GENERATOR FINANCIAL PERFORMANCE IN THE SINGLE ELECTRICITY MARKET (SEM)

Report prepared for:

The Commission for Energy Regulation (CER) and the Northern Ireland Utility Regulator (UR)

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1. EXECUTIVE SUMMARY

1.1. Introduction

This report prepared for the Regulatory Authorities (RAs) examines the financial performance of generation companies in the Single Electricity Market (SEM), and follows the previous 2013 (SEM/13/031) and 2014 (SEM/14/111) reports published by the SEM Committee. The report provides aggregated information on the financial performance of generators in the SEM as a whole and broken down by generation fuel source and generation type. The report aims to enhance transparency around generator remuneration in the SEM while respecting individual generator commercial sensitivity by presenting aggregated information only.

The 2014 report focused on the period up to and including the 2013 financial year.[1] This report provides an update to the 2014 report by analysing two additional years of data, namely the 2014 and 2015 financial years.

The main objectives of the report are to:

- Provide greater insight into the financial performance of generators in the SEM, which will inform policy decisions; and
- Improve the level of market data available to all industry stakeholders, which will assist in providing market transparency.

1.2. Key findings

The years 2014 and 2015 have seen a fall in SEM electricity prices as well as declining gas and coal prices. There is generally a strong relationship between electricity prices and gas prices in the SEM, which is expected given that electricity prices are set by the marginal generator which is typically a gas fired power plant. When the fuel cost of the marginal generator increases, the SMP is expected to rise and vice versa.

Table 1.1 below summarises the aggregate financial performance based on financial reporting templates submitted by SEM generators since 2012.

Table 1.1: Summary of generator financial performance based on financial reporting templates

€m	2012	2013	2014	2015
Revenue	€ 2,928	€ 2,822	€ 2,657	€ 2,706
Operating profit	€ 851	€ 870	€ 828	€ 906
Operating profit margin	29%	31%	31%	34%
Net profit	€ 76	€ 88	€ 303	€ 254

[1] Data up to December 2013 for generators with a December financial year end and up to March 2014 for generators with a March financial year end.

€m	2012	2013	2014	2015
Net profit excluding large impairment charges	**€ 335**	**€ 320**	**€ 303**	**€ 355**
Net profit margin	3%	3%	11%	9%
Net profit margin excluding large impairment charges	**11%**	**11%**	**11%**	**13%**

Key finding 1: Profitability margins in the SEM as a whole have remained relatively constant over the last few years

Overall operating profit margins for the SEM generators stood at 31% and 34% in 2014 and 2015, respectively. These margins are on a slightly upward trend compared to operating margins of 29% and 31% reported in 2012 and 2013. This can be explained by the gradually increasing share of wind generation which has very high operating margins due to low operating costs.

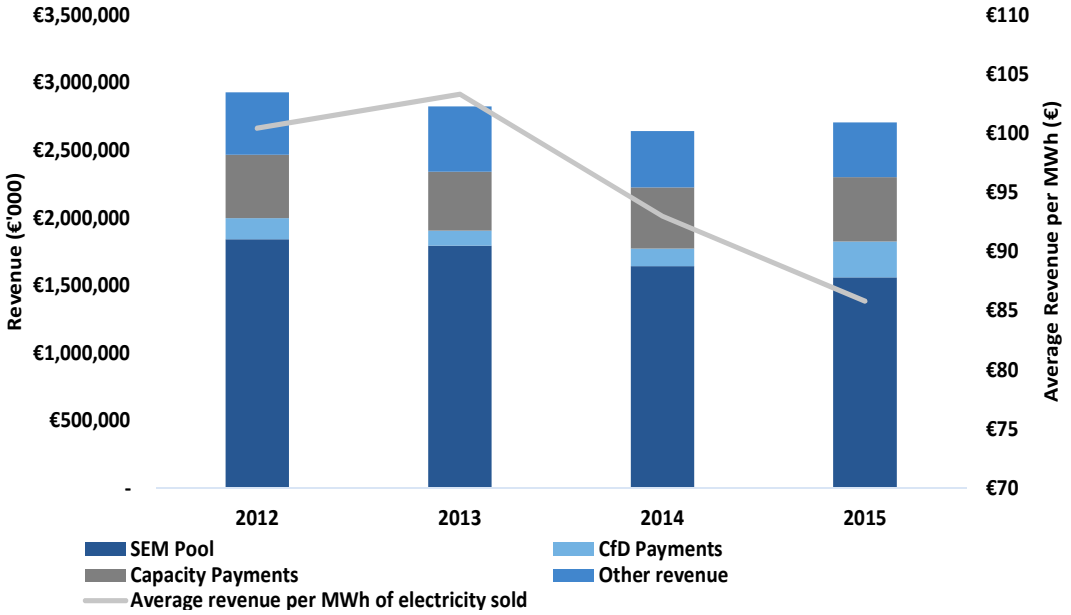
In the last couple of years, net profit margins have remained stable despite a falling SMP. This can be explained by the fact that, as total revenues have decreased, total costs have also fallen, as illustrated in Figure 1.1 and Figure 1.2 below. Net profit margins can be affected by potentially large impairment charges reported in a given year. When excluding these impairment charges, net profit margins have remained stable, in the range of 11-13% between 2012 and 2015[2].

Generators' total revenues have decreased mainly because of a fall in SEM pool revenues which reflects the falling SMP. In contrast, CfD payments[3], which represent a hedge against movement in SMP, have increased particularly in 2015. The average revenue per MWh of electricity sold has decreased from over €100 in 2013 to €86 in 2015.

[2] Impairment charges were significant in 2012, 2013 and, to a smaller extent, in 2015.

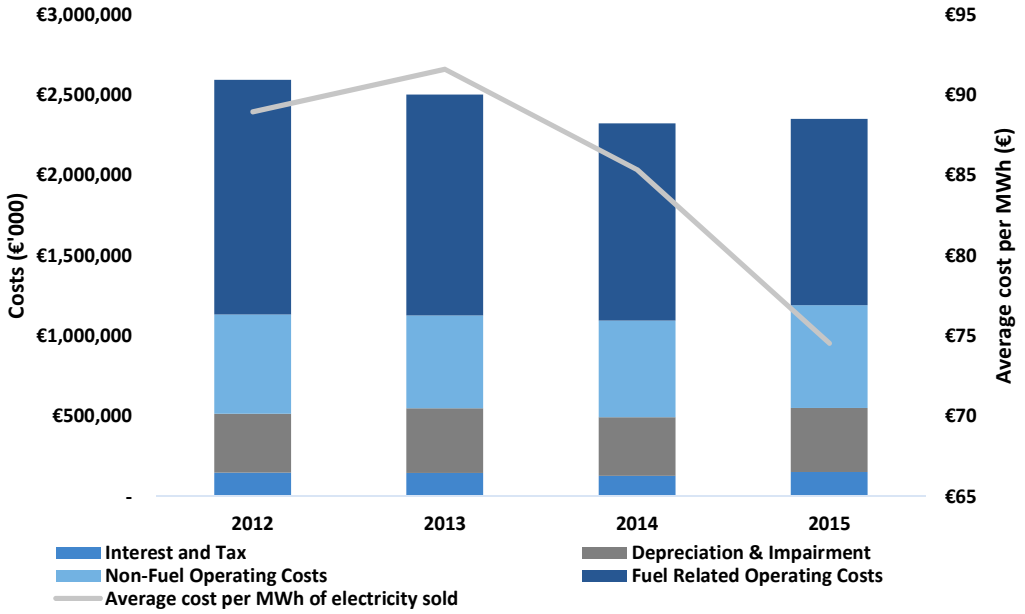
[3] Revenues reported under the CfD payment category in the reporting template may include revenue from hedging arrangements in relation to the SMP as well as any differences between payments received by the generator under a Power Purchase Agreement (PPA) and the revenue earned by the intermediary for the same electricity in the SEM pool.

Figure 1.1: Breakdown of generator total revenues between FY2012 and FY2015



The fall in total costs has occurred primarily due to a fall in fuel related operating costs which can be explained by the fall in fuel prices. The average cost per MWh generated has fallen from just over €90 in 2013 to around €75 in 2015.

Figure 1.2: Breakdown of generator total costs between FY2012 and FY2015 (excluding large impairment charges)



Key finding 2: Higher profit margins earned by generation fuel sources with relatively small share of the market

Based on the financial reporting templates, we have been able to assess and compare generator financial performance by generation fuel source. As in previous years, gas represented the dominant fuel source for electricity generation. However, the largest net

profit margins are earned by Hydro, Pump Storage and Distillate & Oil plants which represent a very small proportion of total electricity generated and total revenues earned, as illustrated in Figure 1.3. Hydro, Pump Storage and Distillate & Oil plants represent around 6% of total revenues in the SEM, with Hydro earning net profit margins above 50% in both 2014 and 2015 while Distillate & Oil reported a net profit margin of 33% and 25% (excluding impairment charges), respectively. This can be explained by the fact that Distillate & Oil plants operate in relatively few but high margin periods and also earn a relatively higher proportion of their revenue from capacity payments whereas Hydro and Pump storage have low operating and low financing costs due to their age.

In contrast, Gas and Coal plants generated over 70% of all electricity in the SEM (as shown in Figure 1.4), but their reported net profit margins averaged over the two years were around 8% for Gas and 11% for Coal.

Figure 1.3: Breakdown of total revenues and net profit margins by fuel source

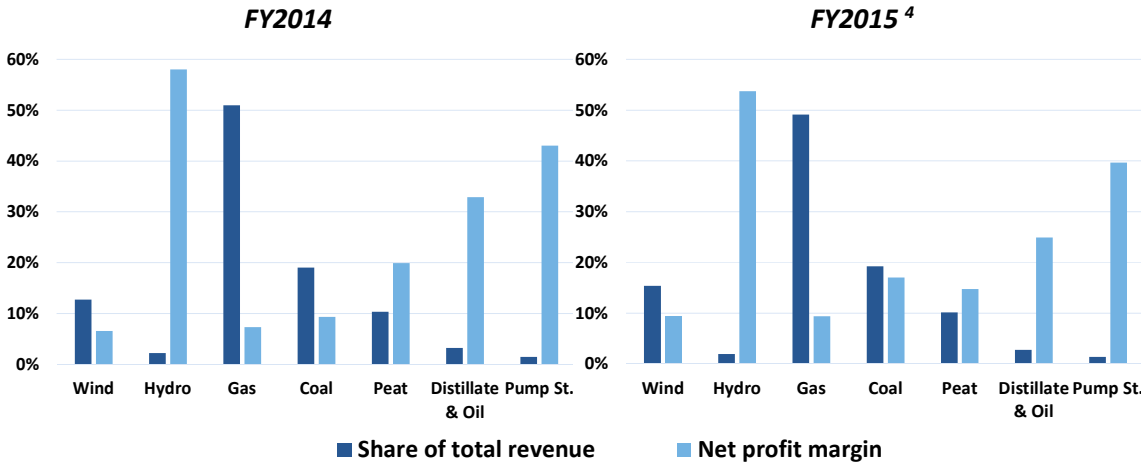
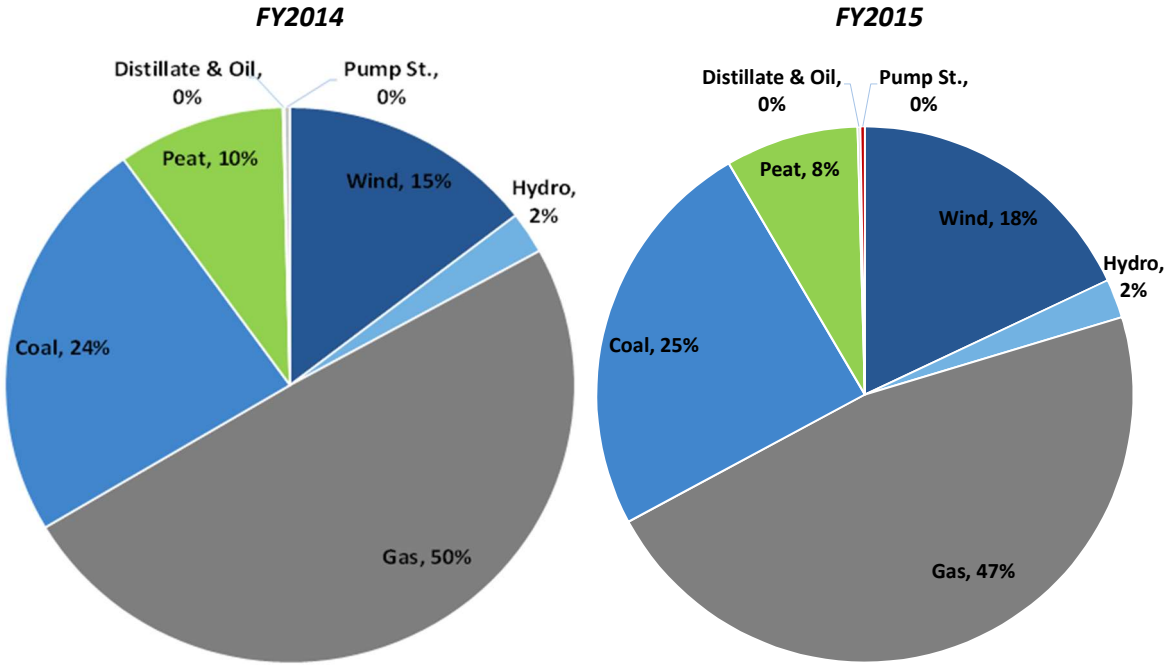


Figure 1.4: Breakdown of total volumes (MWh) by fuel source – Financial year 2014 and 2015



Key finding 3: Mid-Merit generators earn lower margins than generators lower and higher in the merit order

In addition to the fuel source analysis, the report also assesses the financial performance of SEM generators by generation type: Renewables (Wind, Hydro and Pumped Storage), Price Takers (Peat plants), Baseload, Mid-Merit and Peakers. The allocation of plants into the last three categories has been made based on their load factor.

Mid-Merit plants provided around half of the electricity generated in the SEM in both 2014 and 2015, but have the lowest reported profit margins. This category includes coal and gas plants which generally report lower profit margins, as discussed in the previous key finding. Mid-Merit plants are often the marginal price setting generator in the market due to their

[4] Net profit margins shown for 2015 exclude impairment charges.

place in the merit order, which means they tend to earn less inframarginal rent from the units of electricity sold relative to lower cost generators. Mid-Merit and Baseload plants earn most of their revenues from the SEM pool market which reflects their relatively high load factors.

Peak plants in contrast provide only 1-2% of total electricity generated but earned around 15% of total revenues in 2014 and reported a 14% net profit margin. Peak plants earn higher margins as they operate in very few but high margin hours (same as the pattern described for Distillate & Oil plants). Peak plants tend to earn most revenues from capacity payments.

Figure 1.5: Breakdown of total revenues and net profit margins by generation type

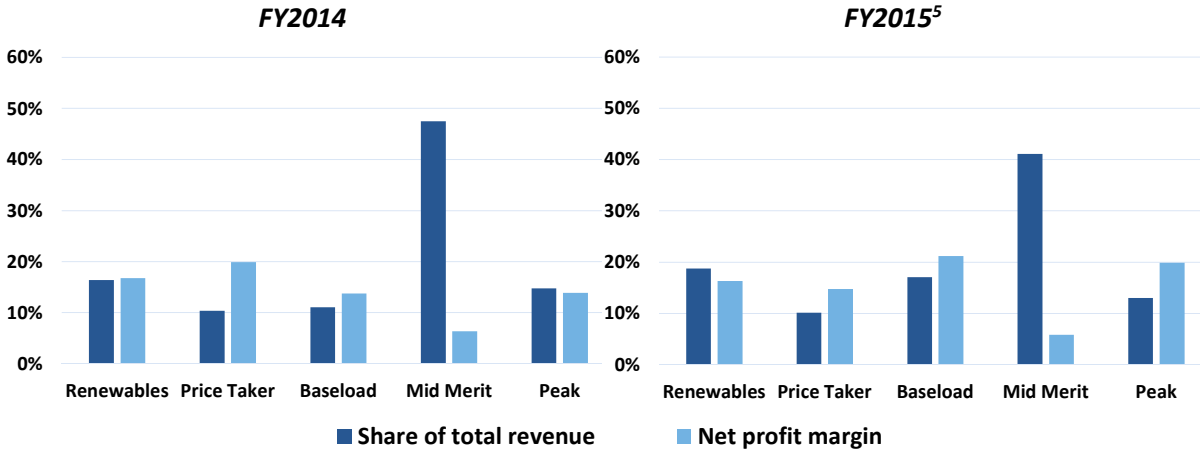
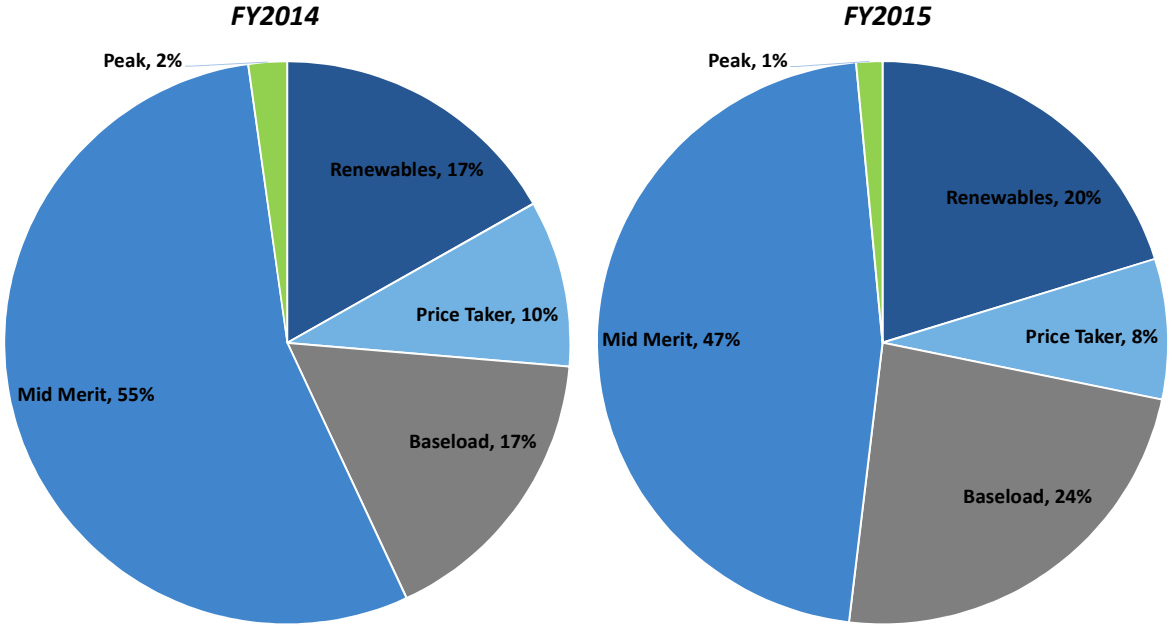


Figure 1.6: Breakdown of total volumes (MWh) by generation type – Financial year 2014 and 2015



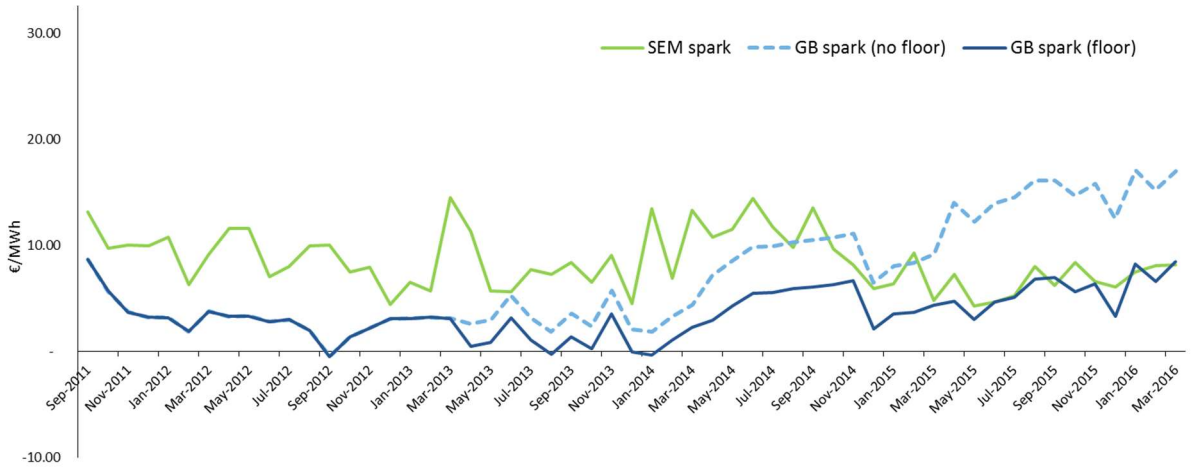
[5] Net profit margins shown for 2015 exclude impairment charges.

Key finding 4: SEM spark spreads have decreased in 2015 and are now similar to those in the GB market

The spark spread is the theoretical gross margin of a gas-fired power plant from selling a unit of electricity, having bought the fuel required to produce this unit of electricity. The generator must recover all of its additional costs (operation, maintenance, capital) from this spread multiplied by the volume of electricity sold to the market to be able to break even or earn a profit (assuming no capacity payments or other ancillary services revenue).

The clean spark spread analysis (taking account of carbon emissions costs) conducted for this report shows a stable spark spread in the SEM since Q3 2011 with a slight decline in 2015 compared to 2014. The SEM spark spread has consistently been higher than the GB spark spread since late 2008. The current analysis shows this to be the case for the period up to mid-2015. Since then, however, the spark spreads in the two markets have largely overlapped, with the GB spreads at times higher than the SEM spark spread. This spark spread convergence has been determined by the larger fall in SEM electricity prices relative to GB electricity prices. The comparison takes into account the carbon price floor applying in GB, which reduces the spread available to gas generators by increasing the cost of carbon emissions. Without the carbon price floor, the spark spread in GB would have been consistently and significantly higher than the SEM spark spread since early 2015.

Figure 1.7: Clean spark spread - SEM vs. GB (Sep 2011 to Mar 2016)



Higher/lower spreads do not necessarily translate into higher/lower generator profits. This is because the total revenue earned also depends on the level of utilisation of the plant and other revenues streams available to generators in each market. Therefore different spreads between SEM and GB do not necessarily translate into different profitability of generators in the two markets particularly if the utilisation of gas/coal plants in the two markets is different.

2. INTRODUCTION AND CONTEXT

2.1. Introduction

This report prepared for the Regulatory Authorities (RAs) examines the financial performance of generation companies operating in the SEM. This publication can be read in conjunction with the reports published by the Market Monitoring Unit (MMU).[6] The purpose of this report is to enhance transparency in the SEM and help understanding of the compensation received by SEM generators while respecting individual generator commercial sensitivity by presenting aggregated information only.

This is the third report to be published following the RA "Decision Paper on Generator Financial Reporting in the SEM" (SEM/12/027) and it follows a similar structure to the previous two reports.[7] However some changes have been made to this report to assist in the presentation of the findings.

The previous report covered the period to March 2014. Most generators in the SEM have their financial year end in either December or March hence the previous report included data up to December 2013 for generators with December financial year end and up to March 2014 for generators with March financial year end. The current report presents two years' worth of data (2014 and 2015) – up to December 2015 for generators with December year end and up to March 2016 for generators with a March financial year end.

The report provides aggregated information on the financial performance of the generators banded together by generation fuel source, generation type and the SEM as a whole. The report is divided into three parts:

- Analysis based on generator financial reporting templates submitted by generators to the RAs. The first year such templates were requested and submitted was 2011 and this report includes templates up to 2015/16.
- An analysis of the generator financial performance by reference to the regulated accounts of generators submitted to the RAs for the financial years 2014/2015 and 2015/16.
- Clean spark and dark green spreads in SEM including a comparison with the GB electricity market. The data analysed is from Q3 2011 to Q1 2016.

While this report focuses on annual financial generator performance, it should be remembered that electricity generation involves significant and long-term capital investment, with upfront costs often repaid over decades, and so annual variations in generator profitability (up or down) should be considered in that context.

[6] Information on the MMU can be found here while publications produced by the MMU can be accessed here.
[7] SEM/14/111 Generator Financial Performance in the SEM (December 2014), available here
SEM/13/031 Generator Financial Performance in the SEM (May 2013), available here

For an explanation of some of the financial terms used in the report please refer to Annex A.

2.2. Context

Figure 2.1 below shows the evolution of the average System Marginal Price (SMP) in the SEM since 2008, also recording the annual percentage change. The year 2008 saw record prices for fossil fuels which fed through to a very high SMP. In line with the economic downturn, 2009 saw large reductions in fuel prices, electricity demand and SMP. In 2010 and 2011 fuel prices and SMP recovered significantly from their 2009 lows, with small further increases in SMP recorded in 2012 and 2013. The years 2014 and 2015, which are the main focus of this report, saw significant decreases in the yearly average SMP in the SEM. This fall in electricity prices is linked to lower gas prices during this period as shown in Figure 2.2 further below.

