

Wind Energy Feed-In Tariff Subsidies

Overview of Recent Policy Changes

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Introduction to Policy Changes to Wind Energy Feed-In Tariffs

1. Introduction

- 1.1 The aim of this paper is to provide a broad understanding of the recent policy changes to the Feed-in-Tariff (*FiTs*) renewable energy subsidy scheme. The official documentation relating to these changes runs into hundreds of pages spread over a number of publications from different sources; most parts are particularly complex and thus not every aspect could be included in this paper. Whilst the *FiTs* scheme covers the majority of renewable energy technologies only wind energy is covered herein.
- 1.2 As will be evident later, some parts of the new policy 'model' will be fluid with some important components flexing and changing under certain circumstances; it follows that the figures quoted herein will, going forward, could also change. They are however accurate as of date of this paper being the 18th April 2016.
- 1.3 The policy changes were progressively introduced from 1st October 2015 and fully implemented on the 8th February 2016.
- 1.4 Whilst the *FiTs* subsidies still remain relatively generous, the changes will have a marked negative impact on the many turbine companies who have for far too long thrived from the 'renewable energy gold rush'. There also should be a notable reduction in the number of future planning applications for 'farm turbines'.

2. Terms Used

- 2.1 Before proceeding further it is necessary to explain a number of the commonly used terms within the *FiTs* policies and herein.

Installed Capacity

- 2.2 The maximum engineered output capability rating of an installation. This is a purely hypothetical figure that does not reflect the actual output but what could be achieved in perfect conditions.

Capacity Factor or Load Factor

- 2.3 Often expressed as a percentage of the *Installed Capacity*, this is what is actually produced (or is likely to be produced) as an average over a longer period; either a year, years or the lifetime of the installation. This is dictated by a number of factors, not least wind speeds, the type of wind, maintenance down time etc. An example being that some commercial wind installations only average around 20 - 28%, with some far less.

Full Accreditation

- 2.4 Before *FiTs* and/or the *Export Tariff* will be paid, *Full Accreditation* has to be obtained from Ofgem; to achieve this a number of criteria will have to be met including that the installation has been commissioned and, if applicable, is exporting electricity to the National Grid.

Pre-Accreditation

- 2.5 *Pre-Accreditation* is NOT available to sites of <50kW *Installed Capacity*. For sites >50kW and under 5000kW, *Pre-Accreditation* may be granted, subject to a number of criteria being met; these include that the installation has obtained full planning consent and, if

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applicable, a Grid connection is authorised. No payments are however made until *Full Accreditation* is granted, which has to occur within one year (with some minor exceptions) after *Pre-Accreditation*. The purpose of *Pre-Accreditation* is to guarantee what the actual starting *FiT* rate will be when *Full Accreditation* is eventually granted, despite the fact that the rates may have fallen (for new entrants only) between this *Pre-Accreditation* and *Full Accreditation* being awarded. Such a process assists a developer in gaining capital finance as the future income can be made certain.

Application(s)

- 2.6 Not to be confused with Planning Applications, unless otherwise stated the term *Application(s)* refers to the *Application* to Ofgem for either *Pre-Accreditation* or *Full Accreditation*.

Sub-Bands

- 2.7 Separate *Bands* are allocated for each renewable energy technology. Under each of these are *Sub-Bands* based on *Installed Capacity*.

DECC

- 2.8 This is the Government Department of Energy and Climate Change.

ROCs

- 2.9 The full name for ROCs is Renewable Obligation Certificates. This has been the key subsidy scheme for large commercial wind developments and the Government did pledge to end these from the 31st March 2016 ahead of the planned closure on the 31st March 2017. At this stage the legislation has yet to be passed and is likely to be obstructed by the House of Lords.

