End of Life Decisions for Wind Farms: An Opportunity for Climate Action and for Energy Communities

Work Package 5.1 Literature Selection for End-of-Life Valuation

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Executive Summary

The Wind Value research project seeks to estimate a financial valuation for onshore wind farms in Ireland. Part of this work is to estimate the residual value of a wind farm when it comes to its end-of-life. The literature shows that there is little to no residual value for wind turbine blades. There is however a considerable amount of research improving the technology to recycle blade material and to design new blades which are fully recyclable, therefore the financial value of the end-of-life wind blades may change in the future.

Report

Authors from Wind Value, the Re-Wind Network and IEA Wind Task 45 presented a manuscript for publication. The method for the review is described in the manuscript. Table 1 presents the results of the literature search.

Table 1 shows that there was a much stronger focus on recycling than on the other methods in the Waste Management Hierarchy. It also shows an increasing interest in the processing of end-of-life wind turbine blades since 2010 to 2023.

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Method	Years	N	Sources
Avoid	2020 - 2023	14	[120], [30], [139], [137], [107], [94], [89], [66], [43], [18], [15], [136], [75], [26]
	2015 - 2019	10	[101], [100], [80], [22], [126], [46], [67], [33], [102], [7]
	2010 - 2014	0	
Repurpose	2020 - 2023	31	[83], [37], [72], [90], [120], [12], [36], [124], [9], [18], [89], [137], [66], [139], [2], [16], [62], [71], [125], [34], [95], [5], [4], [10], [35], [68], [69], [49], [8], [52], [92],
	2015 - 2019	8	[3], [13], [132], [67], [126], [14], [51], [85],
	2010 - 2014	3	[17], [42], [57],
Recycle	2020 - 2023	82	[83], [138], [37], [1], [149], [30], [47], [48], [50], [72], [73], [74], [77], [78], [87], [90], [98], [99], [103], [105], [120], [142], [18], [23], [81], [84], [89], [137], [16], [29], [39], [41], [43], [44], [53], [54],[58], [66], [93], [94], [96], [97], [119], [123], [127], [129], [135], [139], [141], [143], [144], [122], [34], [45], [63], [95], [130], [16], [31], [38], [59], [60], [75], [109], [112], [115], [119], [122], [128], [131], [49], [6], [21], [28], [40], [61], [86], [91], [104], [110], [117], [121],
	2015 - 2019	26	[80], [111], [133], [24], [25], [32], [56], [76], [79], [82], [108], [114], [113], [116], [134], [140], [67], [126], [70], [145], [55], [11], [88], [106], [118], [20],
	2010 - 2014	8	[19], [65], [147], [17], [64], [27], [146], [148],
Recover Energy	2020 - 2023	15	[83], [138], [37], [18], [23], [81], [84], [89], [137], [34], [45], [63], [95], [130], [49],
	2015 - 2019	4	[80], [111], [133], [67]
	2010 - 2014	1	[27]

Table 1: List and numbers (N) of papers dealing with the top four methods on the waste management hierarchy from 2010 to 2023

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