Figure 2.1: Annual average SMP and percentage changes (2008 to 2015)

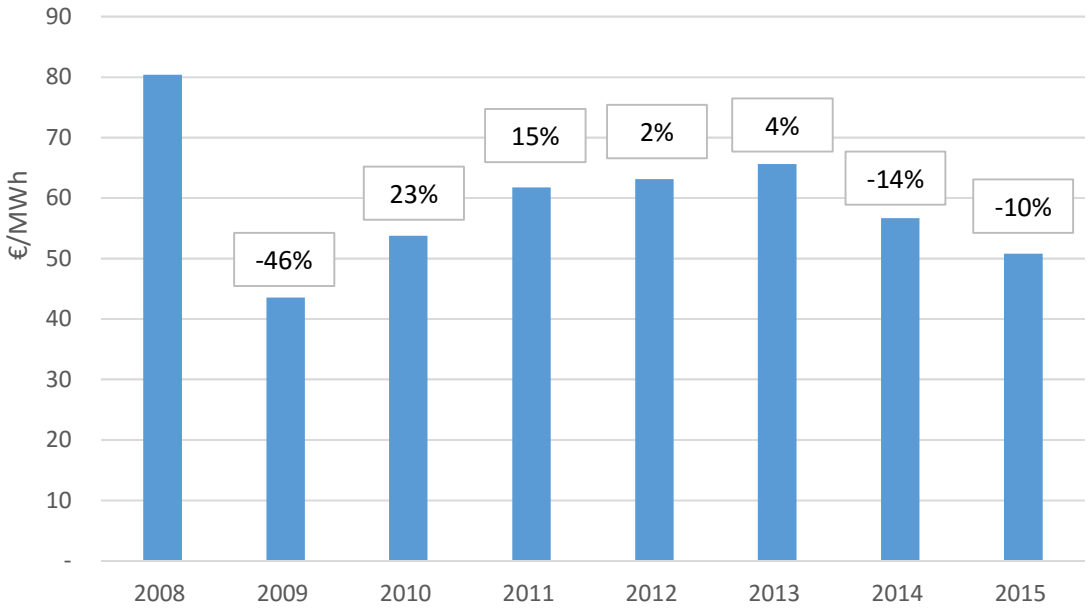


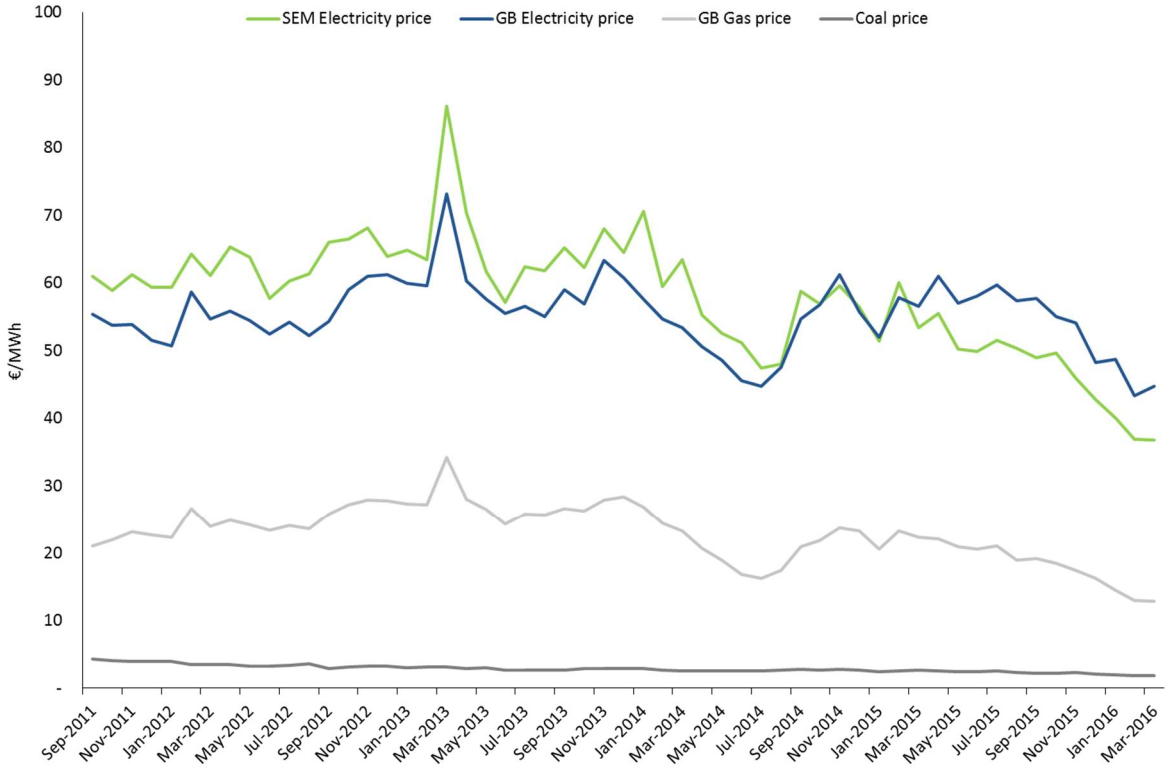
Figure 2.2 below shows monthly electricity, gas and coal prices in SEM and GB between September 2011 and March 2016. Gas has been the marginal fuel for much of this period and, therefore, the electricity prices often follow the shape of the gas prices. This is evident in the fact that the fall in gas prices since the end of 2013 has been matched by a fall in electricity prices in both SEM and GB. The estimation of an ordinary least squares (OLS) regression of the natural log of SEM electricity prices on the natural log of GB gas prices suggests that the correlation between these two series is strong and significant, with a 1 percent increase in GB gas prices associated with a 0.5 percent increase in SEM electricity prices.[8] It is also interesting to note that since early 2015 electricity prices in SEM have been lower than in GB.

[8] The estimated coefficient on the natural log of GB electricity prices is approximately 0.498 and is highly significant.

The electricity prices used are baseload prices. SEM and GB electricity prices[9] broadly move together, with SEM prices higher prior to early 2015 and GB prices higher afterwards. An OLS regression of the natural log of SEM electricity prices on the natural log of GB electricity prices shows that the correlation between GB and SEM prices is very strong, with a 1 percent increase in GB electricity prices associated with a 1.11 percent increase in SEM prices.[10]

The gas price shown is for GB;[11] the gas price in SEM closely follows the GB price but is slightly higher due to the additional gas transportation cost from GB. The coal price used is a European coal swap price[12] relevant to both GB and SEM.

Figure 2.2: Electricity, gas and coal monthly prices in SEM and GB



[9] SEM electricity prices are the monthly average of system marginal prices (baseload) as published on the SEM-O website; GB electricity prices are the monthly averages of baseload power price as published by Ofgem.

[10] We used data between February 2009 and September 2014, which avoids any issues with structural breaks in the data. The estimated coefficient was highly significant.

[11] Source: Bloomberg day-ahead spot price (NBPGDAHD OECM Index).

[12] Source: London Energy Brokers' Association, Monthly OTC Energy reports.

3. FINANCIAL REPORTING TEMPLATES

Following a May 2012 decision paper published by the RAs on Generator Financial Reporting in the SEM[13], generator companies with a combined capacity greater than or equal to 25 MW are required to complete an annual financial reporting template within six months of the end of their financial year. The uniformity of the template means that data can be easily aggregated across generators. An example of the template is shown below in Figure 3.1.

Figure 3.1: Financial reporting template

Financial Reporting Template		
Volume of Electricity Sold - MWh		
Revenue	**€,000**	
Revenue from SEM Pool		
Revenue from Contract/Difference Payments		
Revenue from Capacity Payments		
Other Revenue		
Total Revenue		
Operating Costs	**€,000**	
Fuel Related Operating Costs		
Non-fuel Operating Costs		
Total Operating Costs		
EBITDI		**Gross Margin**
Depreciation & Impairment		
EBIT		
Interest & Tax		
Net Profit		**Net Margin**

As can be seen from the financial reporting template above, generators are asked to provide details on the volume of electricity sold (MWh), revenue, operating costs, depreciation & impairment, and interest & tax. Using this data it is then possible to calculate a generator's Earnings before Interest, Tax, Depreciation & Impairment (EBITDI), Earnings before Interest & Tax (EBIT), and net profit as well as the generator's profit margins. The reporting template uses the term 'Gross Margin' to refer to the margin calculated by dividing EBITDI by total revenue. A strict definition of 'Gross Margin' would involve using gross profit rather than EBITDI. [14] For the purposes of this report we refer to this margin (EBITDI/total revenue) as the Operating Margin.

Total revenue reported in the template is made up of:

[13] https://www.semcommittee.com/news-centre/decision-paper-generator-financial-reporting-sem

[14] Gross profit is calculated as revenue minus the cost of goods sold, whereas EBITDI is calculated as gross profit minus fixed operating expenses.

- **Revenue from SEM Pool** – All revenue earned from the sale of electricity through the SEM during the financial year, including constraint payments.
- **Revenue from Contract/ Difference Payments** – Difference payments from Contracts for Differences (CfD) hedging arrangements in relation to the SMP with a supplier or another third party. These could be positive or negative for the generator. In addition, if generators enter into a Power Purchase Agreement (PPA) with an intermediary, the difference between revenue earned in the SEM pool by the intermediary and the payment to the electricity generator under the PPA is also included in this revenue category.
- **Revenue from Capacity Payments –** All payments received through the Capacity Payments Mechanism (CPM) are included here.
- **Other Revenue** – Any other revenues, for example revenue from ancillary services, are included here. This may also include revenues under the various support mechanisms such as the Public Service Obligation (PSO) levy in the Republic of Ireland.

Total operating costs consist of:

- **Fuel Related Operating Costs** – All fuel costs incurred during the financial year in question for the purpose of electricity generation and any associated variable fuel transportation costs.
- **Non-fuel Operating Costs** – All additional plant operating costs, including fixed fuel transport charges, transmission network use of system charges (TUoS), plant maintenance, salaries and insurance.

The reporting template data from generators is broadly in line with regulated accounts received by the RAs. However, to keep the structure of this report in line with previous generator financial performance reports we have focused the analysis of the regulatory accounts on larger SEM generators only, whereas in this section we analyse the financial performance of all generators which have submitted financial reported templates (companies with generation capacity equal to or greater than 25MW). This could cause a divergence between the analysis of the financial reporting templates and regulatory accounts.

The fact that the financial reporting templates are completed for each individual generation unit means that the data can be grouped in different ways to understand how different types of generators perform. In this report we group generators by fuel source and generation type.

In the case of some of the larger generation groups, some assumptions on the allocation of common revenues and 'overhead' costs between different generation sites had to be made. This report uses the same allocation methodology used in the previous report, where possible, to ensure comparability of results. Namely, common revenues (such as, for example, Contract for Difference payments) and 'Interest & Tax' costs have been allocated to individual generation sites based on the volumes of electricity sold; whereas 'Non-fuel operating costs' and 'Depreciation & Impairment' costs have been allocated based on the installed capacity of

the different generation sites. In FY2015 some common ‘fuel-related operating costs’ have also been reported, which have been allocated based on the ‘fuel-based operating costs’ reported for each generation site.

It is also worth mentioning that pumped storage generators are net users of electricity as they consume more electricity to pump water to the upper reservoir than is generated by the water down flow. However, they generate revenue by selling electricity during periods of peak demand when electricity prices are higher while using use low-cost off-peak electricity to run the pumps.

3.1. Breakdown by Generation Fuel Source

Table 3.1 and Table 3.2 below provide a breakdown of the financial reporting template data by generation fuel source for FY2014 and FY2015.

Table 3.1: Breakdown of financial reporting template results by generation fuel source – Financial Year 2014

Financial year 2014	Total	Wind	Hydro	Gas	Coal	Peat	Distillate & Oil	Pump St.
Volume of Electricity Sold - MWh	27,208,911	3,982,339	666,036	13,543,907	6,470,483	2,604,168	26,910	(84,932)
Revenue	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Revenue from SEM Pool	€1,656,125	€222,594	€42,215	€870,885	€360,181	€146,004	€4,347	€9,900
Revenue from Contract/Difference Payments	€129,567	€10,155	€3,986	€52,348	€45,164	€18,422	-	(€508)
Revenue from Capacity Payments	€453,255	€11,389	€6,768	€260,057	€61,872	€19,616	€78,334	€15,219
Other Revenue	€417,730	€93,952	€6,715	€171,329	€37,570	€91,076	€3,601	€13,486
Total Revenue	€2,656,678	€338,090	€59,684	€1,354,619	€504,787	€275,120	€86,282	€38,096
Operating Costs	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Fuel Related Operating Costs	€1,227,776	€89	-	€829,272	€244,292	€146,586	€7,538	-
Non-fuel Operating Costs	€600,939	€92,903	€22,464	€245,559	€152,642	€38,770	€31,123	€17,479
Total Operating Costs	€1,828,716	€92,991	€22,464	€1,074,831	€396,932	€185,356	€38,663	€17,479
EBITDI	€827,962	€245,098	€37,220	€279,788	€107,853	€89,764	€47,621	€20,618
Depreciation & Impairment	€387,991	€129,274	€2,340	€141,739	€59,325	€34,846	€16,218	€4,249
EBIT	€439,970	€115,824	€34,880	€138,048	€48,528	€54,918	€31,403	€16,368
Interest & Tax	€138,514	€93,758	€260	€38,799	€1,456	€1,237	€3,038	(€33)
Net Profit	€302,555	€22,066	€34,621	€99,249	€47,073	€54,779	€28,365	€16,402
Operating Margin - %	**31%**	**72%**	**62%**	**21%**	**21%**	**33%**	**55%**	**54%**
Net Margin - %	**11%**	**7%**	**58%**	**7%**	**9%**	**20%**	**33%**	**43%**

Table 3.2: Breakdown of financial reporting template results by generation fuel source – Financial Year 2015

Financial year 2015	Total	Wind	Hydro	Gas	Coal	Peat	Distillate & Oil	Pump St.
Volume of Electricity Sold - MWh	31,533,040	5,702,849	746,677	14,829,357	7,741,168	2,541,628	54,800	(83,439)
Revenue	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Revenue from SEM Pool	€1,559,321	€244,549	€38,950	€762,108	€373,305	€127,267	€6,903	€6,238
Revenue from Contract/Difference Payments	€264,021	€40,442	€5,549	€126,742	€57,575	€34,333	-	(€620)
Revenue from Capacity Payments	€477,676	€14,299	€7,413	€289,544	€67,947	€17,110	€65,615	€15,747
Other Revenue	€404,638	€116,377	€1,922	€151,450	€20,558	€95,187	€3,317	€15,826
Total Revenue	€2,705,655	€415,667	€53,834	€1,329,843	€519,386	€273,898	€75,835	€37,192
Operating Costs	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Fuel Related Operating Costs	€1,160,621	€107	-	€757,090	€236,545	€156,091	€10,788	-
Non-fuel Operating Costs	€638,601	€117,207	€21,032	€276,325	€141,232	€40,228	€24,505	€18,072
Total Operating Costs	€1,799,222	€117,314	€21,032	€1,033,415	€377,777	€196,319	€35,293	€18,072
EBITDI	€906,434	€298,354	€32,802	€296,428	€141,609	€77,579	€40,542	€19,120
Depreciation & Impairment	€501,235	€150,210	€3,774	€170,955	€88,420	€53,182	€30,316	€4,378
EBIT	€405,199	€148,144	€29,027	€125,473	€53,189	€24,398	€10,226	€14,742
Interest & Tax	€151,585	€109,198	€99	€45,563	(€9,700)	€1,399	€5,038	(€11)
Net Profit	€253,614	€38,946	€28,928	€79,910	€62,890	€22,999	€5,188	€14,753
Operating Margin - %	**34%**	**72%**	**61%**	**22%**	**27%**	**28%**	**53%**	**51%**
Net Margin - %	**9%**	**9%**	**54%**	**6%**	**12%**	**8%**	**7%**	**40%**

Table 3.1 and Table 3.2 above provide an overview of the financial reporting template data by fuel source for the FY2014 and FY2015, respectively. The total operating margins for FY2014 and FY2015 were 31% and 34% respectively while the overall net profit margins stood at 11% in FY2014 but have fallen to 9% in FY2015. This decline is linked to higher impairment charges reported by some generators in FY2015. When the most significant impairment charges are removed for 2015, the overall net profit margin increases to 13%.

These are broadly similar to profit margins reported for FY2012 and FY2013 as shown in Figure 3.2 and Figure 3.3 (when the impairment charges are removed from the calculation of net profit margins). The stable margins reflect the fact that, on aggregate, falls in revenue as a result of lower SMP have been largely offset by lower costs driven by lower fuel prices.

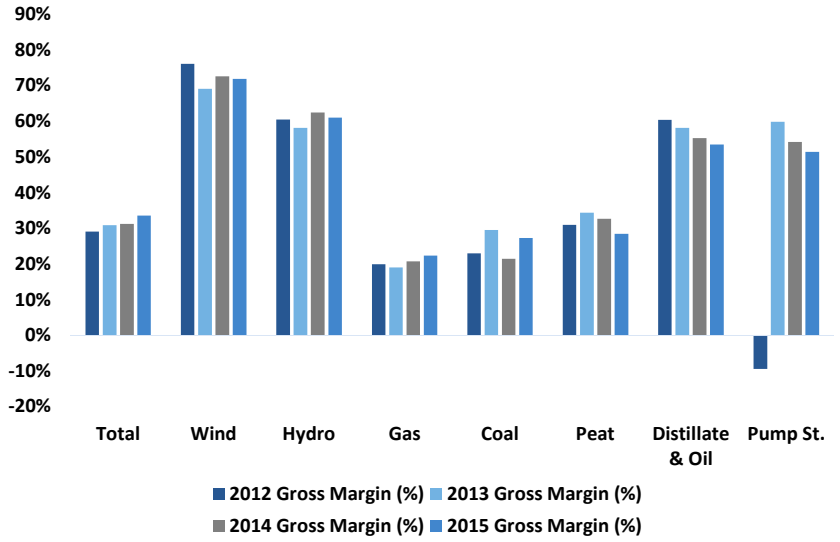
As expected, there are clear differences in operating and net margins across different fuel sources. Figure 3.2 and Figure 3.3 provide a comparison of operating and net margins by fuel source between FY2012 and FY2015. The main trends in FY2014 and FY2015 are:

- **Hydro and Pump storage plants** had the highest net margins in FY2014 and FY2015 (as in FY2013). Hydro and Pump storage benefit from low operating costs and low financing costs due to their age. In FY2015, Hydro generators reported a 4 percentage point decrease on their net margin in FY2014 (58%), due to a decrease in SEM Pool revenue (despite higher volumes of electricity sold) as the average SMP has declined in FY2015. For Pumped Storage plants the net margin has decreased gradually from FY2013, caused by lower revenues and higher operating and depreciation and impairment costs.
- **Wind generation** had the highest operating margin in both FY2014 and FY2015. High operating margins for wind generators are driven by low operating costs. However, their net margin is significantly lower, caused by high financing and depreciation/impairment costs, although, in FY2015, the net margin for wind generators has improved slightly as depreciation and impairment as well as interest and tax costs have declined slightly.
- **Distillate & Oil generators** have previously earned the third highest net margin due to the fact that Distillate & Oil generators are peaking plants, which mostly generate electricity when demand is high, supply is scarce and prices are high. However this has declined significantly in FY2015 to 7% (following declines in the previous two years) caused largely by higher impairment charges reported by some generators, but also lower capacity payments and lower SEM Pool revenues. When impairment charges are excluded, the net profit margin for Distillate & Oil generators stood at 25%
- **Gas-fired generators** experienced a relatively low net margin of 3% in FY2013 (excluding impairment). However, in FY2014 the net margin of gas plants climbed to 7%, as a result of higher volumes of electricity generated, lower fuel related costs and lower depreciation and 'interest and tax' costs. In FY2015, the net margin decreased slightly to 6%. However, when exceptional impairment charges are excluded, the net

profit margin for gas generators increases to 9%. This is due to reductions in fuel operating costs (due to lower gas prices) and increased CfD revenues mitigating the impact of lower average SMP.

- **Coal generators** experienced a significant drop in FY2014 in both their operating (34% to 21%) and net profit margins (21% to 9%) relative to the previous year. This was due to a fall in revenues caused by lower volumes of electricity produced by coal plants and lower average SMP in 2014 as well as an increase in non-fuel operating and depreciation costs. However, the drop in profitability has been partially reversed in FY2015 as the volume of electricity sold has increased and coal prices have declined.[15]
- **Peat generators** achieved an operating margin of 33% and a net margin of 20%, respectively, in FY2014, which was in line with the operating and net margins achieved in FY2013. However, in FY2015 the operating margin decreased to 28% due to higher operating costs, and the net margin decreased to 8%, largely caused by higher depreciation and impairment charges. Excluding the impairment charge, the net margin for Peat generators increases to 15%.

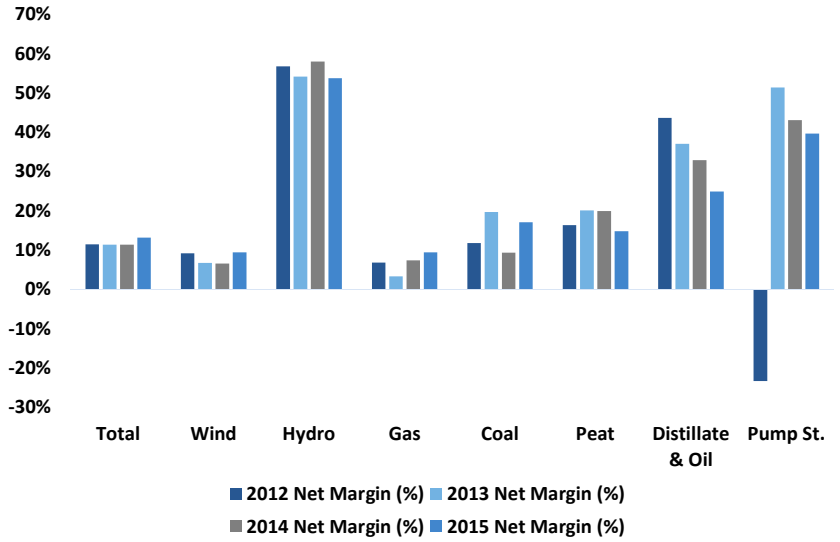
Figure 3.2: Operating margin (%) by fuel source – FY2012 - FY2015[16]



[15] We understand that Moneypoint Unit 1 has suffered an extended outage in 2014 which would have impacted the volumes of electricity generated and as a consequence the profit margins of coal plants.

[16] The negative margin for Pumped Storage in FY2012 are associated with an extensive outage of the four pumped storage units in the first half on 2012.

Figure 3.3: Net margin (%) by fuel source – FY2012 - FY2015 (excluding impairment charges)[17]



The fall in average SMP in FY2014 and FY2015 has translated into lower average revenues per MWh of electricity sold as shown in Table 3.3 below. Both **Hydro** and **Coal** generators experienced significant decreases in their average revenue per MWh of electricity sold between FY2014 and FY2015, with the former decreasing from €90 per MWh to €72 per MWh (20% decrease) and the latter falling from €78 per MWh to €67 per MWh (14% decrease). Furthermore, **Gas** generators have experienced a significant fall in average revenue per MWh of electricity sold since FY2013, decreasing from €117 per MWh in FY2013 to €90 per MWh in FY2015 (21% decrease). The very high revenue per MWh for **Distillate & Oil** generators can be explained by the fact that these plants generate a relatively small volume of electricity in higher priced hours and also earn significant revenues from capacity payments (as discussed in Section 3.1.2).

Overall, average revenue per MWh for total electricity generation decreased from €103 per MWh to €98 per MWH between FY2013 and FY2014 (5% decrease), and decreased from €98 per MWh to €86 per MWh between FY2014 and FY2015 (12% decrease).

The stable revenue per MWh of electricity sold for **Peat** can be explained by the impact of contracting and support mechanisms in the Republic of Ireland which provide protection against a falling SMP.

Table 3.3: Revenue per MWh of electricity sold – by fuel source[18]

Revenue per MWh of electricity sold	FY2012	FY2013	FY2014	FY2015
Total	€100	€103	€98	€86

[17] The negative margin for Pumped Storage in FY2012 are associated with an extensive outage of the four pumped storage units in the first half on 2012.

[18] Pumped storage has been omitted from this table as it reports (negative) net electricity generation figures (electricity generated minus electricity used to pump water) hence calculating revenue and costs per MWh sold is not possible.

Revenue per MWh of electricity sold	FY2012	FY2013	FY2014	FY2015
Wind	€83	€83	€85	€73
Hydro	€94	€87	€90	€72
Gas	€105	€117	€100	€90
Coal	€80	€73	€78	€67
Peat	€101	€105	€106	€108
Distillate & Oil	€2,629	€3,118	€3,206	€1,311

3.1.1. Electricity Generation Volumes and Revenues by Fuel Source

Figure 3.4, shown below, presents the breakdown of electricity generation volumes by each fuel type for FY2014 and FY2015, respectively. In both FY2014 and FY2015, **Gas** generators made up the largest source of electricity generation, with 49% and 47% of total electricity generation respectively. The smallest contributions to electricity generation are from **Pumped Storage** (negative contribution due to having a net usage of electricity), **Distillate & Oil**, and **Hydro** generators, whom in combination provide around 3% of total electricity generation volumes. These fuel sources however earn the highest profit margins although they provide a relatively small share of the market (around 6% of total revenues). **Coal-fired** generation is the second highest contributor to electricity generation, with a 24% and 25% share of electricity generation in FY2014 and FY2015, respectively. The most significant renewable electricity source is **Wind**, which accounted for 15% and 18% share of electricity generation in FY2014 and FY2015, respectively.