3. Feed in Tarrifs (FiTs) & Export Tariffs - Overview with Changes

- 3.1 Whilst *FiTs* subsidies are normally associated with 'farm' turbines and domestic solar, a little known fact is that the *FiTs* subsidy scheme covers renewable installations of up to 5MW *Installed Capacity* and thus could include a wind farm of c3 commercial scale turbines. Such installations would have normally opted for the ROCs scheme as outlined in paragraph 2.9 but *FiTs* has, does, and will, present a future alternative to ROCs.
- 3.2 A *FiT* is a subsidy payment (quoted in pence) for each kWh of electricity actually produced. Once an installation is operational and has gained *Full Accreditation* with Ofgem, *FiT* payments will be made for the next 20yrs; these being increased annually with the rate of inflation.
- 3.3 *Export Tariff* is in addition to *FiT* payments and is paid for each kWh of electricity exported to the National Grid. For example if a farm installation uses some of the electricity for its own use and the remainder is fed into the Grid, *FiT* payments will be made for all the produced electricity, plus the *Export Tariff* subsidy for the proportion exported into the Grid. If all the electricity was exported to the Grid both *FiTs* and *Export Tariff* will be paid for all the electricity produced. The *Export Tariff* is also for 20yrs and index linked.
- 3.4 The policy changes, occurred in phases and were fully implemented on the 8th February 2016; in broad terms they include:

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Future Closure of FiTs

- 3.5 The *FiTs* scheme will be completely closed to all new Applications as from the 31st March 2019 and at this stage it would appear there will be no replacement subsidy scheme. Those granted *Full Accreditation* by that date will still receive their index linked subsidy for the remainder of their 20yrs period.

Pre-Accreditation & Pausing all Applications

- 3.6 In order to allow a smooth transition the below two steps were taken:

Pre-Accreditation

- 3.7 *Pre-Accreditation* was ceased on the 1st October 2015 but was then re-introduced on the 8th February 2016.

Pause Period

- 3.8 A pause period was imposed between the 15th January 2016 and the 7th February 2016. During this no new Applications for *Full Accreditation* were processed but were placed in a queue until the 8th February 2016. These queued *Applications* were time and date stamped to provide an order in the queue.

Revised Installed Capacity Sub-Bands

- 3.9 From the 8th February 2016 the number of *Sub-Bands* in relation to wind were reduced from 6 to 4; the following illustrates:

<u>To 07/02/2016</u>	<u>From 08/02/2016</u>
≤1.5kW	<50kW
>1.5kW - 15kW	>50-100kW
>15kW - 100kW	>100–1500kW
>100kW - 500kW	>1500kW
>500kW - 1500kW	
>1500kW - 5000kW	

- 3.10 Each *Sub-Banding (Installed Capacity ranges)* will indicate the current and future default FiT rates per kWh of electricity produced. For example, wind may have a different *FiT* rate to solar of the same *Installed Capacity Sub-Banding*, and the *FiT* rate payments for either may also differ depending on the *Installed Capacity* of the installation.

Periods for FiT Rates

- 3.11 Historically *FiT* rates have progressively decreased, this being influenced by a number of factors such as a higher or lesser than expected number of *Applications* for *Pre-Accreditation* or *Full Accreditation*. The historic *FiT* Rate changes aligned to somewhat inconsistent and often extended time periods that ranged from just a few months to well over a year.
- 3.12 The previous haphazard *FiT Rate* periods have now been replaced by four equal *Quarters* in each year commencing on the 1st January and concluding on the 31st December.

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- 3.13 One exception to this related to the first quarter of 2016 whilst the changes were still being phased in. In that instance the then already existing *FiT Rate* period to the 15th January 2016 remained until to that date, after which the processing of all new *Applications* for *Full Accreditation* were paused until the 8th February 2016. The first *Quarterly* period commenced on the 8th February 2016 but still concluded on the 31st March 2016.
- 3.14 A further exception will be in 2019 when the *FiTs* scheme will be closed completely to new *Applications* on the 31st March 2019.

Quarterly Caps

- 3.15 The most fundamental change was that, rather than the previous bottomless pit, *Quarterly Caps* were introduced from the 8th February 2016; these Caps being individually aligned to each of the new *Installed Capacity Sub-Bands*, as illustrated above, and the *Quarterly* periods. The Caps apply to *Applications* for both *Pre-Accreditation* and *Full Accreditation*. The result will be a very tight constraint on the actual number of *Applications* that will be granted in each *Quarterly* period.
- 3.16 A few points need to be clarified:
- The new *Quarterly Caps* will not include sites granted *Pre-Accreditation* prior to the 1st October 2015 which then apply for *Full Accreditation* after the 8th February 2016
 - Where *Pre-Accreditation* for a site is awarded under one *Quarterly Cap* and it later gains *Full Accreditation* under a subsequent *Quarterly Cap*, only the initial *Pre-Accreditation* is included in a *Cap* total
- 3.17 These Caps are solely based on MW *Installed Capacity* and the first *Quarterly Cap* relating to wind is illustrated below:

