



INTERNATIONAL

GROUSEMOUNT WIND FARM

County Kerry

**ENVIRONMENTAL IMPACT STATEMENT
VOLUME 1 - NON-TECHNICAL SUMMARY
& EIS TEXT**

ESB WIND DEVELOPMENT

Report No. QR-320171-11-GK0715-R01

August 2015

ESB WIND DEVELOPMENT LIMITED

**GROUSEMOUNT WIND FARM
COUNTY KERRY**

**ENVIRONMENTAL IMPACT
STATEMENT**

VOLUME 1 of 3

NON-TECHNICAL SUMMARY & EIS TEXT

August 2015

Report QR-302171-11-GK0715-R01



ESB INTERNATIONAL

Stephen Court, 18 / 21 St. Stephen's Green, Dublin 2, Ireland.

Telephone: +353-1-7038000 Fax: +353-1-6616600

Table of Contents - Volume 1 of 3

NON-TECHNICAL SUMMARY	1
INTRODUCTION	1
THE PROJECT	2
POTENTIAL IMPACTS OF THE DEVELOPMENT	5
CONCLUSION.....	18
1. INTRODUCTION	1.1
1.1 SCOPE	1.1
1.2 ENVIRONMENTAL IMPACT STATEMENT	1.2
1.3 FORMAT OF EIS.....	1.3
1.4 CONSULTATION	1.6
2. DESCRIPTION OF PROJECT	2.1
2.1 OVERVIEW	2.1
2.2 THE DEVELOPER	2.1
2.3 PLANNING HISTORY	2.3
2.4 WIND FARM SITE.....	2.4
2.5 DESCRIPTION OF SCHEME	2.6
2.6 COMPARISON OF PERMITTED AND PROPOSED ARRANGEMENTS	2.15
2.7 OPERATION, MAINTENANCE AND DECOMMISSIONING	2.16
2.8 MITIGATION OF POTENTIAL IMPACTS	2.18
2.9 COOMATAGGART 110 KV SUBSTATION	2.19
2.10 GRID CONNECTION	2.20
2.11 OTHER DEVELOPMENTS.....	2.21
2.12 DURATION OF PERMISSION.....	2.22
3. PROJECT IMPLEMENTATION	3.1
3.1 PROJECT CONSTRUCTION	3.1
3.2 TEMPORARY SITE FACILITIES	3.2
3.3 TURBINE ACCESS AND CRANEPADS	3.4
3.4 WIND TURBINES.....	3.5
3.5 ANEMOMETER MASTS	3.7
3.6 UNDERGROUND SERVICES.....	3.7
3.7 BORROW PITS	3.8
3.8 TREE FELLING	3.10
3.9 ACCESS.....	3.10
3.10 COOMATAGGART 110 KV SUBSTATION.....	3.11
3.11 GRID CONNECTION	3.12
3.12 CONSTRUCTION WASTE	3.13
3.13 REINSTATEMENT	3.13
3.14 MITIGATION OF IMPACTS	3.14
3.15 SCHEDULE	3.14

4. POLICY & PLANNING CONTEXT	4.1
4.1 INTRODUCTION.....	4.1
4.2 ENERGY POLICY – EUROPEAN CONTEXT.....	4.1
4.3 ENERGY POLICY – NATIONAL CONTEXT.....	4.4
4.4 REGIONAL PLANNING GUIDELINES.....	4.6
4.5 PLANNING POLICY – KERRY COUNTY DEVELOPMENT PLAN.....	4.7
4.6 CONCLUSIONS.....	4.9
5. ALTERNATIVES	5.1
5.1 DO-NOTHING SCENARIO.....	5.1
5.2 ALTERNATIVE ELECTRICITY GENERATION.....	5.2
5.3 PROCEED WITH PERMITTED DEVELOPMENTS.....	5.5
5.4 ALTERNATIVE SITES.....	5.6
5.5 ALTERNATIVE CONFIGURATIONS AND LAYOUTS.....	5.10
5.6 WIND ENERGY GUIDELINES.....	5.12
6. HUMAN ENVIRONMENT	6.1
6.1 RECEIVING ENVIRONMENT.....	6.1
6.2 IMPACT OF THE DEVELOPMENT.....	6.5
6.3 MITIGATION.....	6.9
6.4 CONCLUSIONS.....	6.10
7. NOISE & VIBRATION	7.1
7.1 RECEIVING ENVIRONMENT.....	7.1
7.2 IMPACT OF THE DEVELOPMENT.....	7.4
7.3 MITIGATION.....	7.11
7.4 CONCLUSIONS.....	7.12
8. SHADOW FLICKER	8.1
8.1 RECEIVING ENVIRONMENT.....	8.1
8.2 IMPACT OF THE DEVELOPMENT.....	8.1
8.3 MITIGATION.....	8.4
8.4 CONCLUSIONS.....	8.4
9. TERRESTRIAL ECOLOGY	9.1
9.1 RECEIVING ENVIRONMENT.....	9.1
9.2 IMPACT OF THE DEVELOPMENT.....	9.28
9.3 MITIGATION.....	9.36
9.4 CONCLUSION.....	9.41
10. AQUATIC ECOLOGY – WIND FARM	10.1
10.1 RECEIVING ENVIRONMENT.....	10.1
10.2 IMPACT OF THE DEVELOPMENT.....	10.24
10.3 MITIGATION.....	10.34
10.4 CONCLUSIONS.....	10.42
11. AQUATIC ECOLOGY – CABLE	11.1