Figure 3.4: Breakdown of total volumes (MWh) by fuel source – Financial year 2014 and 2015

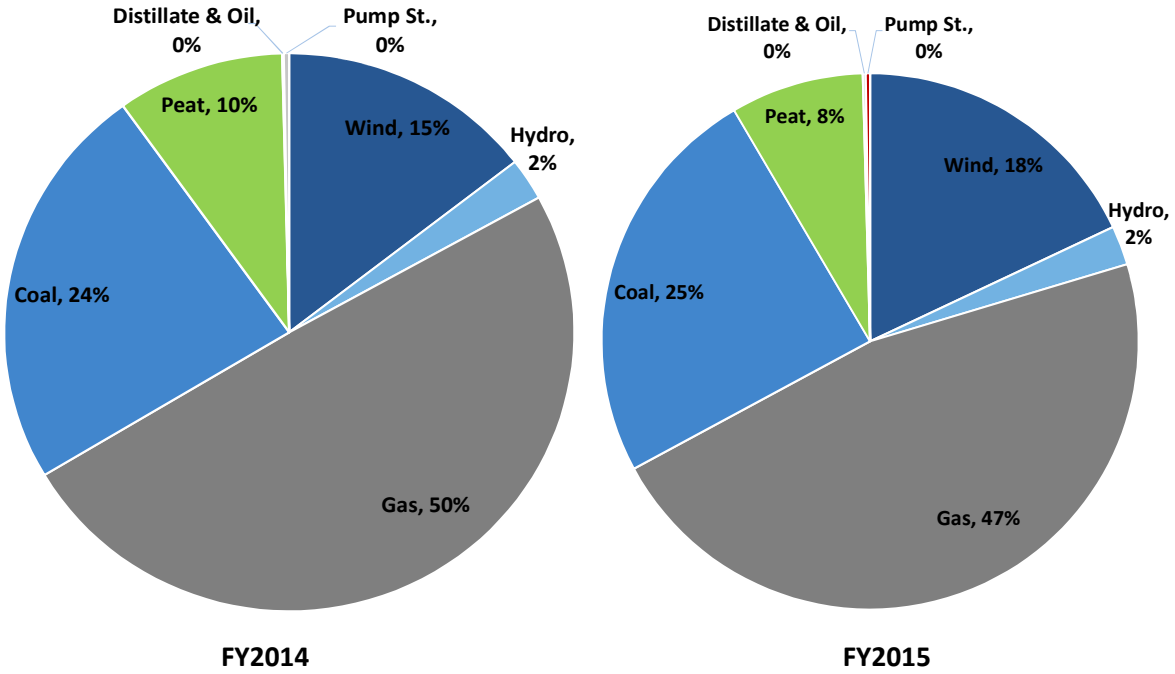
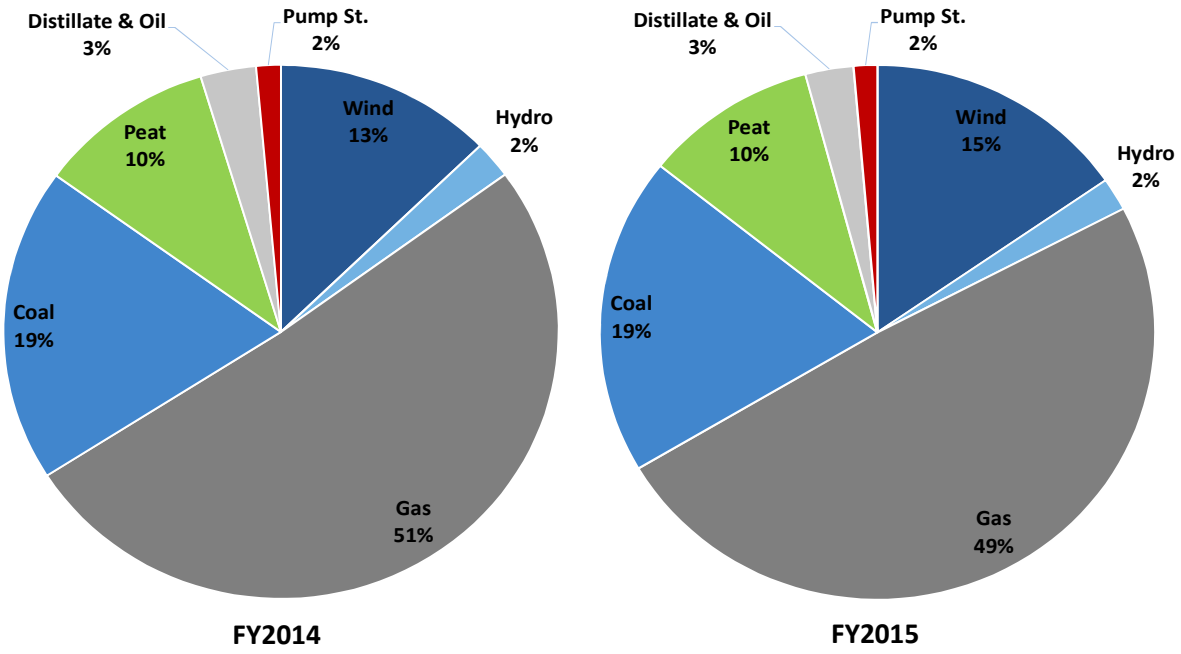


Figure 3.5 shows the breakdown of total revenues by fuel source for FY2014 and FY2015. As expected, there is a very close relationship between the breakdown of total volumes by fuel source and the breakdown of total revenues by fuel source.

Figure 3.5: Breakdown of total revenues by fuel source – Financial year 2014 and 2015



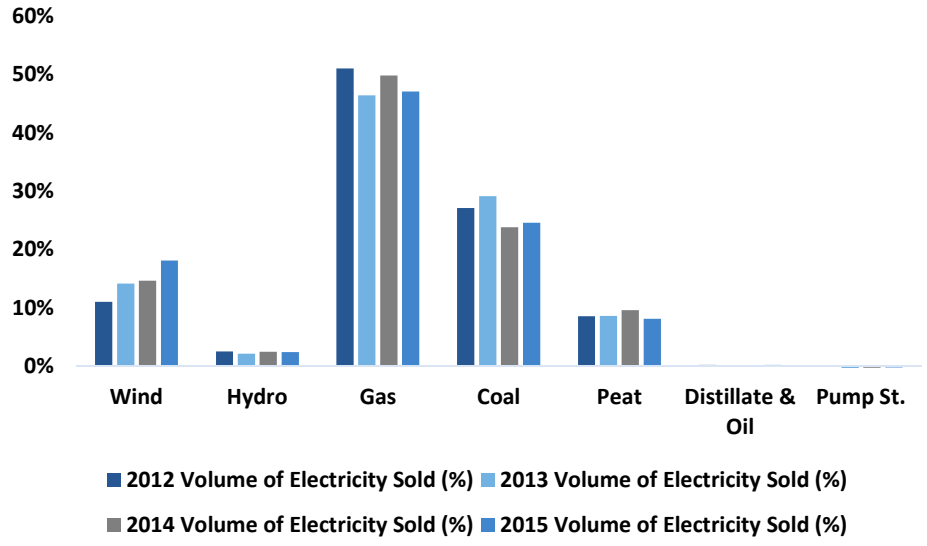
Gas fired generators earned the highest share of total revenues, with a 51% share in FY2014 and 49% in FY2015. **Coal-fired** generators earned a lower portion of total revenues than their share of total volumes accounting for 19% of total revenues in both FY2014 and FY2015 compared to 24% and 25% shares of total volume. This is because the majority of coal fuelled generators are Baseload and Mid-Merit type generators (see section 3.2), meaning a larger proportion of their electricity generation is generated during off-peak hours when electricity prices are low compared with peaking plants, and earn proportionally less revenues from capacity payments or other revenue streams (see section 3.1.2). In contrast, **Distillate & Oil** and **Pumped Storage** in combination received 5% of total revenues in FY2014 and FY2015 above their share of electricity generated. This is because they both primarily generate electricity during peak hours when prices are high, and receive a large proportion of their revenue through capacity payments and other revenue streams. The share of total revenues for **Wind** and **Hydro** generators is similar to their share of total output.

Figure 3.6 below shows the breakdown of total volumes and revenue by fuel source during the period FY2012 to FY2015. Overall, the differences across years are not significant within this period, with the relative volume and revenue shares between fuel sources remaining largely similar. A notable trend is the gradually increasing share of **Wind** generation as installed wind capacity increases. While not shown in the figure, it is also worth noting that in FY2011, **coal** generation accounted for approximately 13% of total electricity generation. This increased to 27% in FY2012 and has remained at broadly similar levels since then. In contrast,

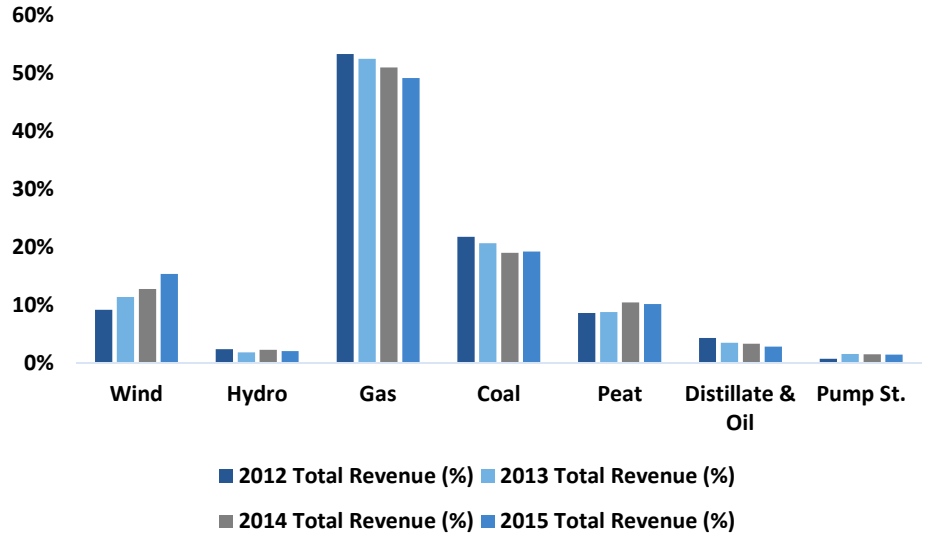
in FY2011 gas generation accounted for approximately 64% of total electricity generation, decreasing to 51% in FY2012. This relative resurgence of coal fired generation at the expense of gas generation has been driven by lower coal prices relative to gas and lower emissions costs.

Figure 3.6: Breakdown of total volumes and revenues by fuel source – FY2012 - FY2015

Breakdown of volumes by fuel source – 2012 – 2015



Breakdown of revenue by fuel source – 2012 – 2015



3.1.2. Revenues and Costs by Fuel Source

Within the financial reporting template generators are asked to disaggregate revenue into four categories:

- Revenue from the SEM pool;
- Contract for Difference (CfD) payments;

- Capacity payments; and
- Other revenue.

Figure 3.7 and Figure 3.8, shown below, present the source of generator revenues by fuel source for FY2014 and FY2015. As expected, SEM pool revenue accounts for the majority of the total revenues earned by generators, with a share of 62% of total revenues in FY2014 and a share of 58% in FY2015. Both of these figures are slightly lower than the 63% share reported for FY2013, which is expected given lower average SMP. The next biggest revenue source is capacity payments, accounting for a share of 17% of total revenue in FY2014 and 18% of total revenue in FY2015. CfD payments make up a relatively small proportion of total revenue, but their share has increased to 10% in FY2015 reflecting the effect of hedging contracts against lower SMP. Unlike all other generators which earn the majority of their revenue through the SEM pool, **Pumped storage** and **Distillate & Oil** generators earn the majority of their revenue through capacity payments and, especially in the case of Pumped Storage, other revenue streams (e.g. ancillary services revenue).

Figure 3.7: Source of generator revenue as a % of total revenue – Financial year 2014 (by fuel source)

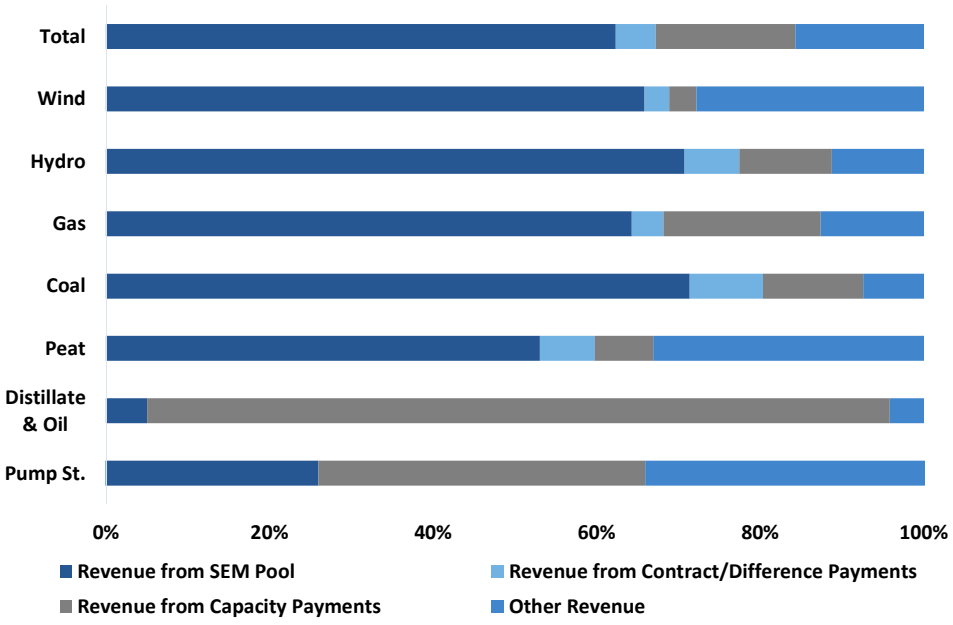
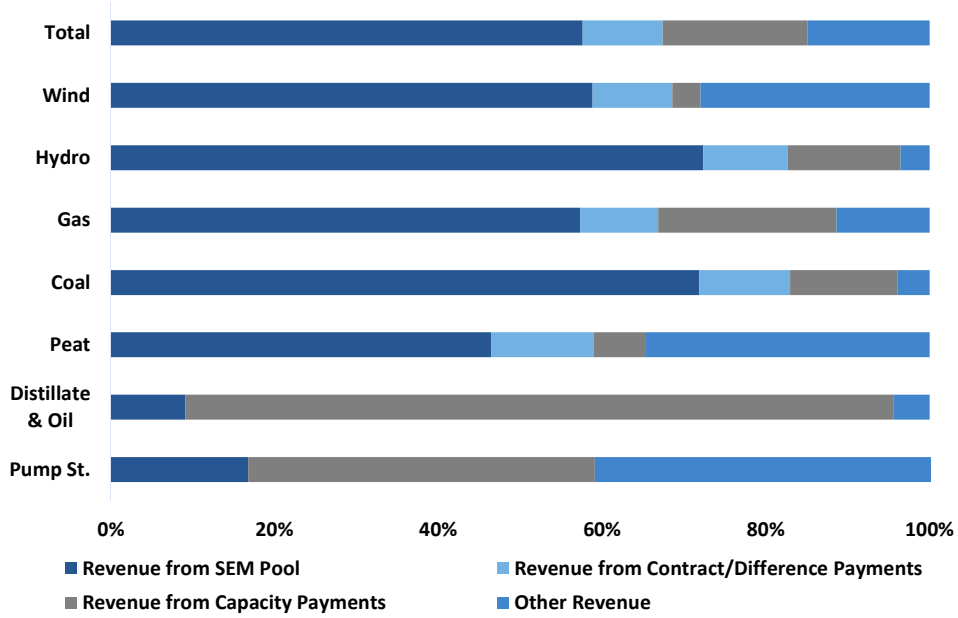


Figure 3.8: Source of generator revenue, % of total revenue – Financial year 2015 (by fuel source)



In addition, generators are also asked to allocate costs into four cost categories:

- Fuel related operating costs;
- Non-fuel operating costs;
- Depreciation & Impairment; and
- Interest & Tax.

Figure 3.9 and Figure 3.10 present the make-up of generator costs by different fuel types. Fuel related operating costs represent around half of total costs for all generators. Non-fuel operating costs are the second largest contributor to total generator costs with a share of 26% in FY2014 and 27% in FY2015.

Unlike the breakdown of revenue analysis, the source of generator costs differs substantially between generators with different fuel types. As expected, renewable electricity sources (Wind, Hydro and Pumped storage) have minimal fuel related operating costs. **Wind** generators have relatively high capital costs, which is reflected in high proportions of 'Interest & Tax' and 'Depreciation & Impairment' costs, whereas the majority of **Pumped Storage** and **Hydro** generator costs are accounted for by non-fuel operating costs. In contrast, fuel related operating costs were the largest overall costs for **Gas**, **Coal** and **Peat** generators. Non-fuel operating costs are usually the largest operating costs for **Distillate & Oil** generators. However, in FY2015 depreciation and impairment charges were the largest source of generator costs for Distillate & Oil plants due to significant impairment costs reported by some generators.

Figure 3.9: Breakdown of generator costs, % of total costs – Financial year 2014 (by fuel source)

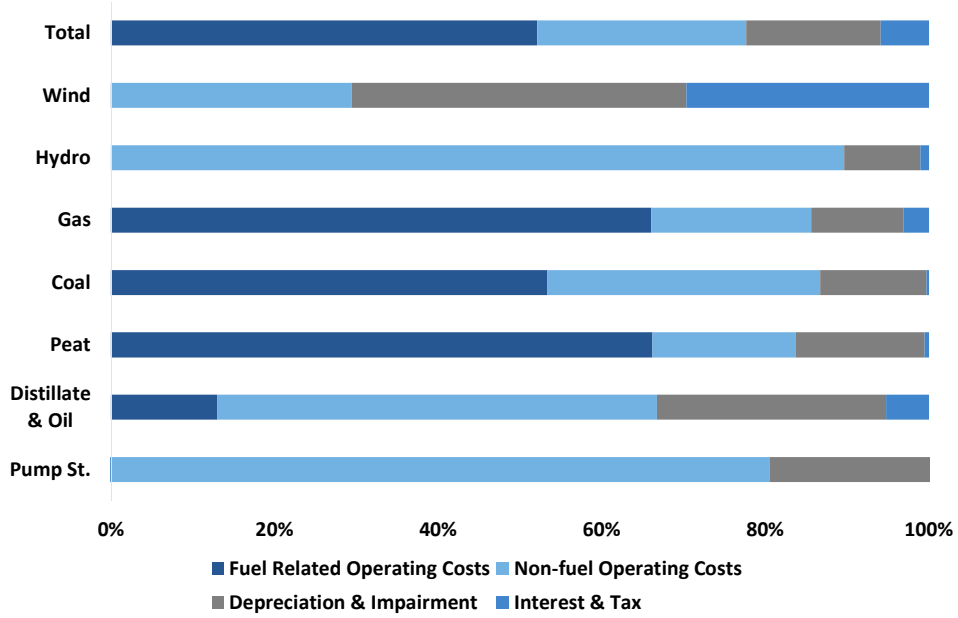


Figure 3.10: Breakdown of generator costs, % of total costs – Financial year 2015 (by fuel source)

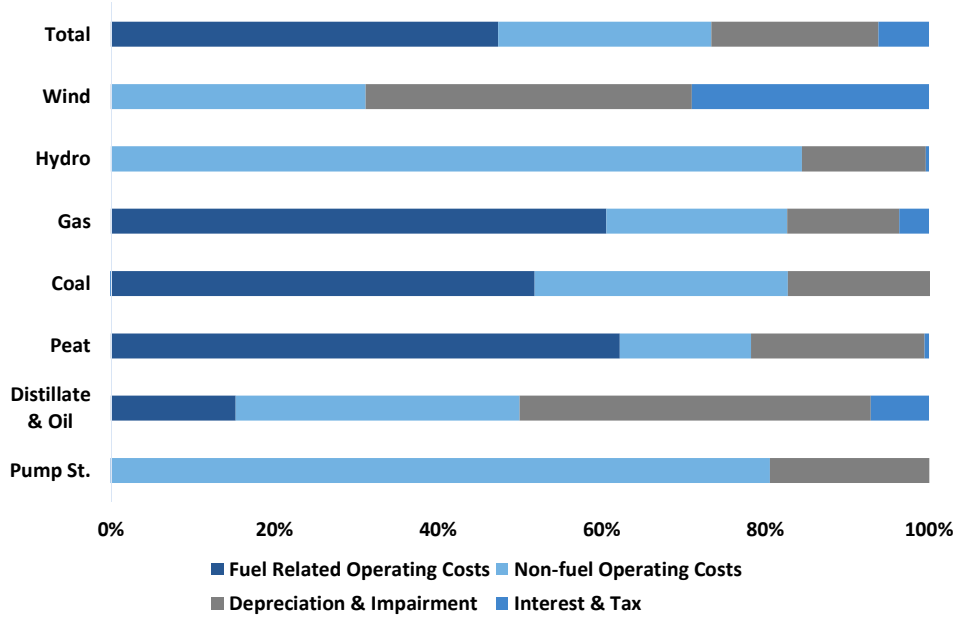


Figure 3.11 and Figure 3.12 below provide a percentage breakdown of generator revenue and costs by fuel source between FY2012 and FY2015. Over time it appears that the relative importance of each revenue stream fluctuates quite significantly, especially for SEM pool and CfD revenue. For example, the proportion of total revenue accounted for by CfD payments for wind generation has varied from 12% in FY2012, to 6% in FY2013, to 3% in FY2014, and to 10% in FY2015. On the other hand, the make-up of generator costs across fuel sources has remained fairly constant since FY2012, when excluding impairment charges. The relatively stable share of fuel costs despite falling fuel prices is likely to occur because fuel costs vary with volumes of electricity generated much more than non-fuel costs. This means that when

volumes of electricity generated increase the relative proportion of fuel costs in total operating costs goes up even when fuel unit costs decline.

Figure 3.11: Percentage breakdown of generator revenue by fuel source – FY2012 to FY2015

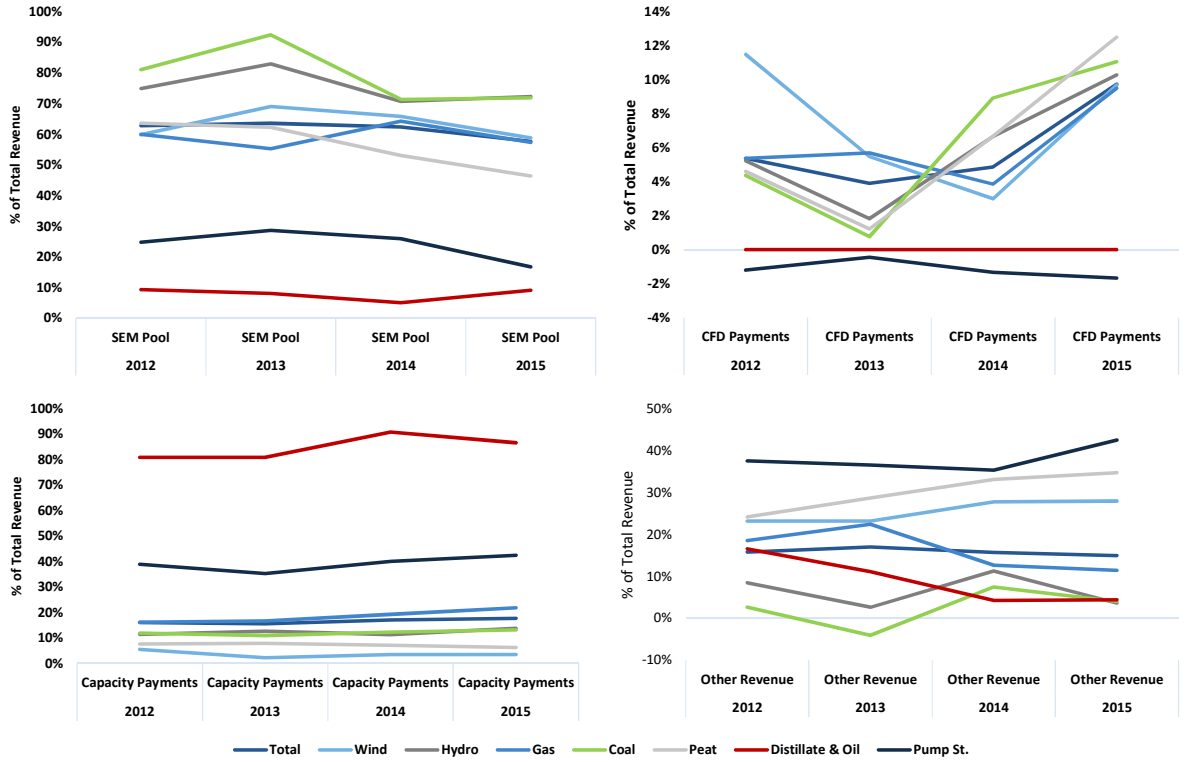
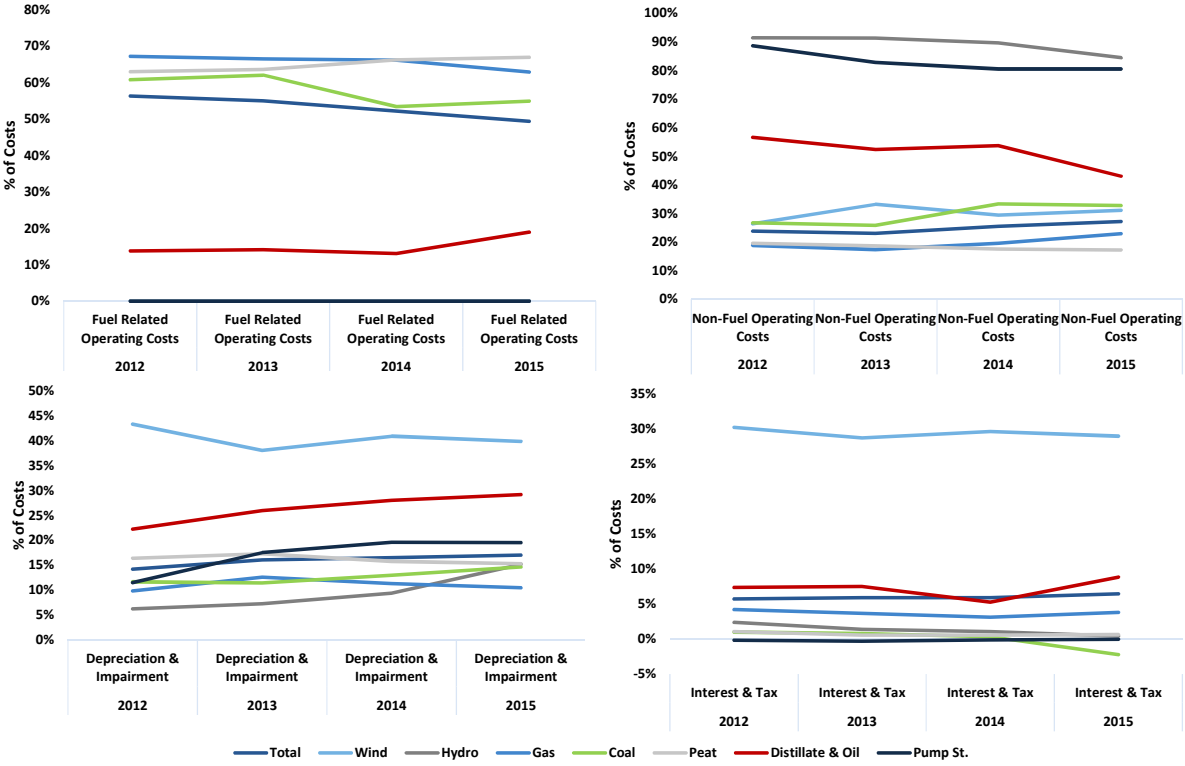


Figure 3.12: Percentage breakdown of generator costs by fuel source – FY2012 to FY2015 (excluding impairment charges)



3.1.3. Breakdown of financial reporting template results by fuel source in MW terms

Table 3.4 and Table 3.5 below provide a breakdown of the results by generation fuel source on a per MW of installed capacity basis.