<u>Installed Capacity</u>	<u>CAP MW's</u>
<50kW	5.6
>50-100kW	0.3
>100-1500kW	6.8
>1500kW-5000kW	5

- 3.18 The MW *Cap* level for each future *Quarterly Sub-Band* can change, either being increased or decreased as a result of three possible factors; these are covered below.
- 3.19 The following table is purely the initial MW *Cap* default baseline of reductions (where applicable); what is in absence are key factors that will also influence a change to all or some of these figures; these are explained in paragraphs 3.20 & 3.21

	<----- 2016 ----->				<----- 2017 ----->				<----- 2018 ----->				2019
Quarters:	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>
<50kW	5.6	5.6	5.5	5.5	5.6	5.5	5.5	5.4	5.5	5.4	5.4	5.3	5.4
>50-100kW	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
>100-1500kW	6.8	6.7	6.6	6.5	6.4	6.3	6.2	6.1	6.1	5.9	5.8	5.7	5.7
>1500kW-5000kW	5	5	5	5	5	5	5	5	5	5	5	5	5

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- 3.20 The above levels will however be increased if a *Sub-Band* is 'under-subscribed' with *Applications* and thus its *Cap* is not reached; in such an instance the surplus in MWs will rollover and added to the next *Quarter* of that *Sub-Band*. Two 'live' examples of this occurred in the first *Quarterly* period when there were no *Applications* whatsoever for either the <50kW *Sub-Band* or the 1500kW-5000kW *Sub-Band*. In consequence the surplus in these rolled over into the second *Quarter* resulting in those two *Caps* increasing to 11.2MW and 10MW respectively. In theory, such rollovers could continue ad infinitum until no meaningful *Quarterly Caps* existed for certain *Sub-Bands*, however.....
- 3.21 *Quarterly Caps* limits will be the subject of regular reviews and future manual adjustments are likely to take place, one possible candidate being in response to the circumstances as outlined in the previous paragraph. The real risk is that the surplus of 'unsubscribed' MWs in the <50kW and 1500kW-5000kW *Sub-Bands* could be transferred into the future 'oversubscribed' 50-100kW and 100-1500kW *Sub-Bands*. DECC stated that it expects reconciliations to be biannual but "could be more or less frequent depending on deployment", possibly opening the door for early intervention if *Applications* continues in its current trend.
- 3.22 Once a *Quarterly Cap* is reached (which can be at any stage during its open period) it will be closed immediately to all new *Applications* for *Pre-Accreditation* and *Full Accreditation*. *Applications* received after an early *Cap* closure point will remain unprocessed and queued for the next available open *Quarterly Cap*. The queue may be so long that those towards the end may pass over a number of subsequent *Quarterly Caps* before their turn comes for processing.
- 3.23 Figures compiled by Ofgem on the 1st April 2016 revealed a number of interesting facts:

Level of Applications

- 3.24 Such was the level of *Applications* received in the first *Quarter*, in respect of the 50-100kW and 100-1500kW *Sub-Bands*, these *Quarterly Caps* were closed within seconds of opening. The queue of unprocessed *Applications* were at such a level that a number of subsequent future *Quarterly Caps* will also be exceeded, again at the very moment they open. This will mean that a substantial proportion of unprocessed *Applications* will have to wait in the queue and pass over several opened and then immediately closed *Quarters* before they will be processed.
- 3.25 All *Applications* were for *Pre-Accreditation*, thus by the time the vast majority reach an *Quarterly Caps* that is 'open' for them the *FiT* Rate will have fallen - possibly so far that it may not be financially viable for some sites to proceed.

Average Installed Capacity

- 3.26 The actual average *Installed Capacity* of the individual *Applications* was in excess of DECC's initial calculations when they compiled the new policies. They undoubtedly would have used historical data on previous *Applications* and this increase would strongly suggest that some developers with lower capacity sites, which had already received planning consent (a requirement for *Pre-Accreditation*), had decided not to proceed further as it was no longer financially viable. This assertion will become clearer in later sections of this paper.
- 3.27 The general increase in average *Installed Capacity* will also have a marked impact by reducing the number of individual *Applications* that can be accommodated in each *Quarterly Cap*, which is of course based on *Installed Capacity*.