11.1	RECEIVING ENVIRONMENT.....	11.1
11.2	IMPACT OF THE DEVELOPMENT.....	11.7
11.3	MITIGATION.....	11.13
11.4	CONCLUSION.....	11.13
12.	LANDSCAPE	12.1
12.1	INTRODUCTION.....	12.1
12.2	RECEIVING ENVIRONMENT.....	12.11
12.3	IMPACT OF THE DEVELOPMENT.....	12.17
12.4	MITIGATION.....	12.37
12.5	CONCLUSIONS.....	12.38
13.	ATMOSPHERIC EMISSIONS & AIR QUALITY	13.1
13.1	RECEIVING ENVIRONMENT.....	13.1
13.2	IMPACT OF THE DEVELOPMENT.....	13.5
13.3	MITIGATION.....	13.8
13.4	CONCLUSIONS.....	13.9
14.	GEOLOGY & SOILS	14.1
14.1	RECEIVING ENVIRONMENT.....	14.1
14.2	IMPACT OF THE DEVELOPMENT.....	14.4
14.3	MITIGATION.....	14.12
14.4	CONCLUSIONS.....	14.19
15.	HYDROLOGY, HYDROGEOLOGY & WATER QUALITY	15.1
15.1	RECEIVING ENVIRONMENT.....	15.1
15.2	IMPACT OF THE DEVELOPMENT.....	15.15
15.3	MITIGATION.....	15.21
15.4	CONCLUSIONS.....	15.35
16.	ROADS & TRAFFIC	16.1
16.1	RECEIVING ENVIRONMENT.....	16.1
16.2	IMPACT OF THE DEVELOPMENT.....	16.2
16.3	MITIGATION.....	16.9
16.4	CONCLUSIONS.....	16.12
17.	MATERIAL ASSETS	17.1
17.1	TOURISM.....	17.1
17.2	ENERGY SUPPLY.....	17.5
17.3	AIR NAVIGATION.....	17.8
17.4	TELEVISION AND COMMUNICATIONS SIGNALS.....	17.9
18.	CULTURAL HERITAGE	18.1
18.1	INTRODUCTION.....	18.1
18.2	HISTORY.....	18.2
18.3	ARCHAEOLOGY.....	18.3
18.4	ARCHITECTURE.....	18.10

18.5 CONCLUSIONS 18.11

19. INTERACTION OF IMPACTS 19.1

19.1 INTRODUCTION 19.1
19.2 INTERACTION 19.1
19.3 EPA GUIDANCE 19.4
19.4 CONCLUSIONS 19.4

BIBLIOGRAPHY

VOLUME 2 of 3 APPENDICES A - L

VOLUME 3 of 3 ZTV MAPS & PHOTOMONTAGES

List of Figures

Figure 1.1	Site Location
Figure 2.1	Site Layout
Figure 2.2	Route of Coomataggart – Ballyvouskill Underground Cable
Figure 2.3	View of Wind Turbine
Figure 2.4	View of Nacelle
Figure 2.5	Coomataggart 110 kV Substation
Figure 2.6	Other Wind Farm Developments
Figure 3.1	Wind Turbine Foundation
Figure 3.2	Crane for Wind Turbine Er3ection
Figure 3.3	Assembly of Wind Turbine Blades
Figure 3.4	Wind Turbine Erection
Figure 3.5	Typical 110 kV Cable Installation
Figure 3.6	Wind Farm Construction Schedule
Figure 4.1	Wind Development Zones, Co. Kerry
Figure 5.1	Global Wind Power Installation
Figure 5.2	Growth in Wind Energy Generation in Ireland
Figure 5.3	European Wind Resources
Figure 5.4	Wind Farm Planning Applications
Figure 5.5	Trend in Wind Turbine Sizes
Figure 6.1	Townlands at Wind Farm Site
Figure 6.2	National & Local Trends in Population Growth
Figure 6.3	Historical Trends in Population Growth
Figure 6.4	Wind Industry Investment Costs by Category
Figure 6.5	Irish Wind Jobs by Category
Figure 7.1	Noise Monitoring Locations
Figure 7.2	Location of Houses – Noise Analysis
Figure 8.1	Location of Houses – Shadow Flicker Analysis
Figure 9.1	Sites of Nature Conservation Importance
Figure 9.2	Habitat Map – Wind Farm
Figure 9.3	General View of Site
Figure 9.4	Heath Vegetation Dominated By Purple-Moor Grass
Figure 9.5	Area of Relatively Intact Blanket Bog at Knockanruddig
Figure 9.6	Blanket Bog at South East Sector of the Site
Figure 9.7	Exposed Siliceous Rock
Figure 9.8	Roughy River - Main Channel
Figure 9.9	Fields of Improved Grassland