Table 3.4: Breakdown of financial reporting template results by generation fuel source on a per MW basis – Financial Year 2014

Financial year 2014	Total	Wind	Hydro	Gas	Coal	Peat	Distillate & Oil	Pump St.
Installed Capacity - MW	10,233	1,773[19]	216	4,947	1,331	344	1,330	292
Electricity Sold (MWh) per MW of capacity	20,228	2,246	3,084	2,738	4,861	7,570	20	(291)
Revenue (€/MW)	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Revenue from SEM Pool	€162	€126	€195	€176	€271	€424	€3	€34
Revenue from Contract/Difference Payments	€13	€6	€18	€11	€34	€54	-	(€2)
Revenue from Capacity Payments	€44	€6	€31	€53	€46	€57	€59	€52
Other Revenue	€41	€53	€31	€35	€28	€265	€3	€46
Total Revenue	€260	€191	€276	€274	€379	€800	€65	€130
Operating Costs (€/MW)	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Fuel Related Operating Costs	€120	€0.05	-	€168	€184	€426	€6	-
Non-fuel Operating Costs	€59	€52	€104	€50	€115	€113	€23	€60
Total Operating Costs	€179	€52	€104	€217	€298	€539	€29	€60
EBITDI (€/MW)	€81	€138	€172	€57	€81	€261	€36	€71
Depreciation & Impairment	€38	€73	€11	€29	€45	€101	€12	€15
EBIT (€/MW)	€43	€65	€161	€28	€36	€160	€24	€56
Interest & Tax	€14	€53	€1.20	€8	€1.09	€4	€2	(€0.11)
Net Profit (€/MW)	€30	€12	€160	€20	€35	€159	€21	€56
Operating Margin - %	**31%**	**72%**	**62%**	**21%**	**21%**	**33%**	**55%**	**54%**
Net Margin - %	**11%**	**7%**	**58%**	**7%**	**9%**	**20%**	**33%**	**43%**

[19] The installed wind capacity figure has been obtained by aggregating the capacity of all wind farms that have submitted financial reporting templates using data from publicly available sources which generally reflect the latest capacity information. The total capacity estimated may thus not capture situations where the capacity of some of the wind farms has changed since the period covered by the reporting templates.

Table 3.5: Breakdown of financial reporting template results by generation fuel source on a per MW basis – Financial Year 2015

Financial year 2015	Total	Wind	Hydro	Gas	Coal	Peat	Distillate & Oil	Pump St.
Installed Capacity - MW	10,660	1,769[20]	216	5,378	1,331	344	1,330	292
Volume of Electricity Sold - MWh	22,398	3,223	3,457	2,758	5,816	7,388	41	(286)
Revenue (€/MW)	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Revenue from SEM Pool	€146	€138	€180	€142	€280	€370	€5	€21
Revenue from Contract/Difference Payments	€25	€23	€26	€24	€43	€100	-	(€2)
Revenue from Capacity Payments	€45	€8	€34	€54	€51	€50	€49	€54
Other Revenue	€38	€66	€9	€28	€15	€277	€2	€54
Total Revenue	€254	€235	€249	€247	€390	€796	€57	€127
Operating Costs (€/MW)	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Fuel Related Operating Costs	€109	€0.06	-	€141	€178	€454	€8	-
Non-fuel Operating Costs	€60	€66	€97	€51	€106	€117	€18	€62
Total Operating Costs	€169	€66	€97	€192	€284	€571	€27	€62
EBITDI (€/MW)	€85	€169	€152	€55	€106	€226	€30	€65
Depreciation & Impairment	€47	€85	€17	€32	€66	€155	€23	€15
EBIT (€/MW)	€38	€84	€134	€23	€40	€71	€8	€50
Interest & Tax	€14	€62	€0.46	€8	(€7)	€4	€3.79	(€0.04)
Net Profit (€/MW)	€24	€22	€134	€15	€47	€67	€4	€51
Operating Margin - %	**34%**	**72%**	**61%**	**22%**	**27%**	**28%**	**53%**	**51%**
Net Margin - %	**9%**	**9%**	**54%**	**6%**	**12%**	**8%**	**7%**	**40%**

[20] The installed wind capacity figure has been obtained by aggregating the capacity of all wind farms that have submitted financial reporting templates using data from publicly available sources which generally reflect the latest capacity information. The total capacity estimated may thus not capture situations where the capacity of some of the wind farms has changed since the period covered by the reporting templates.

Following on from Section 3.1.2, which provided a breakdown of generators' revenues and costs by fuel source, Table 3.4 and Table 3.5 provide further analysis by looking at the financial reporting template data on a per MW basis for FY2014 and FY2015. A crucial factor affecting the revenue per MW of installed capacity is the utilisation or load factor of each unit. Overall, total revenue per MW of installed capacity has decreased for all fuel sources between FY2013 and FY2014 with the exception of Hydro and Peat generation.

Figure 3.13 and Figure 3.14 below show the breakdown of costs and net profit per MW of installed capacity by fuel source. The sum of net profit and costs is equal to total revenue. As a result each bar in these two figures represents total revenue earned by each fuel source per MW of installed capacity.

Peat plants have the highest revenue for each MW of installed capacity, at approximately €800,000 per MW in FY2014 and €796,000 per MW in FY2015. However, they also continue to have the highest costs per MW out of all fuel sources. Given that all three Peat generators are price takers, typically generating whenever they are available then it follows that they also have the highest output per MW, and in turn the highest revenue and costs per MW, due to their high load factors. **Coal** is in second position with regards to revenue per MW of installed capacity for FY2014 and FY2015 and this is also the case for costs per MW.

Hydro generators achieved the highest net profit per MW of installed capacity in FY2014 and FY2015, and have also significantly improved their performance since FY2013. In FY2013 hydro generators achieved €105,000 per MW of installed capacity, which increased to €160,000 per MW of installed capacity in FY2014.

These results are very much driven by the load factor achieved by each respective fuel source, as fuel sources with a high load factor/utilisation are likely to earn relatively high revenues per MW of installed capacity compared to fuel types with a low load factor. This is reflected in the results, as Peat generators frequently earn the highest revenue and profit per MW of installed capacity and they achieve an average load factor of 84%.

Figure 3.13: Costs and net profit per MW of installed capacity – Financial year 2014 (By fuel source)

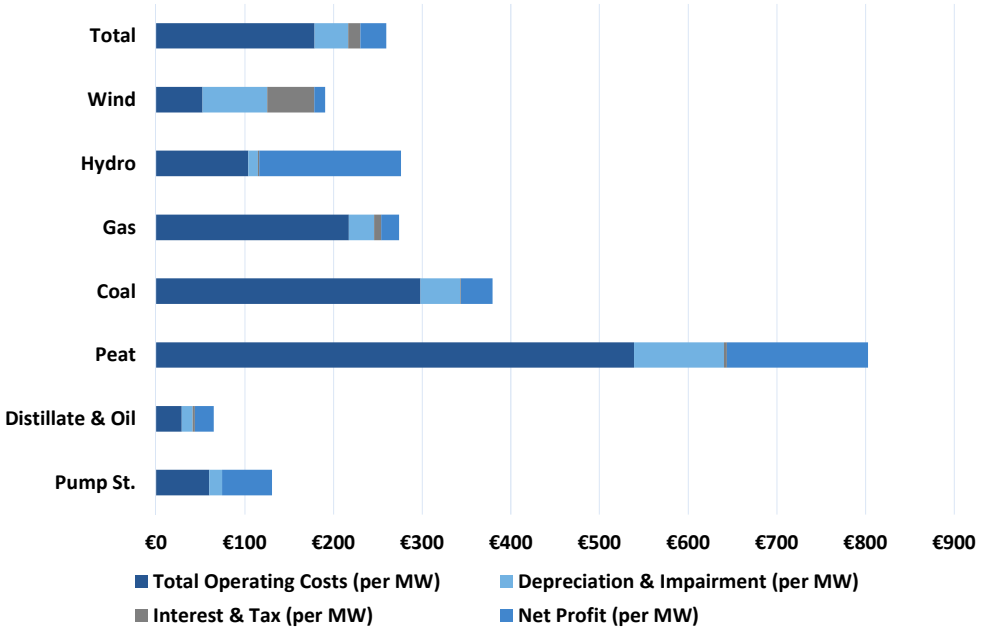
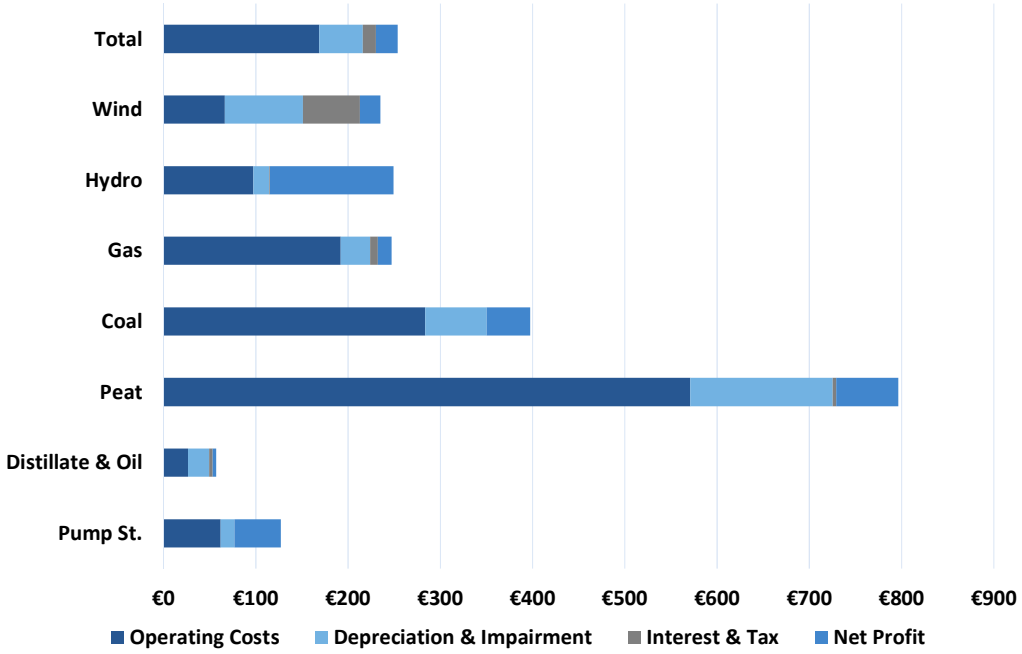


Figure 3.14: Costs and net profit per MW of installed capacity – Financial year 2015 (By fuel source)



3.1.4. Breakdown of financial reporting template data in MWh of electricity sold – by fuel source

Table 3.6 and Table 3.7 below provide a breakdown of the financial reporting template data by fuel source in MWh of electricity sold for FY2014 and FY2015. This is useful to understand how much net profit different generators are earning on average for every MWh of electricity generated. Although this breakdown of data is useful for the majority of fuel sources, for pumped storage generators this is not so useful given the fact that they are net consumers of electricity. As a result, we have omitted pumped storage generation from the analysis, which is why the total generation figures and profit margins do not match with the previous tables. This analysis is an addition to the previous reports which have only provided a breakdown of financial reporting template data by MW of installed capacity.

In both FY2014 and FY2015 **Distillate & Oil** earned by far the highest net profit for every MWh of electricity generated due to the fact that they mostly generate electricity in peak times and earn the majority of their revenue through capacity payments. However the net profit per MWh of electricity sold for **Distillate & Oil** generators has gone down significantly in FY2015 from €1,054 to €95. This has been due to a number of factors including:

- Lower SEM pool revenue per MWh generated due to fall in average SMP;
- Significantly lower capacity payments per MWh generated – as fixed capacity payments are spread over a larger volume of electricity generated;
- Lower costs per MWh generated due to lower fuel prices as well as fixed costs (depreciation, interest) being spread over a larger numbers of MWhs generated – but this fall has been proportionally smaller than for revenues due to, for example, higher depreciation and impairment costs.

Hydro generators have earned the second highest profit per MWh of electricity sold.

It can also be observed that SEM pool revenue per MWh sold has declined significantly for all fuel sources in 2015 compared to 2014. This is not surprising considering the fall in average SMP over the period. Similarly fuel related operating costs per MWh for **gas** and **coal** fired generators have also declined given lower fuel prices.

In terms of operating costs, we have also compared wind generation operating costs per MWh in SEM (approximately €24 per MWh in FY2014) with estimates of similar costs in GB. A study for the former Department for Energy & Climate Change (DECC) estimated the levelised operating cost of different electricity generation types including onshore wind projects starting in 2013. For onshore wind the operating cost (fixed and variable O&M) in GB was estimated to be approximately £23 per MWh, with the figure for offshore wind above £30 per

MWh.[21] Converting this figure into euros returns an equivalent figure of approximately €27 per MWh for onshore wind[22], which implies that the operating costs of wind farms operating in the SEM are slightly lower than those in GB (even assuming all wind farms in SEM are onshore). This is however just an indicative analysis and any conclusions should be treated with caution not least because the unit costs in SEM are based on actual reported costs while the estimates for GB are based on modelled costs over a project lifetime which includes a number of assumptions including on the expected load factor of these types of projects.

[21] DECC (2013). Electricity Generation Costs. https://www.gov.uk/government/publications/decc-electricity-generation-costs-2013

[22] Converted using a EUR/GBP exchange rate of 0.85.

Table 3.6: Breakdown of financial reporting template data in MWh of electricity sold – by fuel source (FY2014)

Financial year 2014 (€ per MWh of electricity sold)	Total	Wind	Hydro	Gas	Coal	Peat	Distillate & Oil
Volume of Electricity Sold - MWh	27,293,844	3,982,339	666,036	13,543,907	6,470,483	2,604,168	26,910
Revenue (€/MWh)	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Revenue from SEM Pool	€60	€56	€63	€64	€56	€56	€162
Revenue from Contract/Difference Payments	€5	€3	€6	€4	€7	€7	-
Revenue from Capacity Payments	€16	€3	€10	€19	€10	€8	€2,911
Other Revenue	€15	€24	€10	€13	€6	€35	€134
Total Revenue	€96	€85	€90	€100	€78	€106	€3,206
Operating Costs (€/MWh)	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Fuel Related Operating Costs	€45	€.02	-	€61	€38	€56	€280
Non-fuel Operating Costs	€21	€23	€34	€18	€24	€15	€1,157
Total Operating Costs	€66	€23	€34	€79	€61	€71	€1,437
EBITDI (€/MWh)	€30	€62	€56	€21	€17	€34	€1,770
Depreciation & Impairment	€14	€32	€4	€10	€9	€13	€603
EBIT (€/MWh)	€16	€29	€52	€10	€7	€21	€1,167
Interest & Tax	€5	€24	€.39	€3	€.23	€.48	€113
Net Profit (€/MWh)	€10	€6	€52	€7	€7	€21	€1,054
Operating Margin - %	**31%**	**72%**	**62%**	**21%**	**21%**	**33%**	**55%**
Net Margin - %	**11%**	**7%**	**58%**	**7%**	**9%**	**20%**	**33%**

Table 3.7: Breakdown of financial reporting template data in MWh of electricity sold – by fuel source (FY2015)

Financial year 2015 (€ per MWh of electricity sold)	Total	Wind	Hydro	Gas	Coal	Peat	Distillate & Oil
Volume of Electricity Sold - MWh	31,616,479	5,702,849	746,677	14,829,357	7,741,168	2,541,628	54,800
Revenue (€/MWh)	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Revenue from SEM Pool	€49	€43	€52	€51	€48	€50	€126
Revenue from Contract/Difference Payments	€8	€7	€7	€9	€7	€14	-
Revenue from Capacity Payments	€15	€3	€10	€20	€9	€7	€1,197
Other Revenue	€12	€20	€3	€10	€3	€37	€61
Total Revenue	€84	€73	€72	€90	€67	€108	€1,384
Operating Costs (€/MWh)	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Fuel Related Operating Costs	€37	€.02	-	€51	€31	€61	€197
Non-fuel Operating Costs	€20	€21	€28	€19	€18	€16	€447
Total Operating Costs	€56	€21	€28	€70	€49	€77	€644
EBITDI (€/MWh)	€28	€52	€44	€20	€18	€31	€740
Depreciation & Impairment	€16	€26	€5	€12	€11	€21	€553
EBIT (€/MWh)	€12	€26	€39	€8	€7	€10	€187
Interest & Tax	€5	€19	€.13	€3	(€1)	€.55	€92
Net Profit (€/MWh)	€8	€7	€39	€5	€8	€9	€95
Operating Margin - %	**33%**	**72%**	**61%**	**22%**	**27%**	**28%**	**53%**
Net Margin - %	**9%**	**9%**	**54%**	**6%**	**12%**	**8%**	**7%**

3.2. Breakdown by Generation Type

In addition to organising the financial reporting template data by fuel source the report also breaks down the data by generation type, namely: Renewables, Price Takers, Baseload, Mid-Merit and Peakers. Renewables include all Wind, Hydro and Pumped Storage plants. Price takers are defined as conventional plants that operate as a price taker in the market, i.e. peat plants. For the remaining plants we have sorted them into Baseload, Mid-Merit and Peaking plants based on their load factor over the year, whilst seeking to spot any anomalies. We have used the same criteria as in the previous report to allocate plants into their respective categories, and this is shown in Table 3.8 below.

Table 3.8: Plant type and load factors

Plant type	Load factor
Baseload	75% or above
Mid-Merit	16% - 74%
Peak	15% or below

Based on this criteria we have made several classification changes from the previous report. Firstly, we have reclassified Ballylumford C station from a peaking plant to a Mid-Merit plant given its load factor of approximately 40% in FY2014 and 37% in FY2015. Secondly, we have reclassified Huntstown 1 from a peaking plant to a Mid-Merit plant due to a load factor of 18% in FY2014 and 25% in FY2015. In addition, we have also made two further classification changes for FY2015 relative to FY2014. Moneypoint Unit 3 was reclassified as a Baseload plant (from Mid-Merit) as its load factor increased to 80% in FY2015 and Tynagh was reclassified as a Peaking plant in FY2015 as its load factor dropped to 8%.

We also note that Moneypoint Unit 1 was classified as a Baseload plant, however in FY2014 its load factor dropped to 50%.[23] Given that this type of plant would normally be expected to function as a Baseload plant and its load factor returns to 84% in FY2015, we consider FY2014 to have been an abnormal year for Moneypoint Unit 1, and have therefore decided to retain it as a Baseload plant. Lastly, we classified Great Island CCGT plant commissioned in 2015 as a Mid-Merit plant. The classification of generation plants is shown in Table 3.9 below.

Table 3.9: Plant type categorisation and fuel source

Baseload	Mid-Merit	Peak
FY2014 and FY2015		
• Moneypoint – MP1 *(Coal)* • Synergen *(Gas)*	• Ballylumford C station (*Gas)* • Coolkeeragh *(Gas)*	• Ballylumford B station (*Gas)* • Ballylumford OCGTs *(Gas)*

[23] We understand this was due to an extended outage at the plant in that year.

Baseload	Mid-Merit	Peak
FY2014 and FY2015		
	• Aghada CCGT *(Gas)* • Moneypoint – MP2 *(Coal)* • Whitegate *(Gas)* • Huntstown 1 *(Gas)* • Huntstown 2 *(Gas)* • Kilroot 1 & 2 *(Coal)*	• Kilroot (KGT1 – KGT4) *(Distillate & Oil)* • Aghada Unit 1 *(Gas)* • Aghada AT1, AT2 and AT4 *(Gas)* • Marina *(Gas)* • Northwall Unit 5 *(Gas)* • Poolbeg *(Gas)* • Tarbert *(Distillate & Oil)* • Great Island HFO *(Distillate & Oil)* • Rhode *(Distillate & Oil)* • Tawnahmore *(Distillate & Oil)* • Cushaling Power *(Distillate & Oil)*
FY2014 only		
	• Moneypoint – MP3 *(Coal)* • Tynagh *(Gas)*	
FY2015 only		
• Moneypoint – MP3 *(Coal)*	• Great Island CCGT *(Gas)*	• Tynagh *(Gas)*

Table 3.10 and Table 3.11 below provide an overview of the financial reporting template data by generation type for FY2014 and FY2015. As expected, Mid-Merit plants account for the largest share of volumes and revenues. Moreover, renewable energy plants have the highest operating profit margin across all generation types, which is expected given their low operating costs. In FY2014, Price Taker plants had the highest net profit margin at 20%, which

was a change from the previous report where Baseload generators outperformed all other plant type in terms of net profit margins. In FY2015, however, Price Takers only reported a net-profit margin of 8%, which was largely caused by a significant impairment charge. Excluding this impairment charge, the net profit margin for Price Takers stood at 15%.

Baseload generators outperformed all other plant types in terms of net-profit margins in FY2015 with a net-profit margin of 21% while Mid-merit plants recorded a net-profit margin of -1% in FY2015. This is largely due to higher impairment charges reported in FY2015. When these charges are excluded, the net profit margin of Mid-Merit generators was 6% (same as for FY2014). Mid-Merit plants are often the marginal price setting generator in the market due to their place in the merit order, which means that they tend to earn less inframarginal rent from the units of electricity sold relative to lower cost generators. In contrast to Peak plants, they also tend to earn relatively less revenue from capacity payments.

Another factor driving changes between FY2014 and FY2015 is the re-classification of a number of plants in FY2015.

Table 3.10: Breakdown of financial reporting template results by generation type – Financial Year 2014

Financial year 2014	Total	Renewables	Price Taker	Baseload	Mid Merit	Peak
Volume of Electricity Sold - MWh	27,208,911	4,563,443	2,604,168	4,553,189	14,887,636	600,475
Revenue	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Revenue from SEM Pool	€1,656,125	€274,708	€146,004	€248,482	€805,135	€181,795
Revenue from Contract/Difference Payments	€129,567	€13,633	€18,422	€945	€93,944	€2,623
Revenue from Capacity Payments	€453,255	€33,375	€19,616	€34,351	€184,320	€181,593
Other Revenue	€417,730	€114,153	€91,076	€9,033	€178,048	€25,419
Total Revenue	€2,656,678	€435,870	€275,120	€292,812	€1,261,447	€391,430
Operating Costs	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Fuel Related Operating Costs	€1,227,776	€89	€146,586	€157,398	€764,078	€159,626
Non-fuel Operating Costs	€600,939	€132,845	€38,770	€50,196	€263,141	€115,987
Total Operating Costs	€1,828,716	€132,934	€185,356	€207,593	€1,027,218	€275,615
EBITDI	**€827,962**	**€302,936**	**€89,764**	**€85,219**	**€234,227**	**€115,816**
Depreciation & Impairment	€387,991	€135,862	€34,846	€37,463	€122,993	€56,827
EBIT	**€439,970**	**€167,073**	**€54,918**	**€47,756**	**€111,234**	**€58,989**
Interest & Tax	€138,514	€93,985	€1,237	€7,469	€31,048	€4,776
Net Profit	**€302,555**	**€73,089**	**€54,779**	**€40,287**	**€80,187**	**€54,214**
Operating Margin - %	**31%**	**70%**	**33%**	**29%**	**19%**	**30%**
Net Margin - %	**11%**	**17%**	**20%**	**14%**	**6%**	**14%**

Table 3.11: Breakdown of financial reporting template results by generation type – Financial Year 2015

Financial year 2015	Total	Renewables	Price Taker	Baseload	Mid Merit	Peak
Volume of Electricity Sold - MWh	31,533,040	6,366,087	2,541,628	7,449,287	14,710,308	465,731
Revenue	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Revenue from SEM Pool	€1,559,321	€289,737	€127,267	€355,264	€704,671	€82,381
Revenue from Contract/Difference Payments	€264,021	€45,371	€34,333	€45,342	€83,668	€55,307
Revenue from Capacity Payments	€477,676	€37,459	€17,110	€54,506	€179,572	€189,028
Other Revenue	€404,638	€134,125	€95,187	€5,601	€143,690	€26,035
Total Revenue	€2,705,655	€506,693	€273,898	€460,712	€1,111,601	€352,750
Operating Costs	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Fuel Related Operating Costs	€1,160,621	€107	€156,091	€219,624	€702,132	€82,667
Non-fuel Operating Costs	€638,601	€156,312	€40,228	€82,319	€226,840	€132,902
Total Operating Costs	€1,799,222	€156,419	€196,319	€301,943	€928,972	€215,570
EBITDI	**€906,434**	**€350,276**	**€77,579**	**€158,769**	**€182,629**	**€137,181**
Depreciation & Impairment	€501,235	€158,362	€53,182	€53,338	€172,155	€64,198
EBIT	**€405,199**	**€191,913**	**€24,398**	**€105,432**	**€10,474**	**€72,982**
Interest & Tax	€151,585	€109,286	€1,399	€7,820	€16,484	€16,597
Net Profit	**€253,614**	**€82,627**	**€22,999**	**€97,612**	**(€6,010)**	**€56,386**
Operating Margin - %	**34%**	**69%**	**28%**	**34%**	**16%**	**39%**
Net Margin - %	**9%**	**16%**	**8%**	**21%**	**-1%**	**16%**

Table 3.12 below presents the revenue per MWh of electricity sold, organised by generation type. As expected, **Peak** generators earn the most per MWh of electricity given they only generate electricity when demand is high and prices are high.