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- 3.28 Well illustrated in the following table is the over-subscription for the first *Quarterly Cap*, plus the high individual average *Installed Capacity* of the *Applications* which drives down the number of sites that can be accommodated within a *Quarterly Cap*.

<---Applications Received in 1st Cap Quarter--->						DECC
<u>Sub-Band</u>	<u>1st Cap Limit (mW)</u>	<u>Actual Received (mW)</u>	<u>Actual Received (Number)</u>	<u>Average Installed Capacity Per Application (kW)</u>	<u>Approx Granted (Number)</u>	<u>Estimation of Applications For This Quarter</u>
>50-100kW	0.3	0.833	9	93	3	4
>100-1500kW	6.8	26.49	36	736	9	20

- 3.29 As previously explained, once a *Quarterly Cap* is exceeded the remaining *Applications* will be placed unprocessed in a queue to later occupy the subsequent *Quarterly Caps* as they become available. Solely based on the *Applications* for the first *Quarter*, the following tables illustrate how subsequent *Quarterly Caps* are already exceeded or are very close to being so with the queued *Applications* as of the 1st April 2016.

50-100kW Sub-Band

<u>Quarter</u>		<u>Cap mW</u>	<u>1st Quarter Applications mW</u>	<u>Queued mW</u>	<u>Status</u>
8.2.16	31.3.16	0.3	0.833	0.533	Cap Exceeded
1.4.16	30.6.15	0.3		0.233	Cap Exceeded

100-1500kW Sub-Band

<u>Quarter</u>		<u>Cap mW</u>	<u>1st Quarter Applications mW</u>	<u>Queued mW</u>	<u>Status</u>
8.2.16	31.3.16	6.8	26.49	19.69	Cap Exceeded
1.4.16	30.6.15	6.7		12.99	Cap Exceeded
1.7.16	30.9.16	6.5		6.49	Cap Exceeded
1.10.16	31.12.16	6.4		0.09	Cap Exceeded

FiT & Export Tariff Rates

- 3.30 It again has to be reminded that the current and future *FiT* and *Export Tariff* rates only relate to new entrants. Those who have already received *Pre-Accreditation* or *Full Accreditation* will receive the rates applicable at the time they were awarded, plus of course annual index linking.
- 3.31 The *Export Tariff* remains unchanged at 4.85p per kWh.
- 3.32 As from the 8th February 2016 *FiT* rates (pence per kWh) were substantially reduced; this is illustrated in the following table which for simplicity uses the historical Sub Bands. For comparative purposes only, the right hand column was the rate in March 2011 and since then it progressively decreased:

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	From	To	Rate @
<u>Old Sub-Band</u>	<u>16/01/2016</u>	<u>15/01/2016</u>	<u>01/03/2011</u>
≤1.5kW	8.53	13.89	34.5
>1.5kW - 15kW	8.53	13.89	26.7
>15kW - 100kW	8.53	13.89	24.1
>100kW - 500kW	5.46	10.98	18.8
>500kW - 1.5MW	5.46	5.96	9.4
>1.5MW - 5MW	0.86	2.52	4.5

Reductions in Future Quarterly FiT Payment Rates

- 3.33 *FiT* rates will be reduced each Quarter by either one or both of the below methods; this is known as Degression.

Default Degression

- 3.34 Default Degression results in very minor reductions on each future Quarter to reflect the downward cost of technologies; however the figures predominately serve as the baseline numbers from which the far more important Contingent Degression (explained later) is calculated from. The below table illustrates Default Degression, in pence per kWh; this does not include annual inflation rises or reductions caused by Contingent Degression:

	<----- 2016 ----->				<----- 2017 ----->				<----- 2018 ----->				2019
Quarters	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>
<50kW	8.53	8.46	8.39	8.33	8.26	8.19	8.13	8.06	7.99	7.93	7.86	7.79	7.73
>50-100kW	8.53	8.46	8.39	8.33	8.26	8.19	8.13	8.06	7.99	7.93	7.86	7.79	7.73
>100-1500kW	5.46	5.43	5.40	5.37	5.34	5.32	5.29	5.26	5.23	5.20	5.17	5.14	5.12
>1500kW-5000kW	0.86	0.85	0.84	0.83	0.82	0.81	0.79	0.78	0.77	0.76	0.75	0.74	0.73

