

Gerald McTiernan

From: Jim Gannon <Jim.Gannon@rpsgroup.com>
Sent: 15 June 2015 09:56
To: Sarah Corcoran; Brian Carroll .T (Renewable Energy)
Cc: McCann John; Saeed Khan
Subject: FW: Model results
Attachments: Table 3 - 40dB - 15_06_2015.pdf; Table 4 - 40dB - 15_06_2015.pdf; Memo Table Wind Scenarios 15_06_2015.xlsx

Brian / Sarah,

Please see attached model results from Saeed's work over the weekend.

If there are any queries, please don't hesitate to get back in touch.

For the meeting at 10:00, you might call me on [REDACTED]

Kind Regards,
Jim

From: Saeed Khan
Sent: 15 June 2015 08:23
To: Jim Gannon
Subject: Model results

Hi Jim,

Please find attached the results from the model with the following iteration as suggested by DCENR on Friday.

- Setback distance from the 40dB noise limit (1,209m)
- Used the latest Annex 1 datasets for the flat peatland
- Include buffer zones around SPAs and SACs as agreed (equal to tip height of largest turbine)
- 500m buffer from lakes greater than 4sqkm
- 100m buffer from all lakes and reservoirs.
- Allow development in pNHAs.
- Remove local authority red zones from areas for development
- Eliminate polygons that can only take one turbine.

I am running late and will be in the office by 10:30ish. We will have a quick look at these results before going to DCENR.

Thanks,
Saeed

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Table 4 - Details of the land cover classes (Memorandum dated 29/04/2015) and the model calculation (16% of capacity delivered) Absolute Noise Limit 40 dB

Location	Spatial extent (scale)	Height	Matching Minimum Wind Speed at Tip Height (m/s)	Setback from sensitive properties (residences, schools)	Area available (km ²) matching minimum wind speed	Remaining Area (km ²) following application of 40dB limit	Percent of ROI land Area	Capacity available (MW)	Assumed Capacity Factor for Tip Heights	Capacity Output Potential (GWh)
Mountain Moorland and hills	Existing guidelines	Existing guidelines		New						
	Tend towards large	Any height	7.75	Min 500m, multiplier of 5 (750m max)	435.82	156.88	0.22%	251.01	33.33%	622.94
Transitional marginal land	Tend towards small	Medium	8	Min 500m, multiplier of 6 (750m max)	0	0.00	0.00%	0.00	30.00%	0.00
	Ridges and hilltops preferred	Medium and short	8	Min 500m, multiplier of 7 (875m max)	0.28	0.00	0.00%	0.00	30.00%	0.00
Flat farm land	Tend towards small	Medium	8	Min 500m, multiplier of 7 (875m max)	80.89	0.00	0.00%	0.00	30.00%	0.00
Flat peat land	Large	Tall	7.75	Min 500m, multiplier of 5 (850m max)	214.65	87.62	0.12%	140.19	33.33%	347.92
Urban/Industrial	Tend towards small	Short	8	Min 1km from town & villages	0	0.00	0.00%	0.00	30.00%	0.00
	Tend towards small	Short	8	Min 600m	0	0.00	0.00%	0.00	30.00%	0.00
Lakeside	Tend towards small	100m	8	Min 500m, multiplier of 8 (800m max)	0	0.00	0.00%	0.00	30.00%	0.00
Coastal	Tend towards small	Tall may be acceptable	8	Min 500m, multiplier of 8 (800m max)	0	0.00	0.00%	0.00	30.00%	0.00
					731.64	244.50		391.20		970.86

Republic of Ireland Land Area (km ²)	70,273
Capacity Intensity (MW per km ²)	10
Losses	15%
Hours in the Year	8,760

NOTES:

1. Excluded area within 500m buffer from lakes greater than 4km².
2. New (NPWS) Annex 1 mapping used as exclusion.
3. Tip height buffer from SACs & SPAs added to the exclusion areas.
4. Remove local authority red zones (LA Wind Strategies) from areas for development.
5. Removed polygons that can only take one turbine.
6. Allowed development in PNHAs.

Table 3 - Details of the land cover classes (Memorandum dated 29/04/2015) and the model calculation

Absolute Noise Limit 40 dB

Location	Spatial extent (scale)		Height	Matching Minimum Wind Speed at Tip Height (m/s)	Setback from sensitive properties (residences, schools)	Area available (km ²) matching minimum wind speed	Remaining Area (km ²) following application of 40dB limit and LA Wind Strategy "NO GO" ZONES	Percent of ROI land Area	Capacity available (MW)	Assumed Capacity Factor for Tip Heights	Capacity Output Potential (GWh)
	Existing guidelines	New									
Mountain Moorland and hills	> 150m	Tend towards large	Existing guidelines Any height	7.75	Min 500m, multiplier of 5 (750m max)	435.82	156.88	0.22%	1,568.80	33.33%	3,893.37
	< 150m	Tend towards small	Medium	8	Min 500m, multiplier of 6 (750m max)	0	0.00	0.00%	0.00	30.00%	0.00
Transitional marginal land	Ridges and hilltops preferred	Tend towards small	Medium and short	8	Min 500m, multiplier of 7 (875m max)	0.28	0.00	0.00%	0.00	30.00%	0.00
Flat farm land	Tend towards small	10	Medium	8	Min 500m, multiplier of 7 (875m max)	80.89	0.00	0.00%	0.00	30.00%	0.00
Flat peat land	Large	50 turbines maximum	Tall	7.75	Min 500m, multiplier of 5 (850m max)	214.65	87.62	0.12%	876.20	33.33%	2,174.51
Urban/Industrial	Urban town & villages	Tend towards small	Short	8	Min 1km from town & villages	0	0.00	0.00%	0.00	30.00%	0.00
	Industrial	Tend towards small	Short	8	Min 600m	0	0.00	0.00%	0.00	30.00%	0.00
Lakeside	Tend towards small	10		8	Min 500m, multiplier of 8 (800m max)	0	0.00	0.00%	0.00	30.00%	0.00
Coastal	Set back from water	Tend towards small	Tall may be acceptable	8	Min 500m, multiplier of 8 (800m max)	0	0.00	0.00%	0.00	30.00%	0.00
							731.64	244.50	2,445.00	30.00%	6,067.88

NOTES:

1. Excluded area within 500m buffer from lakes greater than 4km².
2. New (NPWS) Annex 1 mapping used as exclusion.
3. Tip height buffer from SACs & SPAs added to the exclusion areas.
4. Remove local authority red zones (LA Wind Strategies) from areas for development.
5. Removed polygons that can only take one turbine.
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Republic of Ireland Land Area (km ²)	70,273
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