Although revenue per MWh across the SEM has fallen gradually since FY2013 driven by lower SMP, revenue per MWh for some generation types has remained stable or even increased. As presented in more detail in Section 3.2.4, this is due to some revenues increasing to make up for the fall in SEM pool revenue. **Price Taker** plants for example have reported increased CfD payments revenues while both **Renewables** and **Price Takers** have reported higher numbers in the 'Other revenues' category. This may reflect the fact that these plants receive support through various other mechanisms (such as the ROCs in NI or the PSO levy in Republic of Ireland).

Table 3.12: Revenue per MWh of electricity sold – by generation type

Revenue per MWh of electricity sold	FY2012	FY2013	FY2014	FY2015
Total	€100	€103	€98	€86
Renewables	€92	€95	€96	€80
Price Taker	€101	€105	€106	€108
Baseload	€78	€72	€64	€62
Mid Merit	€86	€83	€85	€76
Peak	€595	€654	€652	€757

3.2.1. Revenues by Generation Type

Figure 3.15 and Figure 3.16 below show total generation volumes and revenues broken down into generation type for FY2014 and FY2015. It is worth noting the small share of electricity generated accounted for by **Peaking** plants despite the relatively large numbers of plants classified in this category as shown in Table 3.9. While **Peak** generators provided only 2% of total generation in FY2014 they earned 15% of total revenues. In FY2015 Peak generators accounted for 1% of total generation and earned 13% of total revenues. These differences can be explained by peaking plants operating in very few but higher priced hours.

Figure 3.15: Breakdown of total volumes (MWh) by generation type – Financial year 2014 and 2015

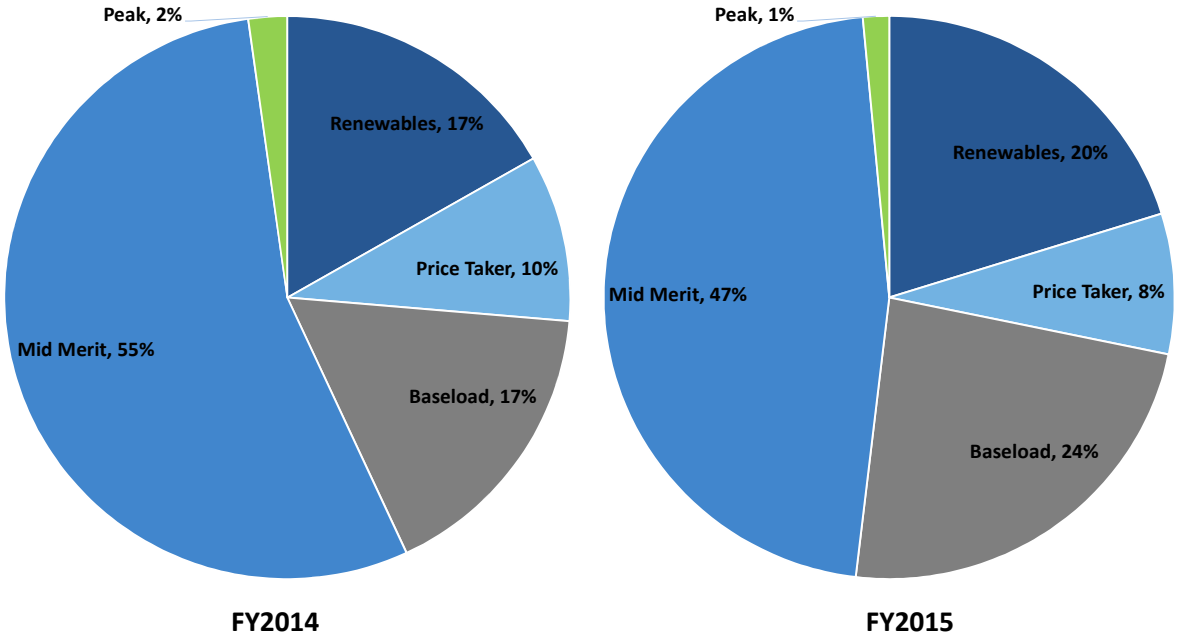
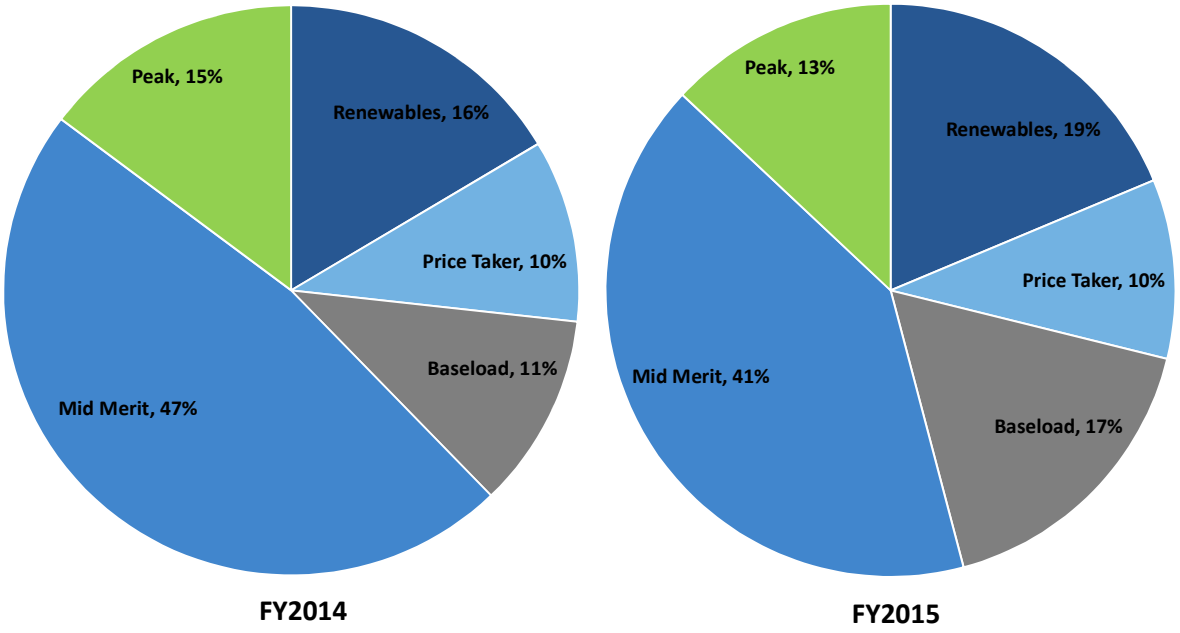


Figure 3.16: Breakdown of total revenues by generation type – Financial year 2014 and 2015



Renewables and **Price Taker** generators continue to provide approximately the same share of electricity as they earn in revenue, whereas **Baseload** and **Mid-Merit** generators receive lower shares of revenue relative to their share of volumes. This is shown in Figure 3.17 below, which provides a breakdown of total volumes and revenue by generation type between FY2012 and FY2015.

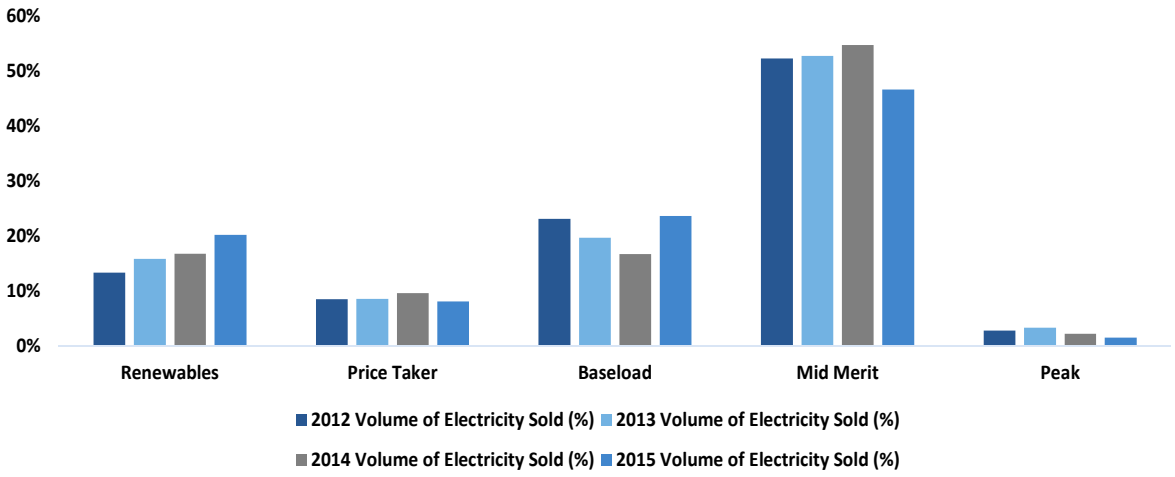
The share of total revenue received by **Mid-Merit** generators increased from 42% of total revenue to 45% of total revenue between FY2013 and FY2014. However, this change, as well as the drop in the share of revenues earned by Peaking plants may have been driven by the

reclassification of two plants from Peaking to Mid-Merit between 2013 and 2014. The share of electricity generated and revenues earned by Peaking plants continued to decline in FY2015 partly driven by the decommissioning of the Great Island HFO Peaking plant.

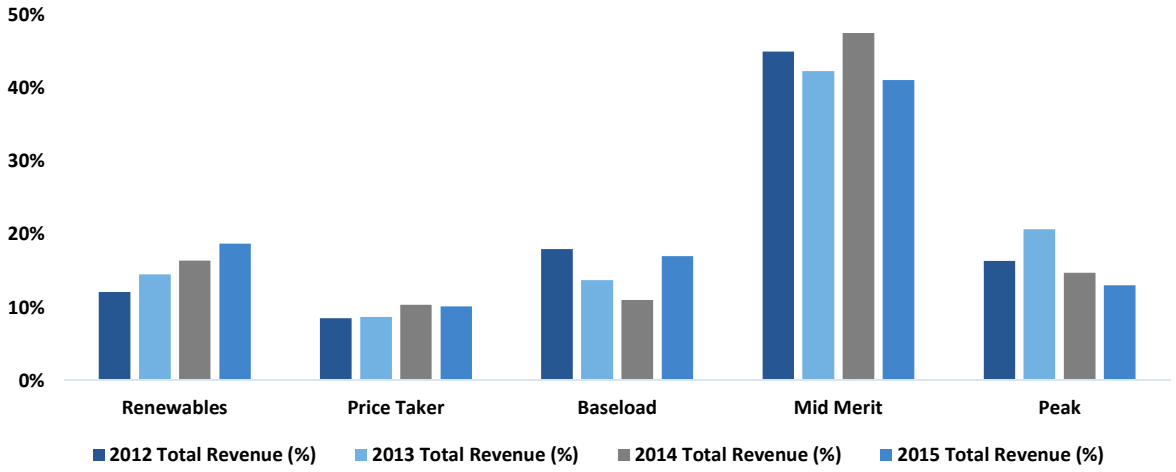
In addition, the share of revenues earned by renewable generation has increased every year since FY2012, in line with increasing volumes of electricity produced from renewable sources.

Figure 3.17: Breakdown of total volumes and revenue by generation type – FY2012 to FY2015

Breakdown of volumes by fuel source – 2012 – 2015



Breakdown of revenue by fuel source – 2012 – 2015



3.2.2. Revenues and Costs by Generation Type

Figure 3.18 and Figure 3.19 below show the composition of revenue received by each generation type for FY2014 and FY2015, respectively. Revenue from the SEM pool contributed 62% and 58% of generators' total revenue overall in FY2014 and FY2015, respectively. **Peaking** plants tend to receive most of their revenue from capacity payments while **Baseload** plants earn the vast majority of their revenue from the SEM revenue pool. The share of revenue earned by Peaking plants from the SEM Pool has declined drastically from 46% to 23% between FY2014 and FY2015 because of lower SMP and lower electricity generated. **Price**

Takers and **Renewable** generators earned a large proportion of their revenue from other revenue sources largely reflecting renewables support mechanisms.

Figure 3.18: Source of revenue as a % of total revenue – Financial year 2014 (by generation type)

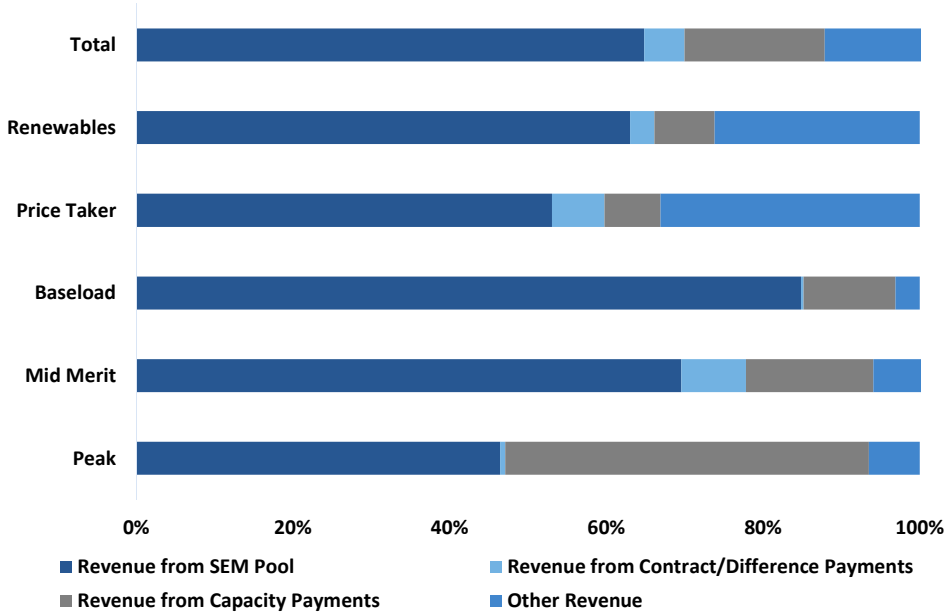


Figure 3.19: Source of revenue as a % of total revenue – Financial year 2015 (by generation type)

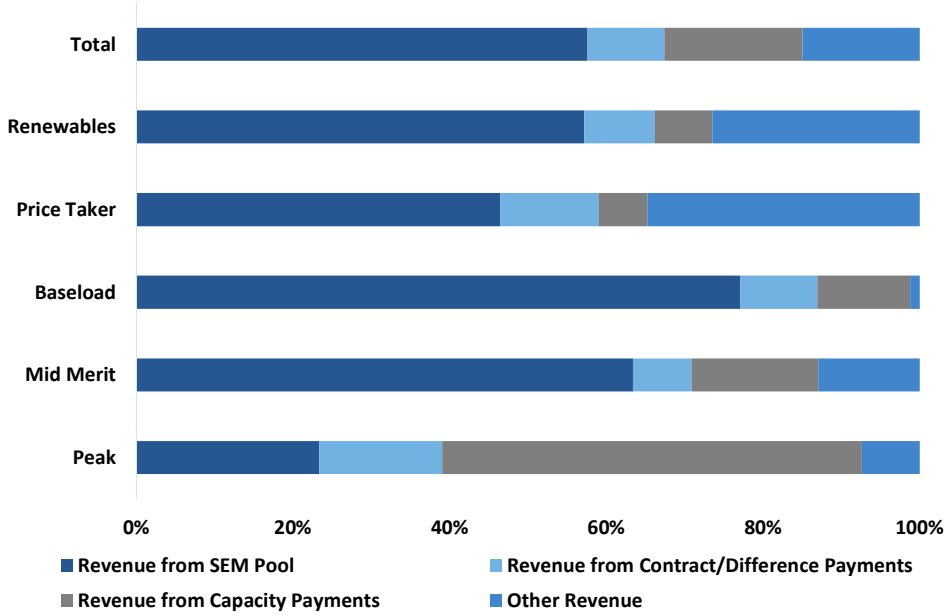


Figure 3.20 and Figure 3.21 below provide a breakdown of costs by generation type for FY2014 and FY2015. Each generation type has a very different make-up of costs. As expected **Renewable** generators have minimal fuel related operating costs. In contrast the majority of Peak, Mid-Merit, Baseload, and Price Taker costs are fuel related. For example, 66% of **Mid-Merit** plants' costs were fuel related in FY2014. **Renewable** generators have the highest proportion of 'Depreciation & Impairment' and 'Interest & Tax' costs out of all generation

types, with the latter caused by relatively higher capital and financing costs of Wind generators.

Figure 3.20: Breakdown of generator costs, % of total costs – Financial year 2014 (by generation type)

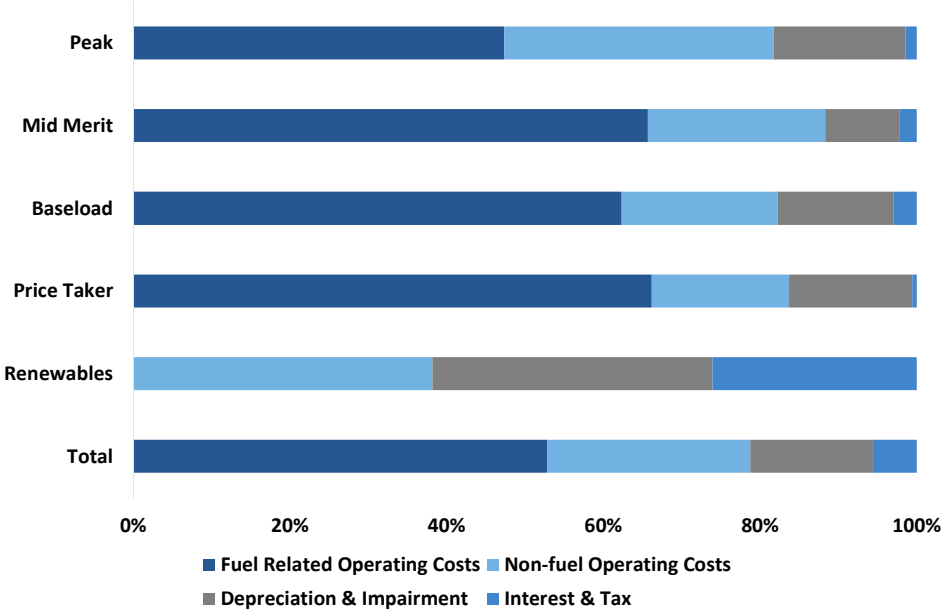


Figure 3.21: Breakdown of generator costs, % of total costs – Financial year 2015 (by generation type)

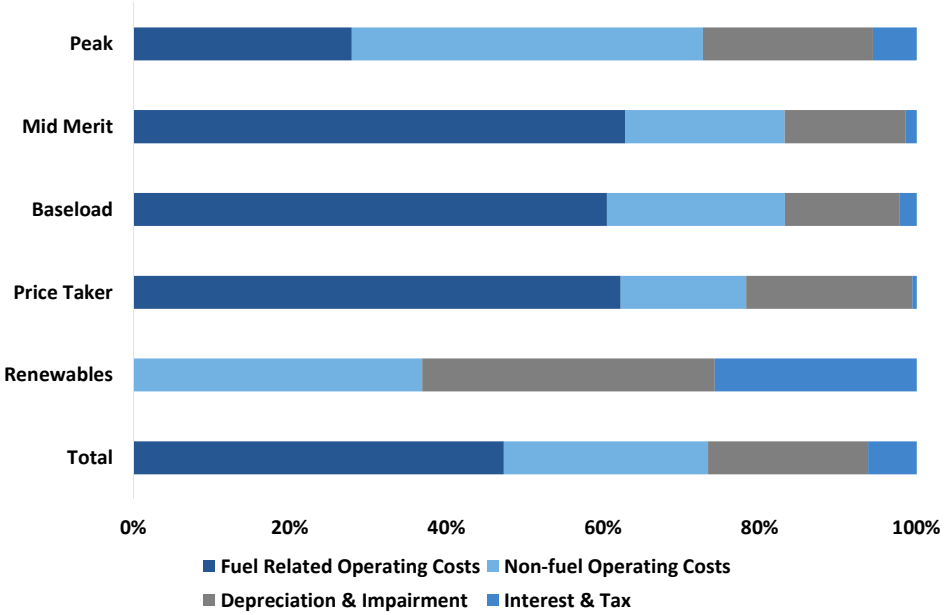


Figure 3.22 below shows the percentage breakdown of generator revenue by generation type between FY2012 and FY2015. Revenues from the SEM pool appear to be on a downward trend for the majority of generation types, with the exception being **Peak** generators, which experienced a jump in SEM revenues in FY2014. The share of revenue earned by generators from CfD payments is the most volatile but has generally increased in the last two years as SEM electricity prices have declined. The proportion of revenue accounted for by capacity

payments has remained stable for the majority of generation types, with the exception being Peaking plants which has seen the share of capacity payments increase although this was largely due to revenue falls in other areas rather than increases in capacity payments.

Figure 3.22: Percentage breakdown of revenue by generation type – FY2012 to FY2015

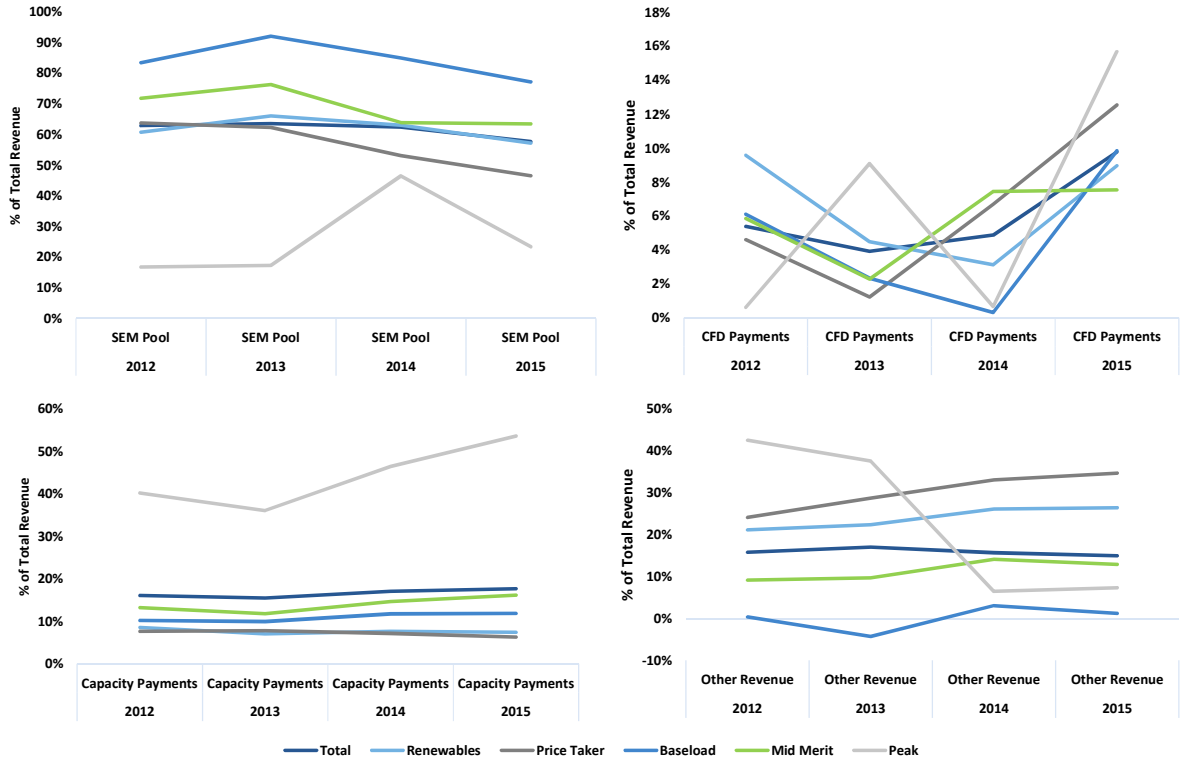
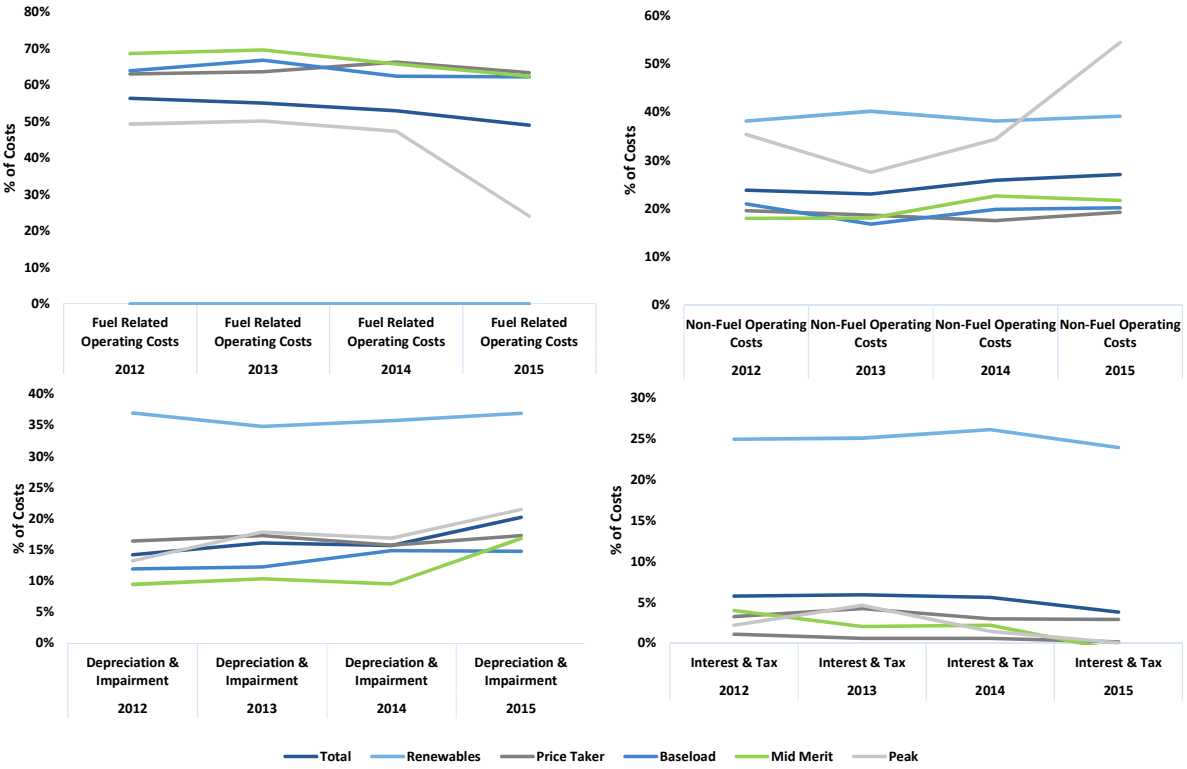


Figure 3.23 below shows the percentage breakdown of generator costs by generation type between FY2012 and FY2015. The proportion of each cost category has tended to remain reasonably stable over time, when excluding impairment charges, with only a couple of exceptions. In particular, **Peaking** plants have seen a significant fall in the share of fuel related operating costs between FY2014 and FY2015 and a corresponding increase in the share of non-fuel related operating costs. This is due to fuel related costs decreasing with lower volumes of electricity generated whereas non-fuel operating costs tend to vary less with the amount of electricity generated.