Contingent Degression

- 3.35 This is the real sting in the tail and is triggered when an individual *Quarterly Cap* is exceeded (after opening) and thus closed early. When this occurs the default baseline *FiT* payment rate (as per the above table) for the applicable *Sub-Band* is reduced by 10%, not just for the next Quarter but for every subsequent quarter up until 2019. It has to be appreciated that this 10% degression can and will happen on more than one occasion as it applies to each and every time a respective *Sub-Band Quarterly Cap* is exceeded and closed.
- 3.36 As illustrated in paragraph 3.28, the first *Quarterly Caps* in respect of the 50-100kW and 100-1500kW *Sub-Bands* were well exceeded and closed within minutes of them being opened on the 8th February 2016. Comparing the table in paragraph 3.34 to the one below will show how the Contingent Degression has taken effect from the subsequent Quarters onwards from just the first *Quarterly Cap* being exceeded.

	<----- 2016 ----->				<----- 2017 ----->				<----- 2018 ----->				2019
Quarters	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>
>50-100kW	8.53	7.61	7.61	7.50	7.43	7.37	7.32	7.25	7.19	7.14	7.07	7.01	6.96
>100-1500kW	5.46	4.89	4.89	4.83	4.81	4.79	4.76	4.73	4.71	4.68	4.65	4.63	4.61

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- 3.37 As shown in paragraph 3.28 such was the level of *Applications* received in the first Quarter alone a queue was created for subsequent Quarters. As of the figures on 1st April 2016 the contents of the queue would open and then immediately close the second *Quarterly Cap* in the 50-100kW *Sub-Band*; it would also immediately close the second, third and fourth *Quarterly Caps* in the 100-1500kW *Sub-Bands* as they open. The following table illustrates the impact of the Contingent Degression so triggered by this; what has to be appreciated is the Contingent Degression is only triggered when a relevant Quarter actually opens and not in advance of this date.

	<----- 2016 ----->				<----- 2017 ----->				<----- 2018 ----->				2019
Quarters	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>
>50-100kW	8.53	7.61	6.71	6.66	6.61	6.55	6.50	6.45	6.39	6.34	6.29	6.23	6.18
>100-1500kW	5.46	4.89	4.32	3.76	3.20	3.19	3.17	3.16	3.14	3.12	3.10	3.08	3.07

- 3.38 If the level of future new *Applications* continues as it has already done so, not only will developers have to wait a considerable time for their *Applications* to be processed but by the time they are the *FiT* Rates will have been eroded away by further Contingent Degression triggers.

4. Examples Based on the Recent Policy Changes

- 4.1 These examples assist understanding of how the changes will affect (or otherwise) in different circumstances; each of these are based on an installation of 170kWh *Installed Capacity*. The quoted *FiT* rates here do not include the additional *Export Tariff* of 4.85p per kWh.

Example 1

- 4.2 In September 2015 *Pre-Accreditation* was applied for by Company A and was granted. The *FiT* Rate at that time was 10.98p and provided that *Full Accreditation* is awarded within 12 months that is the guaranteed *FiT* start rate they would receive, plus index linking since *Pre-Accreditation*.

Example 2

- 4.3 Between the 1st October 2015 and the 8th February 2016 *Pre-Accreditation* was temporarily withdrawn. *Full Accreditation* was applied for by Company B on the 15th January 2016, the last day before the 'pause period' started, and this was granted. The *FiT* Rate at that time was 10.98p and that is the start rate they will receive.

Example 3

- 4.4 At some date between the 16th January 2016 and the 7th February 2016 (when the 'pause' period was in operation), Company C applied for *Full Accreditation*. This was not processed but was time/date stamped and held in a queue until the first *Quarterly Cap* opened on the 8th February 2016. The first Cap was substantially exceeded by the number of *Applications* already queued between 16th January 2016 and the 7th February 2016. Thus using the time stamped queue system only the first in the queue and up to the 6.8mW Cap (based on *Installed Capacity*) would have been given *Full Accreditation* on the 8th February 2016; the new *FiT* Rate being 5.46p. Company C's application was however further up the queue and thus did not qualify. Their original *Application* was held in a new queue and depending on their place in that queue the aforementioned process will be repeated for the opening of each subsequent *Quarterly Cap*. When eventually they

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do qualify for *Full Accreditation* they will be awarded the *FiT* Rate for that successful *Quarter*.

