	Concrete for GCR joint boxes
Other	Miscellaneous cable	Series number: 1400 - Electrical Work for Road Lighting and Traffic	Cables	3,291	m	0.79	3	Cable for GCR
Total							**57**	

Construction Activities

Clearance and Demolition Activities	
Clearance Category	**Quantity (ha)**
General clearance - land principally occupied by agriculture	209

Transport (of materials)				
Transport Type	**Number of vehicle movements per day (there and back = 2 movements)**	**Total days of construction period**	**Estimated distance of travel per trip (km) (In leiu of data, use 50km)**	**Total distance travelled by vehicles (km)**
HGV - All - Average	8706	1	50	435,300

Excavation Activities			
Excavation Category	**Activity**	**Quantity (m^3)**	**Quantity Reused on Site?**
General Excavation - Other	General excavation	58,993	58993
General Excavation - Other	GCR 1	12,929	7459.2

Fuel/Energy Use During Construction (Construction Activities)					
Activity Category	**Energy Type**	**Fuel Use per Hour (litres)**	**Operating Time (Hours per Day)**	**Total Construction Days**	**Total Fuel Use (litres)**
Construction - Plant Use	Gasoil / Diesel	30	8	606	145,440

Construction Worker Travel to Site				
Transport Type	**Number of vehicle movements per day (there and back = 2 movements)**	**Total days of construction period**	**Estimated distance of travel per trip (km) (In leiu of data, use 35km)**	**Total distance travelled by vehicles (km)**
Car - Average	50	606	30	909,000

Operational GHG Savings

Project Info		
Project Lifespan	35	Years
MW	58.5	
Generation Efficiency / Capacity Factor %	0.292	
Operational Hours	8,760	
Windfarm Annual Power Generation	149,638	MWh
	149,638,320	kWh
	150	GWh
Payback period for wind turbines	6.1	Months
Annual Power Generation TJ	538.7	TJ
GHG Emissions due to Construction	8,774	tCO_2e

Results table

Table 15.11				
Development Emissions & Savings	**tonnes CO2e**	**Baseline / Relevant Target**	**tonnes CO2e**	**% of Baseline / Relevant Target**
Annual Equivalent GHG Emissions from Power Plant	34,888			
Annualised GHG Emissions due to Construction Phase	251			
Total Annual Savings Due To Wind Farm (averaged over lifespan)	34,637	Ireland's Total GHG Emissions 2023 (existing baseline)	55,163,780	0.1%
		Ireland's GHG Emissions from Fossil Fuel Energy	7,157,440	0.5%
		ETS 2030 Target (42% of 2005 ETS Level)	12,953,240	0.3%
		2030 Sectoral Budget (Electricity Sector)	3,000,000	1.2%