Figure 3.23: Percentage breakdown of costs by generation type – FY2012 to FY2015 (excluding impairment charges)



3.2.3. Breakdown of financial reporting template results by generation type in MW terms

Table 3.13 and Table 3.14 provide a breakdown of the reporting template results by generation type on a per MW of installed capacity basis.

Table 3.13: Breakdown of financial reporting template results by generation type on a per MW basis – Financial Year 2014

Financial year 2014	Total	Renewables	Price Taker	Baseload	Mid Merit	Peak
Installed Capacity - MW	10,233	2,281[24]	344	700	3,895	3,013
Electricity Sold - MWh	2,659	2,000	7,570	6,505	3,823	199
Revenue (€/MW)	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Revenue from SEM Pool	€162	€120	€424	€355	€207	€60
Revenue from Contract/Difference Payments	€13	€6	€54	€1	€24	€1
Revenue from Capacity Payments	€44	€15	€57	€49	€47	€60
Other Revenue	€41	€50	€265	€13	€46	€8
Total Revenue	€260	€191	€800	€418	€324	€130
Operating Costs (€/MW)	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Fuel Related Operating Costs	€120	€.04	€426	€225	€196	€53
Non-fuel Operating Costs	€59	€58	€113	€72	€68	€38
Total Operating Costs	€179	€58	€539	€297	€264	€91
EBITDI (€/MW)	**€81**	**€133**	**€261**	**€122**	**€60**	**€38**
Depreciation & Impairment	€38	€60	€101	€54	€32	€19
EBIT (€/MW)	**€43**	**€73**	**€160**	**€68**	**€29**	**€20**
Interest & Tax	€14	€41	€4	€11	€8	€2
Net Profit (€/MW)	**€30**	**€32**	**€159**	**€58**	**€21**	**€18**
Operating Margin - %	**31%**	**70%**	**33%**	**29%**	**19%**	**30%**
Net Margin - %	**11%**	**17%**	**20%**	**14%**	**6%**	**14%**

[24] The Renewables installed capacity figure, mostly comprising wind generation, has been obtained by aggregating the capacity of all wind farms that have submitted financial reporting templates using data from publicly available sources which generally reflect the latest capacity information. The total capacity estimated may thus not capture situations where the capacity of some of the wind farms has changed since the period covered by the reporting templates.

Table 3.14: Breakdown of financial reporting template results by generation type on a per MW basis – Financial Year 2015

Financial year 2015	Total	Renewables	Price Taker	Baseload	Mid Merit	Peak
Installed Capacity - MW	10,660	2,277[25]	344	985	3,652	3,402
Electricity Sold - MWh	2,958	2,796	7,388	7,563	4,028	137
Revenue (€/MW)	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Revenue from SEM Pool	€146	€127	€370	€361	€193	€24
Revenue from Contract/Difference Payments	€25	€20	€100	€46	€23	€16
Revenue from Capacity Payments	€45	€16	€50	€55	€49	€56
Other Revenue	€38	€59	€277	€6	€39	€8
Total Revenue	€254	€223	€796	€468	€304	€104
Operating Costs (€/MW)	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Fuel Related Operating Costs	€109	€.05	€454	€223	€192	€24
Non-fuel Operating Costs	€60	€69	€117	€84	€62	€39
Total Operating Costs	€169	€69	€571	€307	€254	€63
EBITDI (€/MW)	**€85**	**€154**	**€226**	**€161**	**€50**	**€40**
Depreciation & Impairment	€47	€70	€155	€54	€47	€19
EBIT (€/MW)	**€38**	**€84**	**€71**	**€107**	**€3**	**€21**
Interest & Tax	€14	€48	€4	€8	€5	€4.88
Net Profit (€/MW)	**€24**	**€36**	**€67**	**€99**	**(2)**	**€17**
Operating Margin - %	**34%**	**69%**	**28%**	**34%**	**16%**	**39%**
Net Margin - %	**9%**	**16%**	**8%**	**21%**	**-1%**	**16%**

[25] The Renewables installed capacity figure, mostly comprising wind generation, has been obtained by aggregating the capacity of all wind farms that have submitted financial reporting templates using data from publicly available sources which generally reflect the latest capacity information. The total capacity estimated may thus not capture situations where the capacity of some of the wind farms has changed since the period covered by the reporting templates.

A crucial factor affecting the revenue per MW of installed capacity is the utilisation or load factor of each unit. Except for Renewables and Price Taker generators, all other generator types have experienced a decrease in their total revenue per MW of installed capacity in FY2014 compared to FY2013.

Figure 3.24 and Figure 3.25 provide a graphical breakdown of revenues into different costs and net profit, by generation type on a per MW of installed capacity basis for FY2014 and FY2015. **Price Taker** plants earn the highest revenue per MW of capacity, surpassing €800 per MW in FY2014 and €900 per MW in FY2015. In turn, they also have the highest costs and net profit per MW of capacity. **Peak** generators have the lowest revenue per MW of capacity, which is a result of their low load factor.

Figure 3.24: Costs and net profit per MW of installed capacity– FY2014 (by generation type)

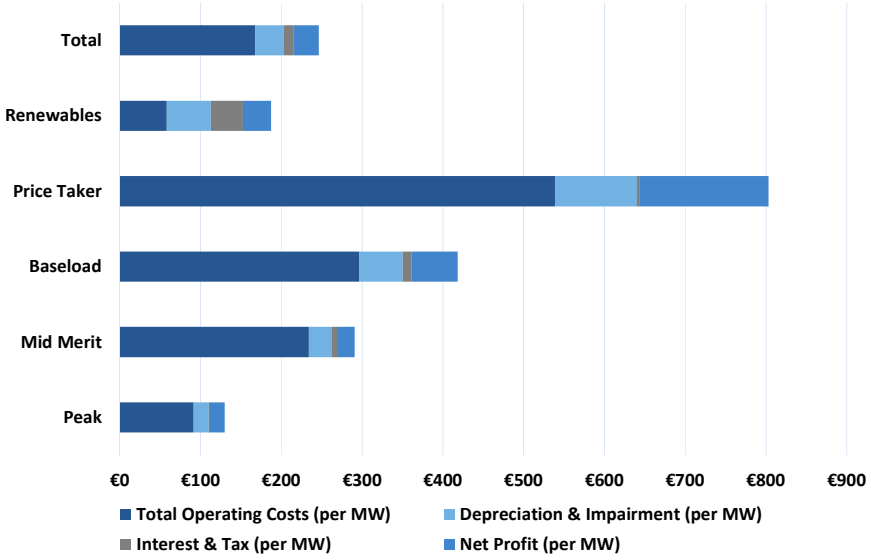
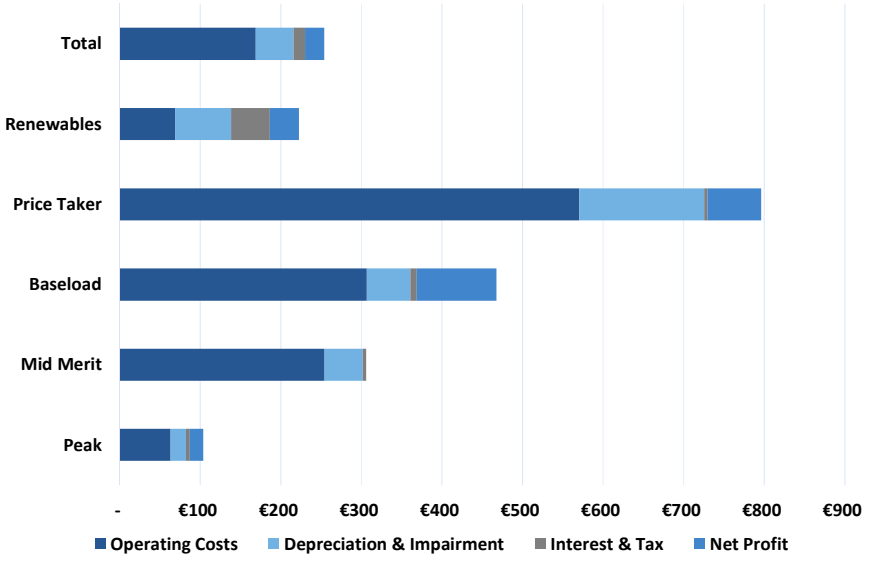


Figure 3.25: Costs and net profit per MW of installed capacity – FY2015 (by generation type)



3.2.4. Breakdown of financial reporting template data in MWh of electricity sold – by generation type

Table 3.15 and Table 3.16 below provide a breakdown of financial reporting template data in MWh of electricity sold by generation type. As in section 3.1.4, we have omitted pumped storage generation from the analysis given they are net users of electricity. As a result, the total generation figures and profit margins differ slightly to the previous tables in section 3.2. As expected the highest net profit per MWh was achieved by **Peak** generators, which earned €90 net profit per MWh in FY2014 and €121 net profit per MWh in FY2015. The lowest net profit per MWh of electricity generated was earned by **Mid-Merit** generators, which reported net profit of €5 per MWh of electricity sold in FY2014 and registered a loss in FY2015 due to impairment charges. **Price Takers** have also reported a much lower net profit per MWh generated in FY2015 due to higher impairment charges.

Baseload and **Peak** generators have reported similar margins despite the large differences in revenue per MWh sold which is due to the fact that Baseload generators also have much lower costs per MWh generated.

Table 3.15: Breakdown of financial reporting template data in MWh terms by generation type – FY2014

Financial year 2014 (€ per MWh of electricity sold)	Total	Renewables	Price Taker	Baseload	Mid Merit	Peak
Volume of Electricity Sold – MWh	27,208,911	4,563,443	2,604,168	4,553,189	14,887,636	600,475
Revenue (€/MWh)						
Revenue from SEM Pool	€60	€57	€56	€55	€54	€303
Revenue from Contract/Difference Payments	€5	€3	€7	€.21	€6	€4
Revenue from Capacity Payments	€16	€4	€8	€8	€12	€302
Other Revenue	€15	€22	€35	€2	€12	€42
Total Revenue	€96	€86	€106	€64	€85	€652
Operating Costs (€/MWh)						
Fuel Related Operating Costs	€45	€.02	€56	€35	€51	€266
Non-fuel Operating Costs	€21	€25	€15	€11	€18	€193
Total Operating Costs	€66	€25	€71	€46	€69	€459
EBITDI (€/MWh)	**€30**	**€61**	**€34**	**€19**	**€16**	**€193**
Depreciation & Impairment	€14	€28	€13	€8	€8	€95
EBIT (€/MWh)	**€16**	**€32**	**€21**	**€10.49**	**€7**	**€98**
Interest & Tax	€5	€20	€.48	€2	€2	€8
Net Profit (€/MWh)	**€10**	**€12**	**€21**	**€9**	**€5**	**€90**
Operating Margin - %	**31%**	**71%**	**33%**	**29%**	**19%**	**30%**
Net Margin - %	**11%**	**14%**	**20%**	**14%**	**6%**	**14%**

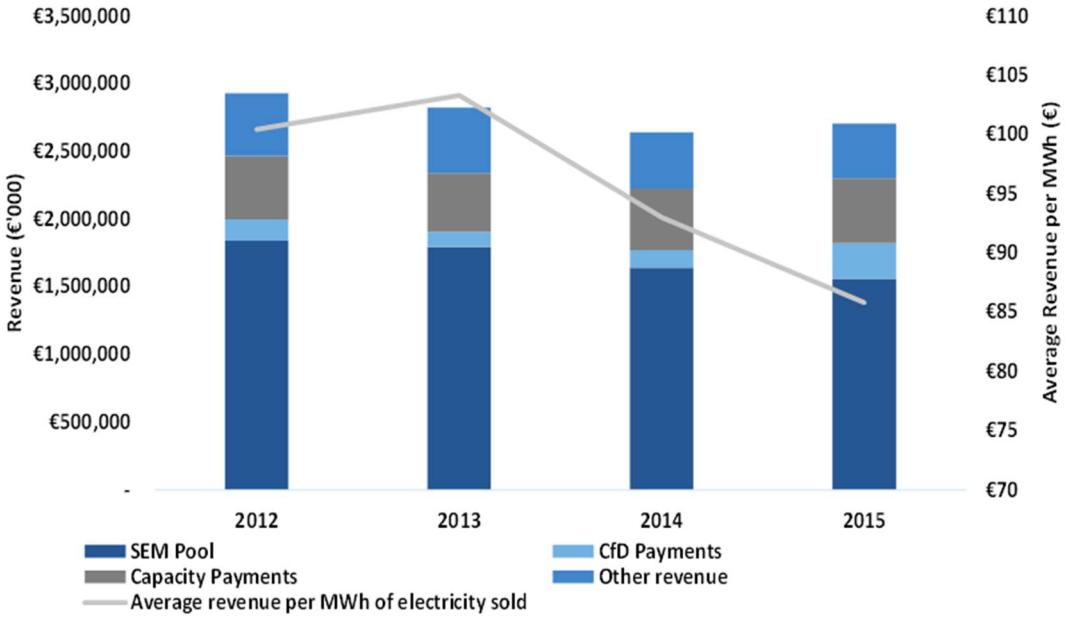
Table 3.16: Breakdown of financial reporting template data in MWh terms by generation type – FY2015

Financial year 2015 (€ per MWh of electricity sold)	Total	Renewables	Price Taker	Baseload	Mid Merit	Peak
Volume of Electricity Sold - MWh	31,616,479	6,449,526	2,541,628	7,449,287	14,710,308	465,731
Revenue (€/MWh)	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Revenue from SEM Pool	€49	€44	€50	€48	€48	€177
Revenue from Contract/Difference Payments	€8	€7	€14	€6	€6	€118.75
Revenue from Capacity Payments	€15	€3	€7	€7	€12	€406
Other Revenue	€12	€18	€37	€1	€10	€56
Total Revenue	€84	€73	€108	€62	€76	€757
Operating Costs (€/MWh)	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**	**€'000**
Fuel Related Operating Costs	€37	€.02	€61	€29	€48	€178
Non-fuel Operating Costs	€20	€21	€16	€11	€15	€285
Total Operating Costs	€56	€21	€77	€41	€63	€463
EBITDI (€/MWh)	**€28**	**€51**	**€31**	**€21**	**€12**	**€295**
Depreciation & Impairment	€16	€24	€21	€7	€12	€138
EBIT (€/MWh)	**€12**	**€27**	**€10**	**€14**	**€1**	**€157**
Interest & Tax	€5	€17	€.55	€1	€1.12	€35.64
Net Profit (€/MWh)	**€8**	**€11**	**€9**	**€13**	**(€)**	**€121**
Operating Margin - %	**33%**	**71%**	**28%**	**34%**	**16%**	**39%**
Net Margin - %	**9%**	**14%**	**8%**	**21%**	**-1%**	**16%**

3.3. Revenue and Cost breakdown – FY2012 to FY2015

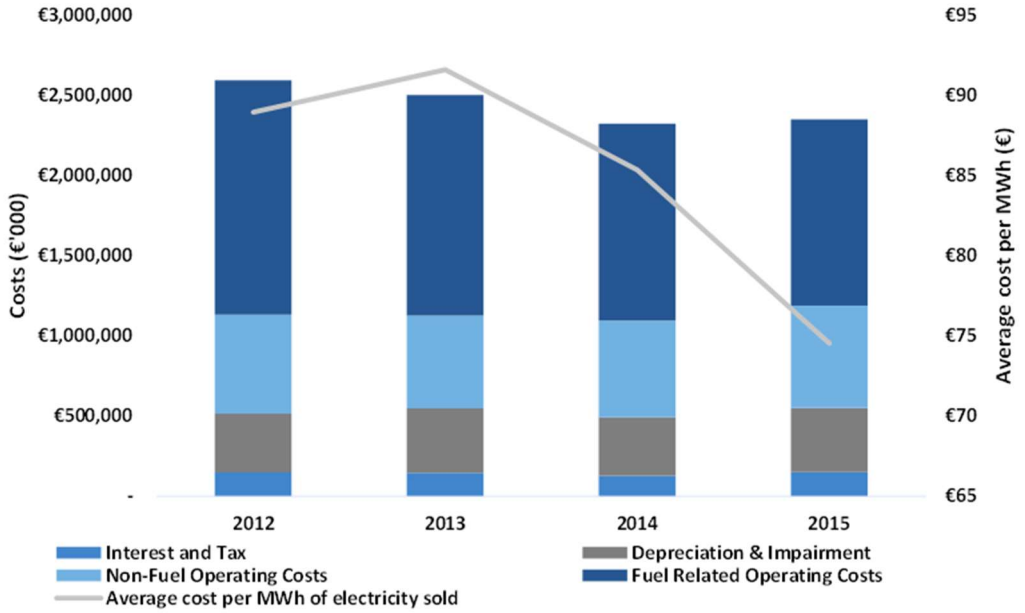
Figure 3.26 and Figure 3.27 present a breakdown in revenues and costs across all generators between FY2012 and FY2015. Total revenues have been on a downward trend since FY2012 and this has been matched by a decrease in costs of a similar magnitude. As already mentioned, SEM pool revenues are the largest contributor to total generator revenues followed by capacity payments and other revenue which tend to contribute similar amounts to total revenue. Contract for Difference payments are the smallest revenue stream out of those studied, only contributing 5% of total revenues in FY2014. However, their contribution increased to 10% of total revenues in FY2015 to partially compensate for a decrease in SEM pool revenues. Based on these observations it follows that average revenue per MWh of electricity sold has been on significant downward trend, falling from €103 per MWh in FY2013 to €86 per MWh in FY2015.

Figure 3.26: Breakdown of generator total revenues between FY2012 and FY2015



Turning to generator costs, total costs have also been on a downward trend since FY2013. Average cost per MWh of electricity sold has decreased from €92 in FY2013 to €75 in FY2015. Fuel related operating costs are the most significant cost category followed by non-fuel related operating costs. Interest & tax costs are fairly negligible, only accounting for 6% of total costs in FY2014. A more detailed breakdown of revenues and costs by fuel source and generation type is presented in Annex B.

Figure 3.27: Breakdown of generator total costs between FY2012 and FY2015 (excluding large impairment charges)



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4. REGULATED ACCOUNTS

This section presents analysis of a number of financial ratios used to examine the historical financial performance of SEM generators. The analysis is based on regulated accounts received by the RAs for the years 2014 and 2015. All generators with generation capacity greater than 10MW are required to submit regulated financial accounts to the RAs. The lower threshold means that some generators are required to submit regulated accounts but not financial reporting templates. Unlike the financial reporting templates, regulated accounts are reported at company or group level not at individual generation unit level therefore the analysis cannot be replicated to the same level of granularity. This also means that some companies report numbers in their regulated accounts that may include revenues and costs associated with parts of their business other than electricity generation in the SEM. This does not apply to the vast majority of accounts received and where it was necessary, we have tried to identify those revenues and costs related specifically to the electricity generation business. However some caution is recommended in interpreting the results of this section and comparing them with the data from the financial reporting templates.

For an explanation of some of the financial terms used in this section please refer to Appendix A.

4.1. Overview of accounts

Table 4.1 shows the aggregated revenues, operating costs, operating profits and net profit margins for generators who submitted regulatory accounts. For comparability with the previous reports the table summarises financial accounts data submitted by some of the larger SEM generators. These generators are ESB Power Generation, Coolkeeragh, Synergen, Tynagh Energy, SSE Generation Ireland, AES Ballylumford, AES Kilroot, Huntstown Power Company, Viridian Power and Bord Gais Energy (BGE), which together represented approximatively 80% of the market in 2014 and 2015. We have also calculated in the table earnings and net profit margins excluding impairment charges to remove potential differences due to very high impairment costs reported in some years.

The financial accounts data shows both revenues and operating costs have fallen in 2014 and 2015 compared to the previous few years but profit margins have remained relatively stable (when excluding impairment charges) which confirms the trend observed in the financial reporting templates.[26]

[26] The profit margins based on regulated accounts are slightly different than the ones based on the reporting templates for the respective years due to the fact that regulated accounts data has been summarised only for a sub-set of SEM generators.

Table 4.1: Overview of generator financial performance based on submitted regulatory accounts (2007 to 2015)

Profit and Loss data (€m)	2007	2008	2009	2010	2011	2012	2013	2014	2015
Revenue	€ 2,743	€ 3,229	€ 2,666	€ 2,418	€ 2,479	€ 2,495	€ 2,411	€ 2,190	€ 2,165
Other operating income	€ 112	€ 50	€ 40	€ 40	€ 68	€ 40	€ 22	€ 57	€ 45
Total Revenue	€ 2,855	€ 3,279	€ 2,706	€ 2,458	€ 2,547	€ 2,535	€ 2,432	€ 2,247	€ 2,210
Operating costs*	€ 2,099	€ 2,497	€ 1,716	€ 1,776	€ 1,884	€ 1,822	€ 1,835	€ 1,650	€ 1,613
Earnings before interest, tax, depreciation and impairment (EBITDI)	€ 755	€ 782	€ 991	€ 682	€ 663	€ 713	€ 597	€ 597	€ 597
Impairment	€ 0	€ 0	€ 0	€ 108	€ 1	€ 259	€ 268	€ 1	€ 79
Depreciation	€ 162	€ 162	€ 206	€ 234	€ 211	€ 225	€ 215	€ 247	€ 238
Earnings before interest and tax (EBIT)	€ 593	€ 619	€ 785	€ 339	€ 450	€ 230	€ 114	€ 349	€ 280
EBIT excl. impairment charges	**€ 593**	**€ 619**	**€ 785**	**€ 447**	**€ 451**	**€ 489**	**€ 382**	**€ 350**	**€ 359**
Interest and financing costs	€ 63	€ 86	€ 48	€ 39	€ 90	€ 39	€ 37	€ 44	€ 29
Profit before tax (PBT)	€ 530	€ 533	€ 737	€ 300	€ 360	€ 191	€ 77	€ 310	€ 235
Tax	€ 72	€ 78	€ 101	€ 70	€ 56	€ 53	€ 48	€ 21	€ 7
Profit after tax (PAT)	€ 458	€ 456	€ 636	€ 230	€ 304	€ 138	€ 30	€ 284	€ 243
PAT excl. impairment	**€ 458**	**€ 455**	**€ 636**	**€ 338**	**€ 305**	**€ 397**	**€ 297**	**€ 285**	**€ 323**
Operating Profit Margin (EBITDI/Turnover)	**26%**	**24%**	**37%**	**28%**	**26%**	**28%**	**25%**	**27%**	**27%**
Net Profit Margin (PAT/Turnover)	16%	14%	23%	9%	12%	5%	1%	13%	11%
Net Profit Margin excl. impairment	**16%**	**14%**	**23%**	**14%**	**12%**	**16%**	**12%**	**13%**	**15%**

** Operating costs reported here include both 'cost of goods sold' and 'operating costs' as there were observed inconsistencies in the way companies reported these types of costs. For this same reason, operating profit margins are assessed in this report.*

The previous reports noted that there can be a lag between the revenue/profits reported in one year in the regulated accounts and the next. This can be explained by hedging, i.e. CfDs, the majority of which have historically been sold by generators up to approximately a year-ahead. However, this lag effect has been diluted in recent years as more contracts are offered closer to "delivery" and/or the SMP outturn has been closer to the contract price.

4.2. Profitability ratios

Profitability ratios have been computed across two categories: Return on Sales and Return on Investment. For each of the profitability ratios, a higher ratio indicates greater profitability.

In terms of Returns on Sales, the Operating and Net Profit Margins of generation companies have been assessed. Operating Profit Margin is calculated as Earnings before Interest and Tax divided by total revenue. An increasing Operating Margin can indicate a higher Gross Margin (e.g. if SMP increases) and/or improvements in controlling Operating Costs, such as maintenance, payroll and administrative overheads. The Net Profit Margin is calculated as the Profit after Tax divided by total revenue. These margins have been calculated on the same basis as for the financial reporting templates.

Three ratios were examined in relation to Return on Investment: Return on Assets (ROA), Return on Fixed Assets (ROFA) and Return on Capital Employed (ROCE). Please refer to Appendix A for a definition of these terms.

The table below sets out a summary of the historic profitability ratios for the various electricity generation companies that have been examined.

One thing to note is that return on investment ratios may not move in sync with profit margins. This is due to the fact that when revenues and costs decline in similar proportions, profit margins remain stable however the return on investment ratios will decline assuming the value of the assets and capital employed remains relatively stable from one year to the next.

We also note the potential impact of exchange rate movements. The analysis in this report is conducted in Euros, however Northern Irish generators report financial data in GBP. The total asset value for Northern Ireland generators is likely to be determined in GBP and hence its value in Euros will vary with the exchange rate whereas revenues in the SEM are specified in Euros hence these values are not affected by exchange rate movement.