Figure 10.1	Potentially Affected Watercourses
Figure 10.2	Biological Water Quality Assessment Sites
Figure 10.3	Assessment Sites - Fish Habitat & Chemical Water Quality
Figure 10.4	Results of Mussel Survey August 2015
Figure 10.5	Watercourses & Drain Crossings
Figure 10.6	Continuous Online Monitoring of Suspended Solids
Figure 11.1	Cable Route – Aquatic Ecology (1)
Figure 11.2	Cable Route – Aquatic Ecology (2)
Figure 11.3	Cable Route – Aquatic Ecology (3)
Figure 12.1	Kerry Renewable Energy Strategy - Wind Deployment Zones
Figure 12.2	Cork County Development Plan - Policy Considerations for Wind Energy Projects
Figure 12.3	Cork County Development Plan - Wind Energy Strategy Map
Figure 12.4	Topography of The Roughty River Valley
Figure 12.5	Design Response to Key Influences in the Landscape
Figure 12.6	Viewpoint Locations
Figure 13.1	Greenhouse Gas Emissions by Sector - 1990
Figure 13.2	Greenhouse Gas Emissions by Sector - 2009
Figure 13.3	Air Quality Zoning Map
Figure 13.4	Air Quality Monitoring Network
Figure 14.1	Bedrock at Grousemount
Figure 14.2	Soils at Grousemount
Figure 14.3	Recorded Landslides and Geological Heritage Sites
Figure 14.4	Peat Stability Flowchart
Figure 14.5	Rockfill Peat Repository on an Existing ESB Wind Farm
Figure 14.6	Turbine Excavation Trimmed Back to a Stable Temporary Side Slope
Figure 14.7	Rockfill Berm Around an Area of Deep Peat at an ESB Wind Farm
Figure 14.8	Template - Peat Stability Risk Assessment
Figure 14.9	Peat Stability Risk Assessment – Turbines
Figure 14.10	Peat Stability Risk Assessment – Access Tracks
Figure 14.11	Peat Stability Risk Assessment – Other Infrastructure
Figure 15.1	Regional Hydrology Map
Figure 15.2	Local Hydrology Map
Figure 15.3	Existing Site Drainage Map 1
Figure 15.4	Existing Site Drainage Map 2
Figure 15.5	Existing Site Drainage Map 3
Figure 15.6	Bedrock Aquifer Map
Figure 15.7	Local Designated Sites
Figure 15.8	Hydrological Constraints Map 1

Figure 15.9	Hydrological Constraints Map 1
Figure 15.10	Hydrological Constraints Map 1
Figure 15.11	Cumulative Impacts Map
Figure 16.1	Local Road Network & Potential Turbine Delivery Routes
Figure 16.2	Typical Delivery of Wind Turbine Tower Components
Figure 16.3	Typical Delivery of Wind Turbine Blades
Figure 16.4	Unloading of Wind Turbine Blade
Figure 16.5	Temporary Bridge at Ballyvourney
Figure 16.6	Temporary Bridge – Typical View
Figure 16.7	Temporary Bridge – Typical Installation
Figure 16.8	Road Improvement Locations
Figure 17.1	Kerry Way Walking Route
Figure 17.2	Wind Farm Impact on Sightseeing
Figure 17.3	Impact of Wind Farms on Decision to Visit Ireland
Figure 17.4	Annual Electricity Demand
Figure 17.5	Electricity Demand Forecast
Figure 18.1	Cultural Heritage Sites – Wind Farm
Figure 18.2	Cultural Heritage Sites – Cable Route
Figure 18.3	Site CH1 House Platform
Figure 18.4	Site CH1 Remains of Field Boundary (1)
Figure 18.5	Site CH1 Remains of Field Boundary (2)
Figure 18.6	Field Boundaries – Grousemount
Figure 18.7	Overgrown Former Trackway – Grousemount