Example 4

- 4.5 On the 8th February 2016 Company D applied for *Pre-Accreditation* (which then had just become available again). The *Cap* had in fact already been substantially exceeded by the queue formed between the 16th January 2016 and the 7th February 2016 and thus Company D's application was not processed but held in the queue for the next available open *Quarter*; this depending on their ranking in the queue.

Example 5

- 4.6 On the 31st March 2016 Company E applied for *Full Accreditation*. Such were the number of *Applications* and their place towards the end of the queue the next available open *Quarterly Cap* would not commence until the 1st January 2017. Company E's application was not processed but will be held in the queue until then. If Company E is processed under the *Cap* commencing on the 1st January 2017; applying both Default and Contingent Degression to the last three Quarters of 2016 (but excluding any index linking) they would expect to receive a *FiT* start rate of just 3.20p.

5. Business Viability Since the Changes

- 5.1 The below relates to a 'real life' proposal consisting of a 2 x 36.6m turbine installation with 170kWh *Installed Capacity*, with a *Capacity Factor* of 29%. Full *Export Tariff* is included.
- 5.2 The planning application was refused on the 12th August 2015 and is currently awaiting an appeal decision. The below table illustrates the decline in *FiT* Rates between the period when planning approval could have been achieved (it was not) and if the appeal was allowed (which it has not yet been) on the 31st March 2016, with *Pre-Accreditation* awarded shortly afterwards. At this stage the next available 'open' *Quarterly Cap*, subject to any manual adjustments as covered in paragraph 3.21, will be from the 1st January 2017.

<u>Date From</u>	<u>Date To</u>	<u>FiT Rate</u>	<u>Annual FiTs</u>	<u>Annual Export Tariff</u>	<u>Total Annual With Export Tariff</u>
1.4.15	30.9.15	12.05	£52,040	£20,946	£72,986
1.10.15	15.1.16	10.85	£46,858	£20,946	£67,803
8.2.16	31.3.16	5.46	£23,580	£20,946	£44,526
1.4.16	30.6.16	4.89	£21,105	£20,946	£42,051
1.7.16	30.9.16	4.32	£18,657	£20,946	£39,602
1.10.16	31.12.16	3.75	£16,195	£20,946	£37,141
1.1.17	31.3.17	3.20	£13,820	£20,946	£34,765

- 5.3 What also has to be considered is that wind turbine companies have to borrow the Capital for their projects, as well as provide some level of ground rent payments to the hosting farm. From the 2015 consultation with the wind industry, DECC introduced a formula to calculate the approximate Capital cost, including Grid connection, this being based on *Installed Capacity*. Using these, the approximate Capital cost of the installation in the above example came to c£459,000 which when other comparisons were made it does appear to be fairly accurate, if not understated.

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- 5.4 Based on this capital cost and the *FiT* plus *Export Tariff* earnings in the example under paragraph 5.2 the below calculations would indicate that after the loan repayments were applied the remaining monthly balance was a paltry c£351. The monthly loan payments were calculated using the accepted Excel 'PMT' formula. Not included are future annual index linking, taxation on the subsidy earnings, insurance costs, or maintenance and running costs.

Capital Loan Amount	£459,000
Interest Rate	3%
Repayment in Years	20
Monthly Repayment	<u>£2,545</u>
Remaining Balance	£351