Table 4.2: Overview of generator profitability ratios (2008 to 2015)

Profitability ratio	2008	2009	2010	2011	2012	2013	2014	2015	Average
Earnings before interest and tax (EBIT) (€m)	€ 619	€ 785	€ 447	€ 451	€ 489	€ 382	€ 350	€ 359	€ 485
Profit after tax (PAT) (€m)	€ 455	€ 636	€ 338	€ 305	€ 397	€ 297	€ 285	€ 323	€ 379
Return on Sales									
Operating Profit Margin (EBITDI/Turnover)	24%	37%	28%	26%	28%	25%	27%	27%	28%
Net Profit Margin (PAT/Turnover)	16%	14%	23%	14%	12%	16%	13%	15%	15%
Return on Investment									
Return on Capital Employed (EBIT/capital employed)	26%	22%	12%	12%	15%	13%	15%	14%	16%
Return on Fixed Assets (PAT/Fixed Assets)	16%	17%	9%	8%	12%	10%	12%	11%	12%
Return on Assets (PAT/Total Assets)	11%	13%	7%	7%	9%	10%	9%	9%	9%

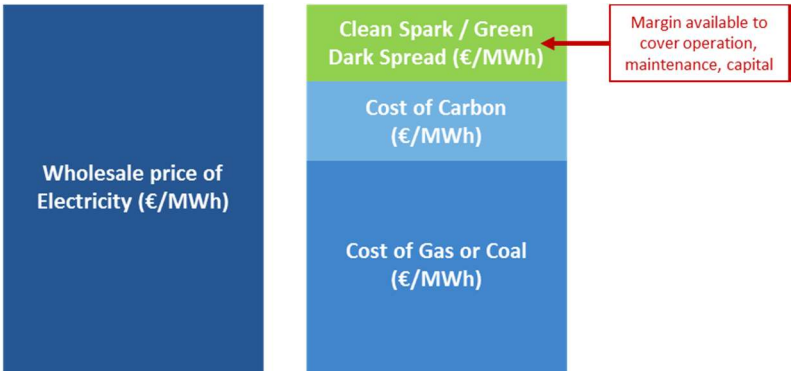
Note: The earnings and return ratios in this table are calculated excluding impairment charges.

5. SPARK AND DARK SPREAD ANALYSIS

Of great significance to thermal generators are spreads between power prices and fuel/input costs. This section presents the following two spreads:

- **Clean spark spread:** The spark spread is the theoretical gross margin of a gas-fired power plant from selling a unit of electricity, having bought the fuel required to produce this unit of electricity, with an efficiency of 49.13%.[27] The *clean spark spread* also takes account of the cost of carbon.
- **Dark green spread**: The dark spread is the gross margin of a coal plant accounting for the coal input and the assumed efficiency level of 35%; the *dark green spread* also takes account of the cost of carbon.

It is important to bear in mind that these spreads are the theoretical gross income of a plant selling a unit of electricity, and it must recover all of its additional costs (operation, maintenance, capital) from this spread to be able to break even or earn a profit.



The clean/green spreads have been estimated including the costs of carbon permits, demonstrated through spot prices of the European Carbon Emission Allowances.[28] In addition, in GB a carbon price support scheme (CPS) was implemented in 2013. The carbon price support differs by fuel and is levied on top of the EU carbon permits.[29] The CPS was not included in the spark and dark spread analysis presented in the previous report as the levy was only recently introduced at the time. In this report, spark and dark spread analysis has been conducted both with and without taking the CPS rate into account for GB.

The two figures below present the clean spark spread and the dark green spread levels in SEM and GB, for September 2011 to March 2016.

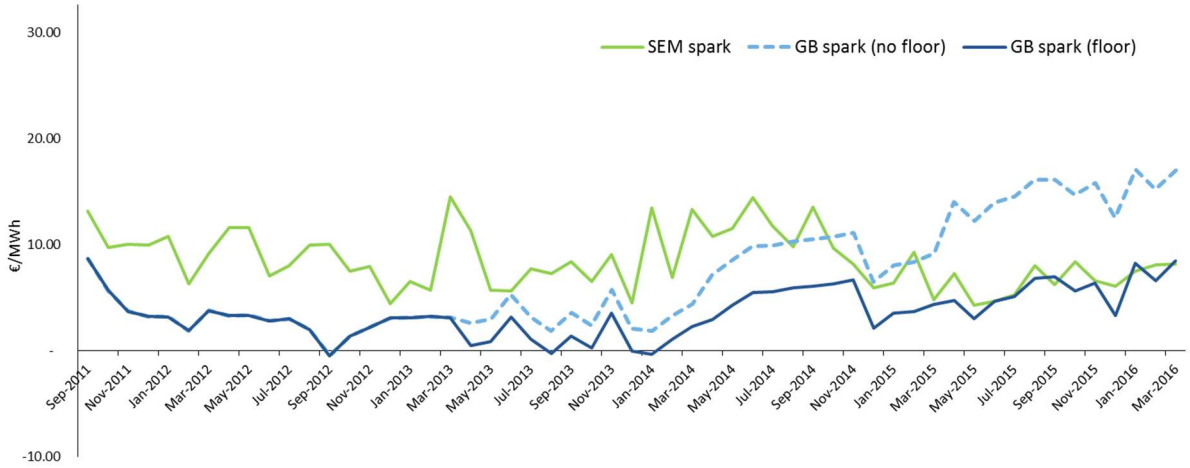
[27] The efficiency used for the GB spark spread is 50% to represent a unit with mid-range efficiency as reported by Ofgem: https://www.ofgem.gov.uk/chart/spark-and-dark-spreads-gb

[28] As reported by the London Energy Brokers' Association Monthly OTC Energy Volume reports

[29] The Climate Change Levy rates are available at the following site: http://www.envantage.co.uk/carbon-management/climate-change-levy-agreement/climate-change-levy-rates.html

The SEM clean spark spread is higher than the GB clean spark spread before mid-2015, but the gap has generally narrowed over time with the two around the same levels in 2015 and 2016. If the GB clean spark spread did not take account of the GB CPS, the GB spread would have increased from early 2014 and been higher than the SEM spread from 2015; the GB carbon price support has caused the two spark spreads to converge where they would otherwise have diverged. This spark spread convergence has been determined by the larger fall in SEM electricity prices relative to GB electricity prices (given that gas prices in SEM are marginally higher than in GB and follow the same shape). Throughout this four-and-a-half year period the SEM spark spread did not fall below zero, whereas the GB spark spread fell below zero three times.

Figure 5.1: Clean spark spread - SEM vs. GB (Sep 2011 to Mar 2016)



The dark green spread for SEM has been consistently higher than that for GB over the period September 2011 to March 2016 (from late 2014 the GB spread would have been higher if the GB carbon price floor were not in place). The SEM dark spread closely follows movements in electricity prices. The close correlation with electricity prices is due to the coal price being generally stable with the spread being largely determined by changes in electricity prices (see Figure 2.2).

Figure 5.2: Dark green spread - SEM vs. GB (Sep 2011 to Mar 2016)

When analysing and comparing spreads it is worth considering the following points:

- Higher/lower spreads do not necessarily translate into higher/lower generator profits. This is because the total revenue earned also depends on the level of utilisation of the plant. When the utilisation level goes down, the generator is likely to require a higher spread in order to cover its fixed costs. Therefore different spreads between SEM and GB do not necessarily translate into different profitability of generators in the two markets particularly if the utilisation of gas/coal plants in the two markets is different.
- Structural differences in the generation mix and market design between SEM and GB may influence the level of spreads. For example, generators in SEM can also earn capacity payments whereas BETTA is an energy market only which means that, all else equal, GB generators would require a higher spread to cover their fixed costs. The convergence of prices in recent years may reflect changing conditions in the two markets. For a number of years, relatively low GB electricity prices may have deterred investment in new generation capacity. As the capacity margins in GB have become tighter in the last couple of years due to closure of coal plants and outages of nuclear plants, relatively higher spreads have emerged (or at least spreads not falling as fast as in the SEM).
- Market differences: the GB electricity market is a larger market with a less steep supply curve but also dominated by large vertically integrated firms.

ANNEX A DEFINITION OF FINANCIAL TERMS

Depreciation is a method of allocating the cost of an asset over its useful life. It reflects the decrease in the value of the asset over time due to wear and tear.

EBIT (Earnings before interest and tax): the Gross Profit minus operating costs minus depreciation.

EBITDI (Earnings before interest tax, depreciation and impairment): the Gross Profit minus operating costs minus depreciation and minus impairment.

Gross Profit: the total generator revenue received through the pool, minus the cost of the generator bids (fuel costs etc.), referred to as inframarginal rent, to which the capacity payments received by generators are then added.

Gross Margin: gross profit expressed in terms of a % of revenue.

Impairment of assets is the diminishing in quality, strength, amount, or value of an asset. It is included under expenses when the book value of a non-current asset exceeds the recoverable amount.

Operating Profit: the gross profit minus semi-fixed costs such as insurance and salaries but excluding finance costs.

Operating Margin: operating profit expressed in terms of a % of revenue.

Net Profit: the gross profit minus semi-fixed and fixed costs such as depreciation/finance.

Net Margin: net profit expressed in terms of a % of revenue.

PBT (Profit before tax): the money retained before deducting the payment of taxes. PBT is stated post interest payments. Thus, it can be calculated by subtracting the interest from EBIT.

Return on Sales and Return on Investment: For each of the profitability ratios, a higher ratio indicates greater profitability.

ROCE (return on capital employed) measures the return (before interest and tax) earned on the total capital employed (Total Assets less Current Liabilities) in the business.

ROFA (return on fixed assets) measures the return (profit after tax) earned by a company on non-current assets, including property, plant and equipment and intangible assets. Given the varying levels of current assets held by each company, this can offer a better insight into the profitability derived from a company's core assets.

ROA (return on assets) measures the return (profit after tax) earned by a company on all its assets - the higher the ratio, the more income is generated by a given level of assets.

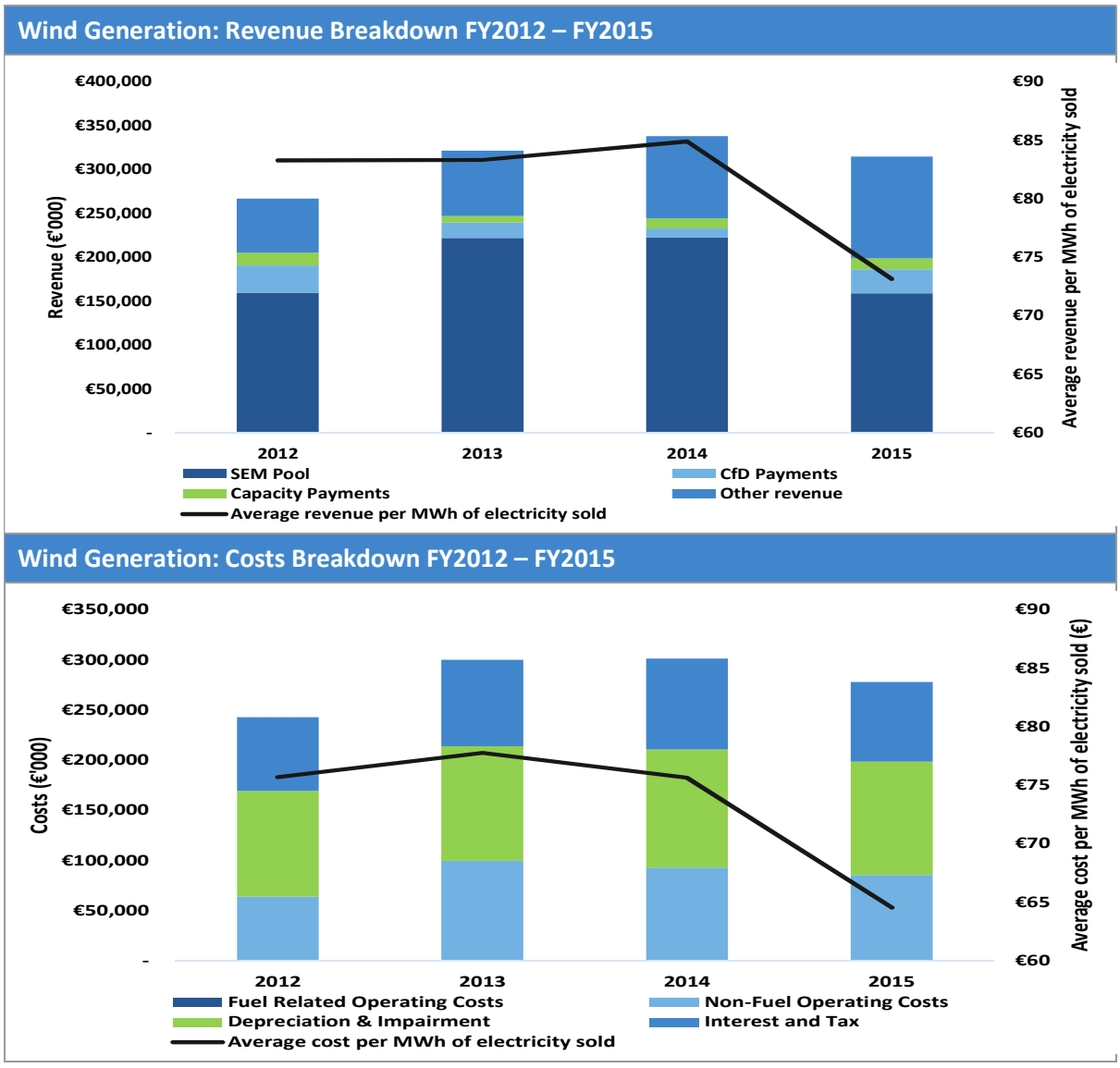
ANNEX B BREAKDOWN OF REVENUE AND COSTS – FINANCIAL REPORTING TEMPLATE DATA

B.1. By Fuel Type

This section presents revenue and costs breakdown by fuel type across FY2013, FY2014 and FY2015. In each cost chart we also plot average costs for each MWh of electricity sold to give an indication of whether total costs are moving in line with the volume of electricity generation. Similarly, in each revenue chart we plot average revenue for each MWh of electricity sold to give an indication of whether revenue is moving in line with the volume of electricity generation.

B.1.1. Wind Generation

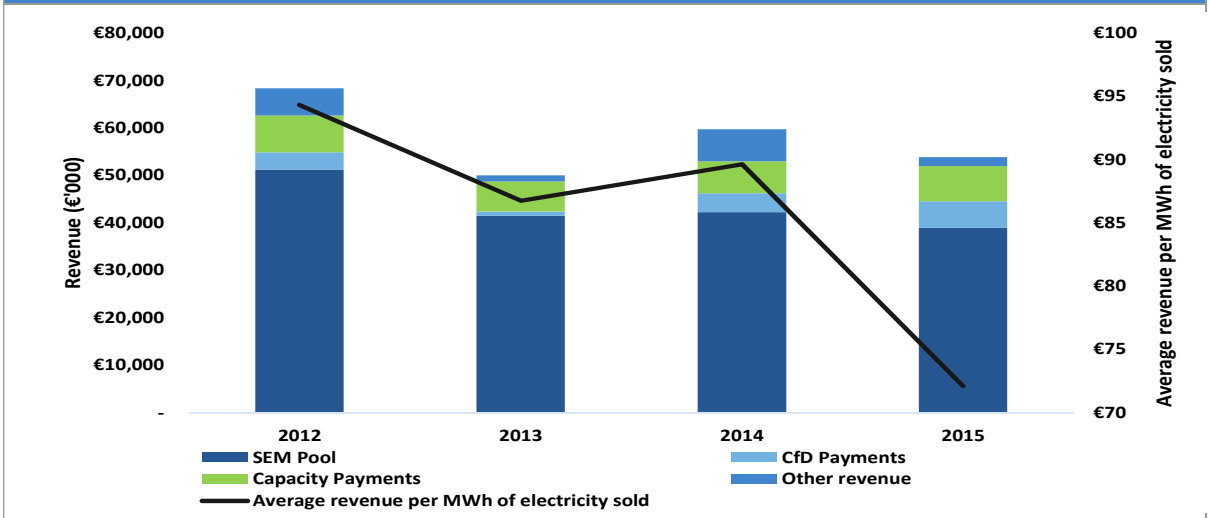
Table 5.1: Wind Generation – Revenue and Costs Breakdown FY2012 to FY2015



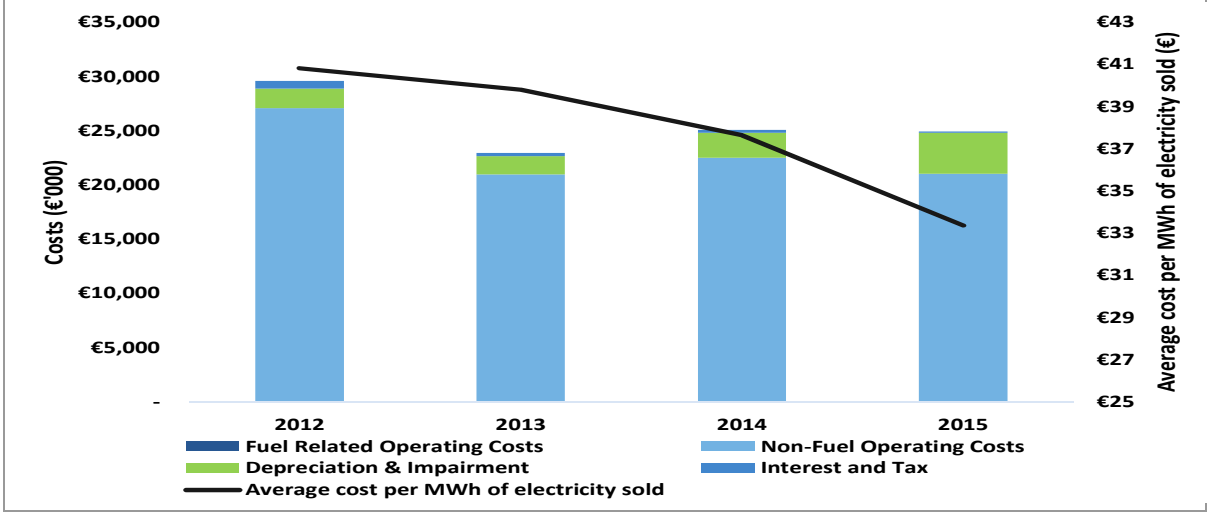
B.1.2. Hydro Generation

Table 5.2: Hydro Generation – Revenue and Costs Breakdown FY2012 to FY2015

Hydro Generation: Revenue Breakdown FY2012 – FY2015



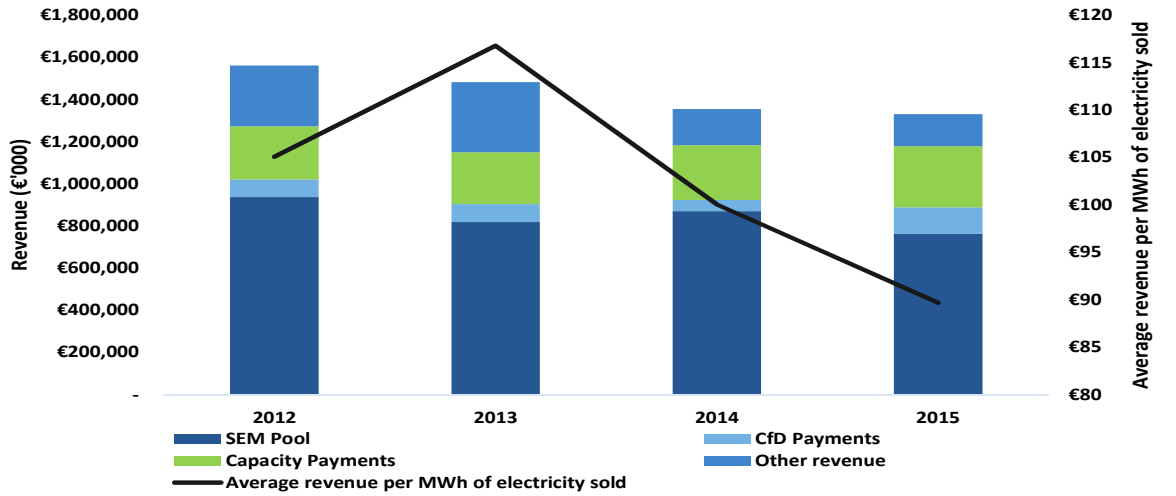
Hydro Generation: Costs Breakdown FY2012 – FY2015



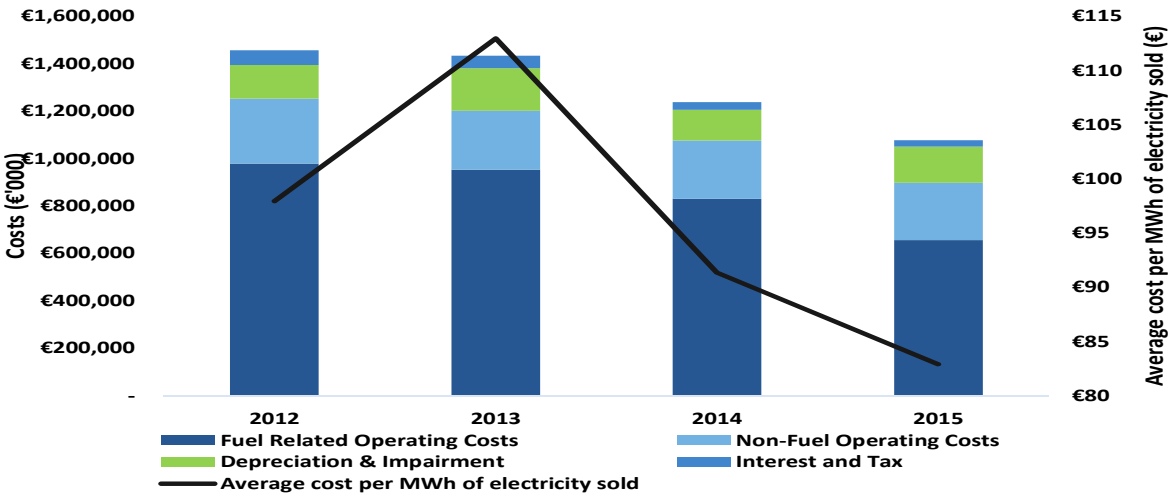
B.1.3. Gas Generation

Table 5.3: Gas Generation – Revenue and Costs Breakdown FY2012 to FY2015

Gas Generation: Revenue Breakdown FY2012 – FY2015

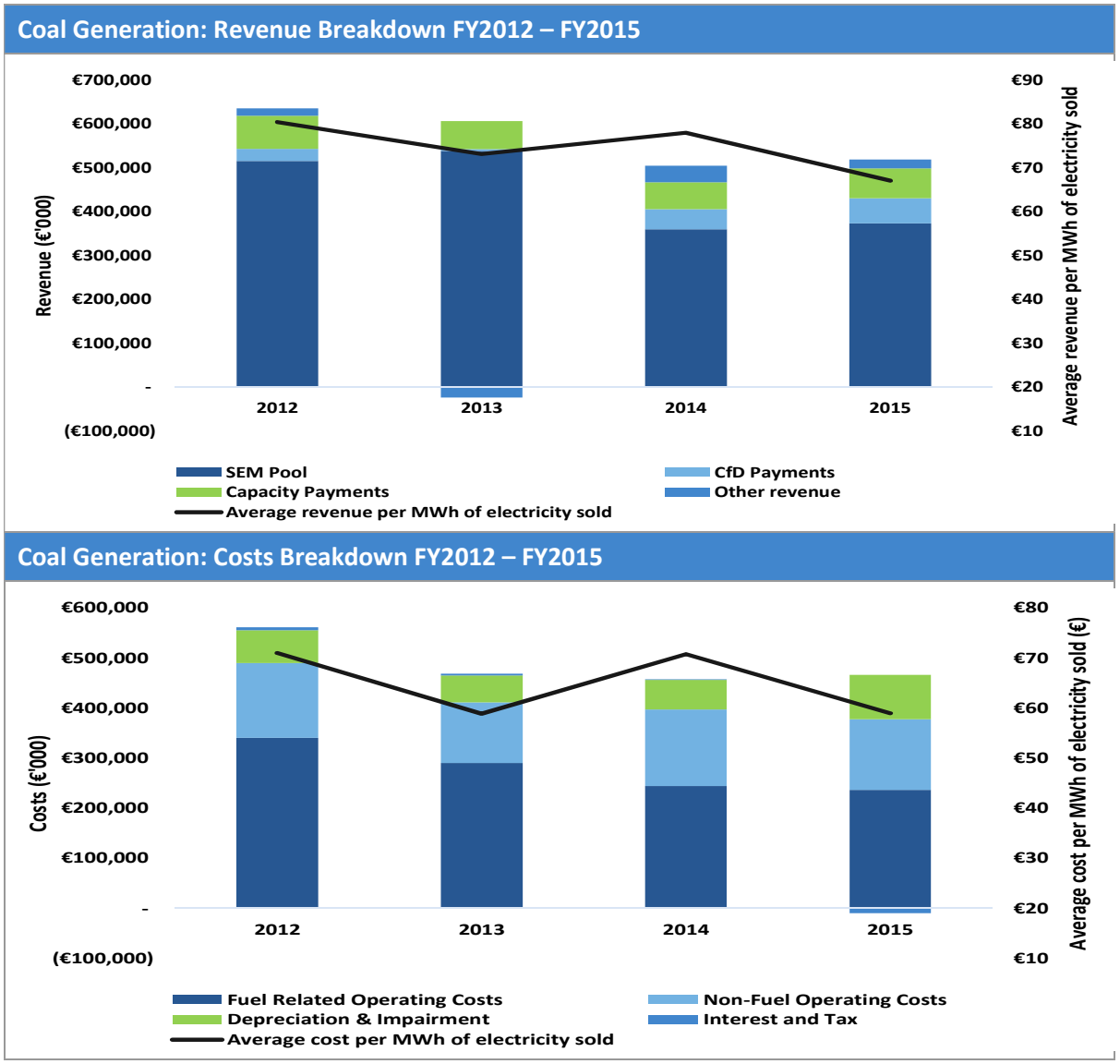


Gas Generation: Costs Breakdown FY2012 – FY2015



B.1.4. Coal Generation

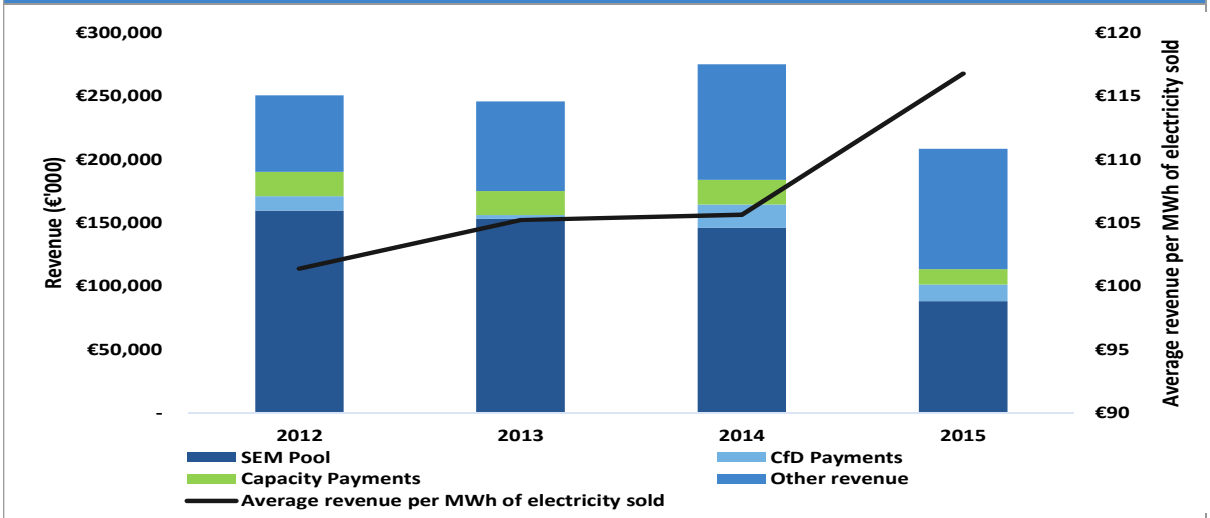
Table 5.4: Coal Generation – Revenue and Costs Breakdown FY2012 to FY2015



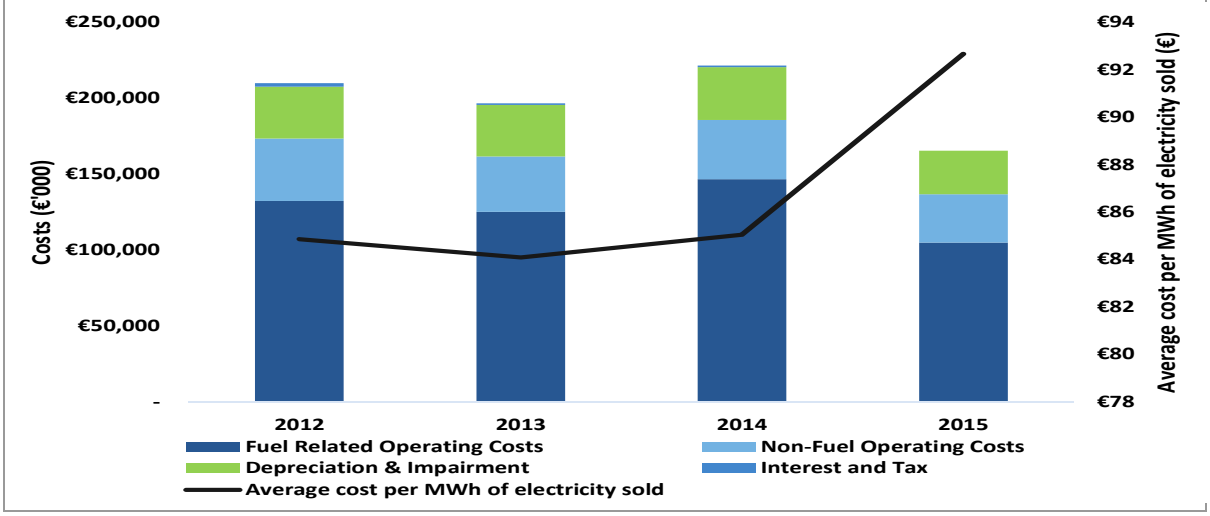
B.1.5. Peat Generation

Table 5.5: Peat Generation – Revenue and Costs Breakdown FY2012 to FY2015

Peat Generation: Revenue Breakdown FY2012 – FY2015

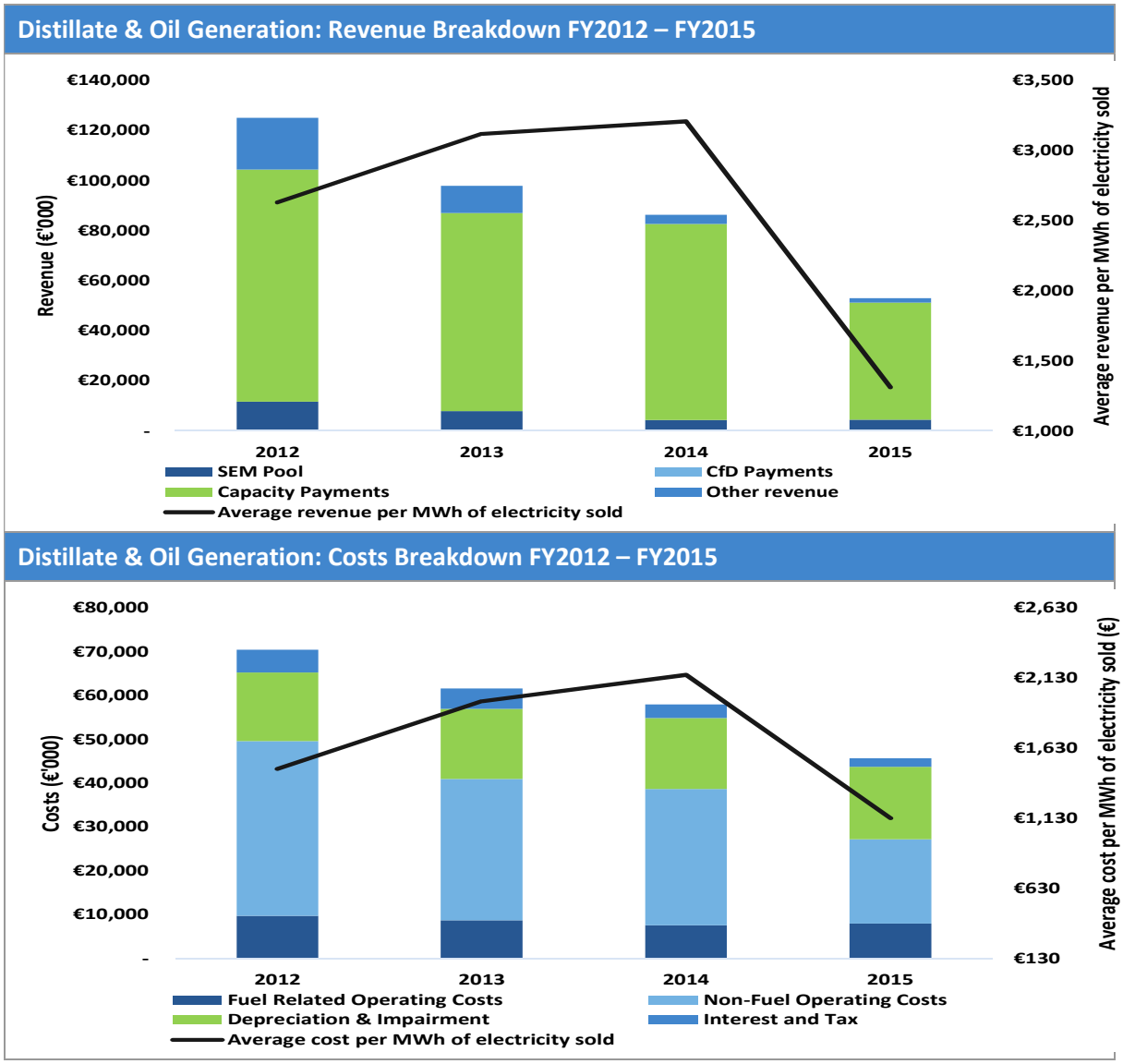


Peat Generation: Costs Breakdown FY2012 – FY2015



B.1.6. Distillate & Oil Generation

Table 5.6: Distillate & Oil Generation – Revenue and Costs Breakdown FY2012 to FY2015

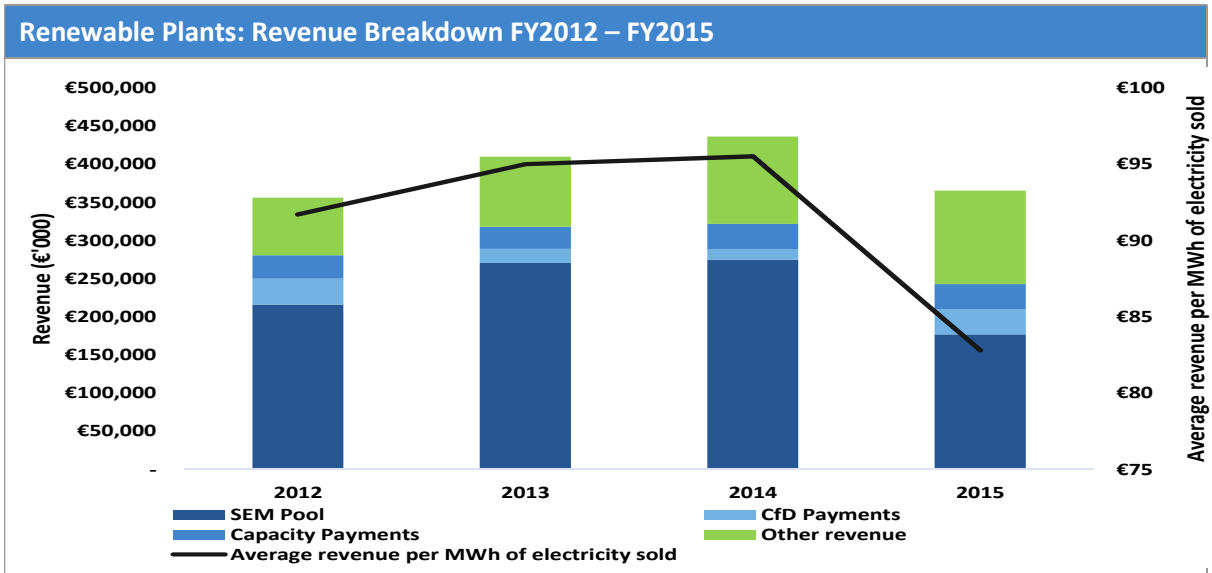


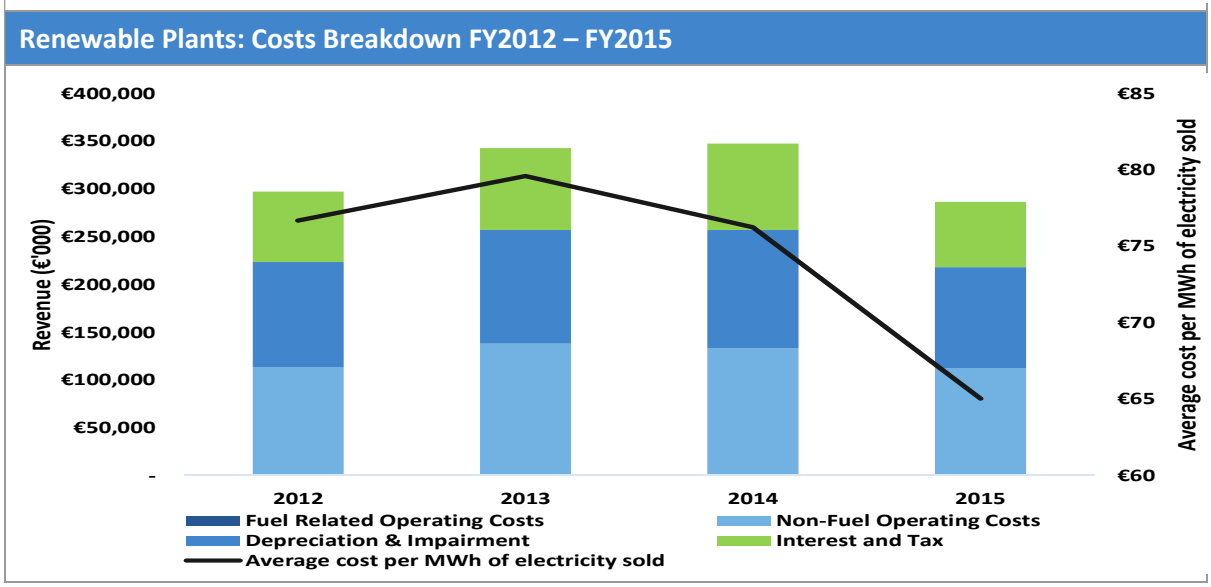
B.2. By Generation Type

This section presents revenue and costs breakdown by generation type across FY2013, FY2014 and FY2015. In each cost chart we also plot average costs for each MWh of electricity sold to give an indication of whether total costs are moving in line with the volume of electricity generation. Similarly, in each revenue chart we plot average revenue for each MWh of electricity sold to give an indication of whether revenue is moving in line with the volume of electricity generation.

B.2.1. Renewable Generation Plants

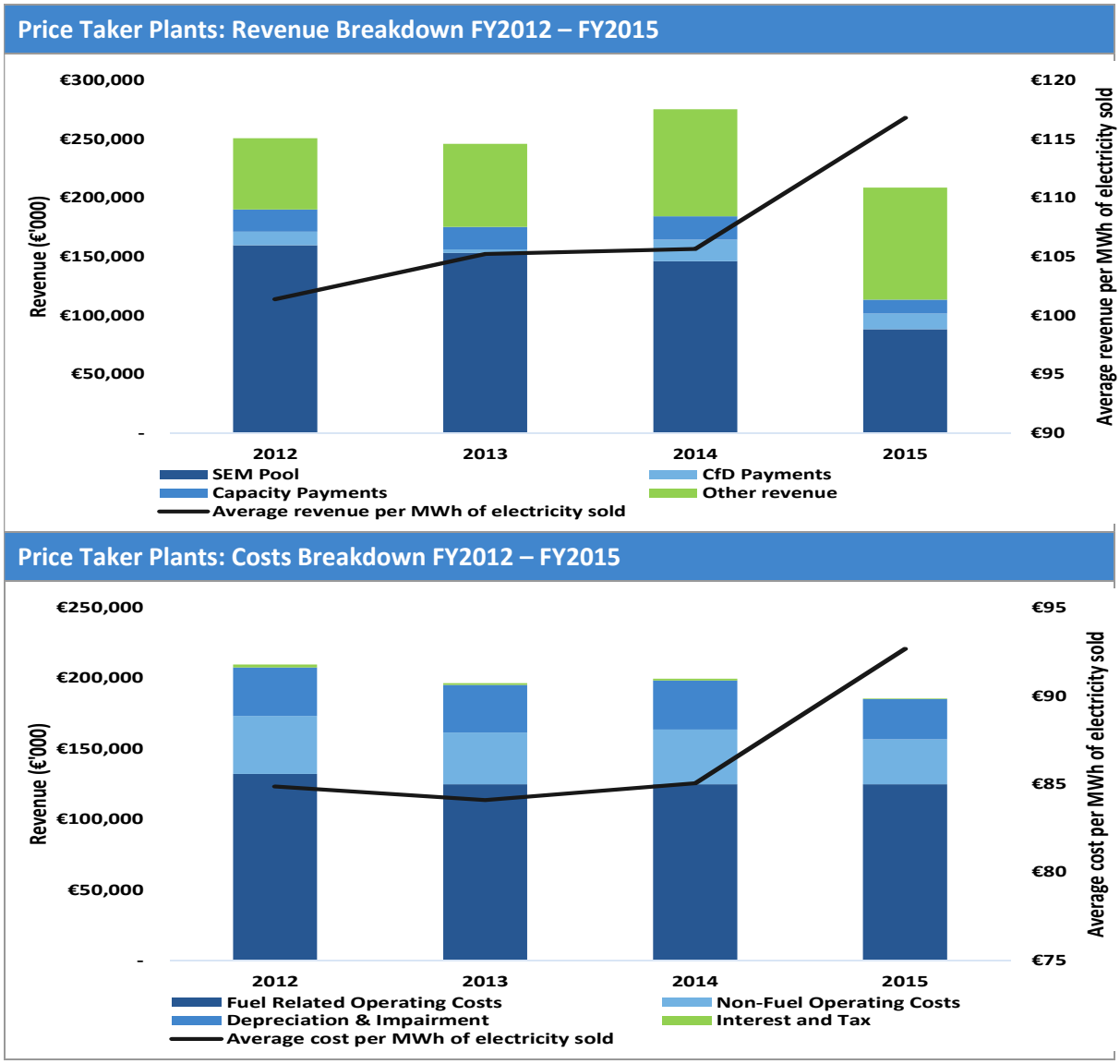
Table 5.7: Renewable Plants – Revenue and Costs Breakdown FY2012 to FY2015





B.2.2. Price Taker Generation Plants

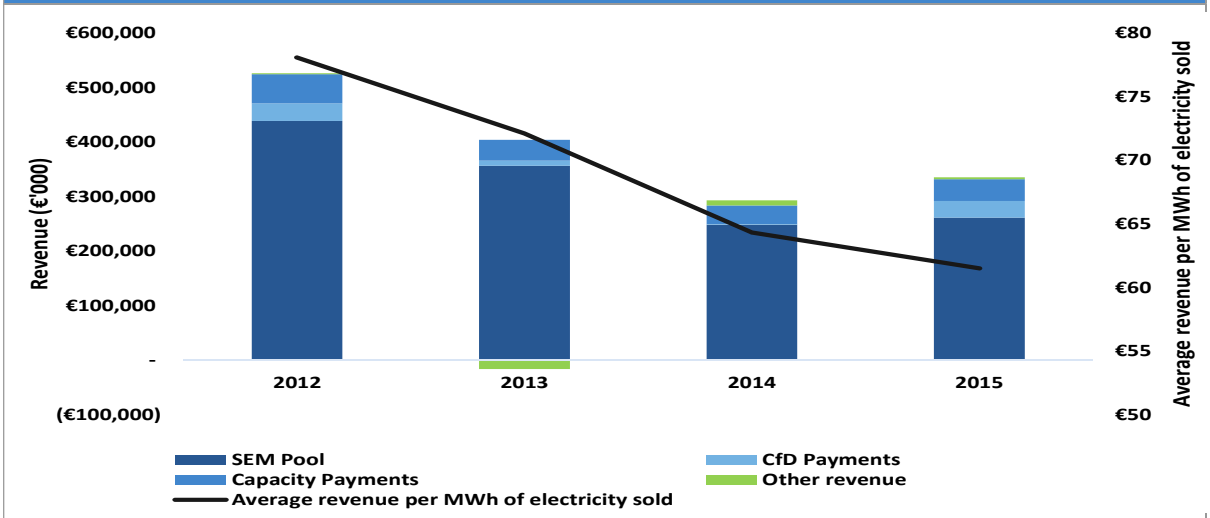
Table 5.8: Price Taker Plants – Revenue and Costs Breakdown FY2012 to FY2015



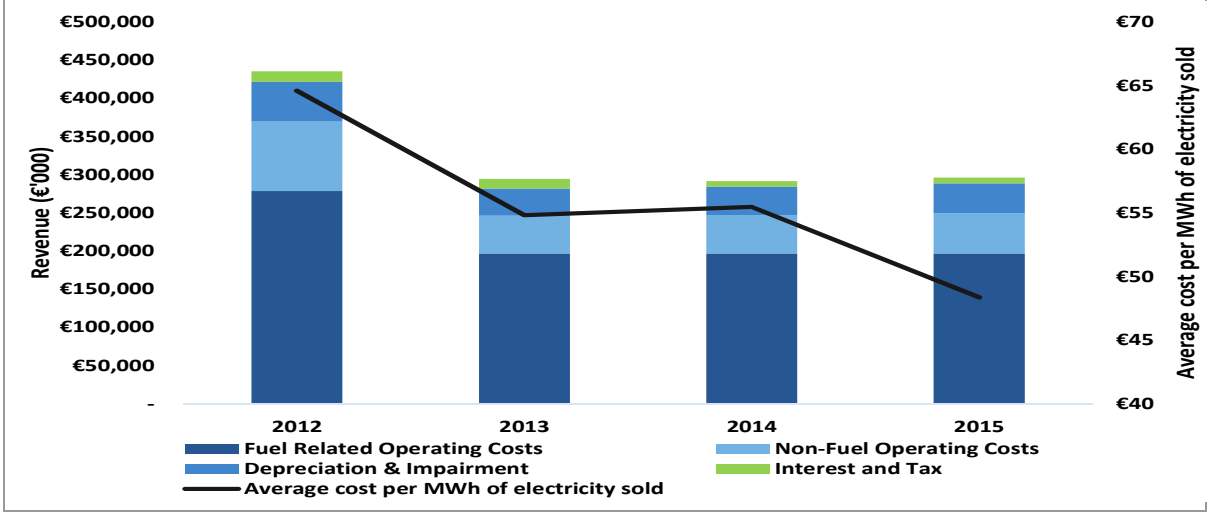
B.2.3. Baseload Generation Plants

Table 5.9: Baseload Plants – Revenue and Costs Breakdown FY2012 to FY2015

Baseload Plants: Revenue Breakdown FY2012 – FY2015

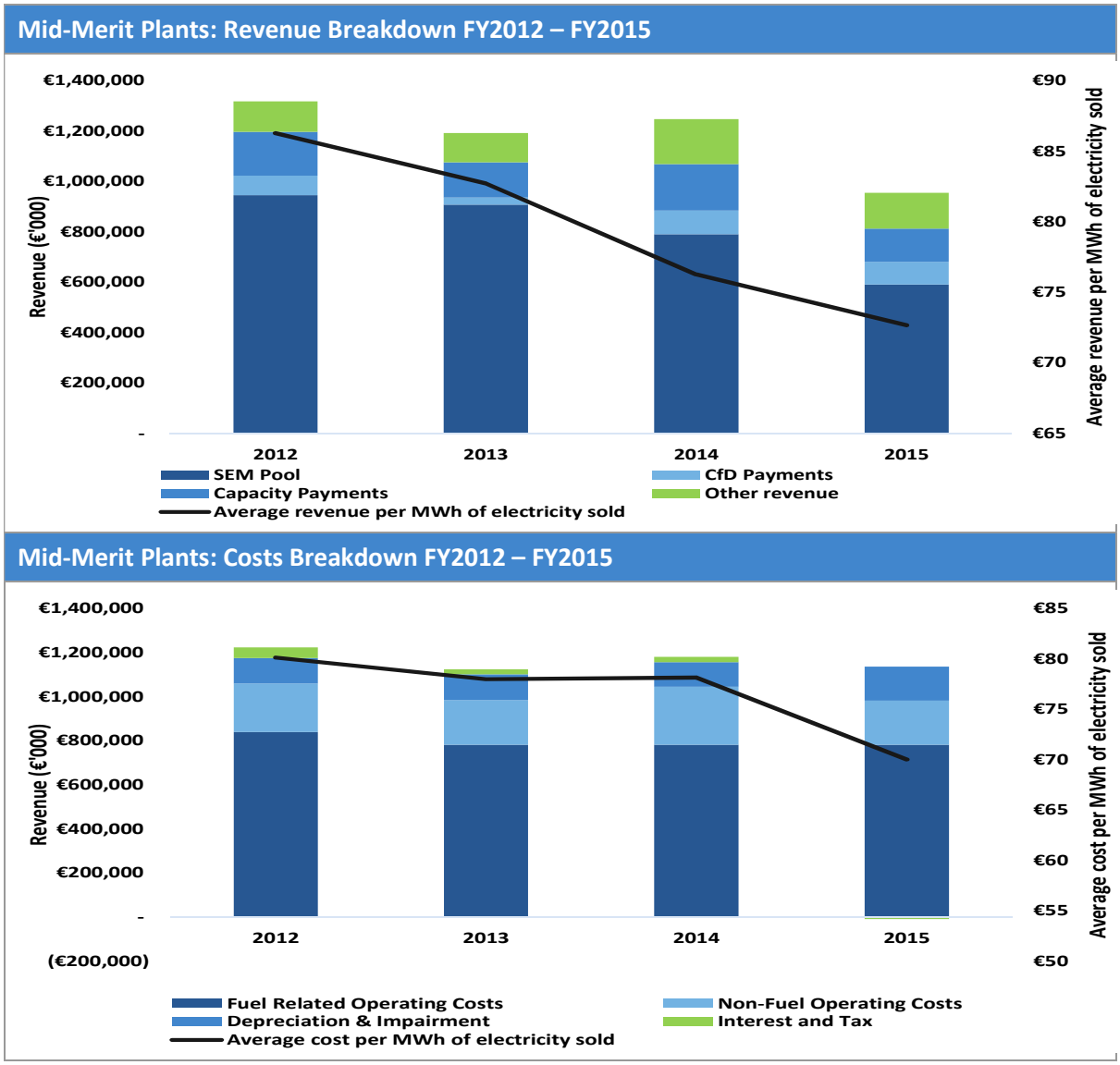


Baseload Plants: Costs Breakdown FY2012 – FY2015



B.2.4. Mid-Merit Generation Plants

Table 5.10: Mid-Merit Plants – Revenue and Costs Breakdown FY2012 to FY2015



B.2.5. Peak Generation Plants

Table 5.11: Peak Plants – Revenue and Costs Breakdown FY2012 to FY2015