- 5.5 It goes without saying that this is far from being a financially worthwhile project.
- 5.6 To make proposals more financially viable, 'insider' information suggests that going forward existing wind turbine developers will now only consider new schemes with a higher *Installed Capacity* of say c700kW - 900kW, in areas unlikely to raise planning issues (such as trading estates) and with immediate accessibility to existing Grid connection and access roads. The earlier paragraphs 3.26 - 3.27 factually demonstrate that the higher *Installed Capacity* sites have already become the preferred route for developers.
- 5.7 One would still however question whether existing farm turbine developers could possibly have a future successful business model with the uncertainty created by the *Quarterly Caps* - far too little potential business to go round - plus that the *FiTs* scheme will end to new entrants on the 31st March 2019.
- 5.8 Following on; from the table in paragraph 3.28 it can be seen that the two *Sub-Bands* which span between 50kW to 1,500kW, may only accommodate the *Pre-Accreditation* and *Full Accreditation* of c12 installations per Quarter if the current trend of high average *Installed Capacity* is continued; that being applicable across the whole of the UK excluding Northern Ireland - surely a case of too many developers chasing too little business.
- 5.9 On first sight the <50kW *Sub-Band* appears to present a future business opportunity; not only has it not been the victim of *Contingent Degression* but as explained in paragraphs 3.20 & 3.21 the 'unused' quota of 5.6mW from the first *Quarterly Cap* will roll forward and add to the next *Quarter*; such a rollover potentially continuing into other *Quarters*. Written comments by DECC would strongly indicate that it was their intention to have this *Sub-Band* relatively unconstrained and hence the very high default *Quarterly Cap* quotas for such a very low *Installed Capacity Sub-Band*.
- 5.10 There were however no *Applications* whatsoever for this *Sub-Band* in the first *Quarter*; this possibly being partly due to the fact that *Pre-Accreditation* is not, and has never been, available for sites of <50kW. Installed turbines at the higher end of this *Sub-Band* can cost in excess of £250k and thus to forge ahead without the guaranteed *FiT* Rate afforded by *Pre-Accreditation* is maybe seen as one risk too many.
- 5.11 Using the same calculation models in paragraphs 5.2 and 5.4 would indicate that even with a full *Export Tariff* being claimed the monthly repayments on the Capital loan could far exceed the subsidy payments received.

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- 5.12 Next there is the 1500kW-5000kW *Sub-Band* which again prospers from no current *Contingent Degression* and the rollover of the 'unused' quota of 5mW from the first *Quarter*. Calculations would suggest that even though there would be a some return on investment, this would be considerably less than what could have been earned elsewhere with diverse projects. The initial high costs on planning applications and EIAs for turbines of this size, plus the extremely low chance of gaining planning approval further decreases the business desire for such proposals. However, the most likely future candidates for turbines of these sizes would be existing large scale businesses who do not need to borrow the capital; these would include water companies, concrete manufacturers etc.

6. Conclusion & Serious Risk

- 6.1 Akin to all good novels there could also be final twist in the tail in this paper; if wrongly handled in the future by DECC/Ofgem one matter could render a number of the key changes fairly impotent and bring a fair degree of new joy to wind developers.
- 6.2 Paragraph 3.20 explained how 'unused' mWs from one *Quarterly Cap* period would be rolled over into, and added to, the next *Quarterly Cap* of the same *Sub-Band*; a process of rollovers which could continue ad infinitum. One strongly suggests that before progressing further the reader returns to, and fully digests, the contents of paragraphs 3.20 and 3.21 .
- 6.3 Any later redistribution of the surplus mWs from the 'undersubscribed' <50kW and 1500kW-5000kW *Sub-Bands* to the 'oversubscribed' 50-100kW and 100-1500kW *Sub-Bands*, could make a complete and utter nonsense of the *Quarterly Caps* and in turn the important process of *Contingent Degression*; if so actioned, the majority of future figures quoted in this paper would significantly alter.
- 6.4 Such redistribution may not be as straightforward as it seems because the *FiTs* policy changes were made with the objective of adhering to a set tight budget spend and not (openly at least) curbing the number of wind turbines. Each *Sub-Band* has its own different *FiT* rate and thus in turn this dictates the cost of each subsequent mW deployed under each *Sub-Band*; something that could be taken into consideration in any redistribution exercise. If so, and purely as an hypothetical example, 10mW transferred out of a *Quarterly Cap* in the <50kW *Sub-Band* and into a *Quarterly Cap* in the 100-1500kW *Sub-Band* would translate upwards into c17.2mW; a most frightening prospect! Conversely, 10mW transferred out of a *Quarterly Cap* in the >1500kW *Sub-Band* into a *Quarterly Cap* in the 100-1500kW *Sub-Band* would translate downwards into c1.7mW.
- 6.5 For far too long the wind industry, landowners and supposed supporters 'hitching a ride' have exploited the opportunity of a quick financial kill at the expense of the environment and the pockets of decent people. Hopefully the recent policy changes to the *FiTs* scheme will seriously disrupt this, however it will only be the case if the above potential loophole is avoided.

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