**John Costyn**
**Head of Environmental Issues**
**Ofgem**
**9 Millbank**
**London SW1 3PG**
Fax : 020 7901 7387

Dear Mr Costyn,

I wish to respond to the invitation extended in the **Consultation Document**, issued March 2005, outlining the draft proposals for the **Revision of Guidelines on Green Offerings,** and to submit a comment on the perceived validity of the Retired ROCS principle upon which some green offerings are based. It is my opinion that this mechanism does not work now, has not worked in the past and there is no foreseeable set of circumstances in which it will ever work in the future. This opinion together with accompanying arguments is set out in the attached 'Dossier'; this is written around the 2002 version of the Guidelines but I see nothing in the draft proposals which would materially alter my findings. To understand exactly why the RET-ROCS mechanism fails to achieve its objectives it is necessary to have some basic understanding of the Renewables Obligation, the free market in Electricity, the retired ROCS mechanism itself and the effect on Electricity Suppliers of retiring or deleting ROCS from Ofgem's ROCS Register. The dossier provides an introduction into these aspects of the problem. In addition to demonstrating that the RET-ROCS principle is fatally flawed the dossier, in Para. 5 (Guidelines), also lists those various requirements as specified in the 2002 Guidelines, ISO 14021 and the Green Claims Code(DEFRA) and with which all green offering schemes are expected to comply. In practice RET-ROCS schemes fail to satisfy any of of these.

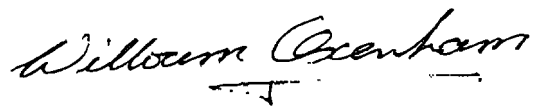
I refer now to para 3.29 of the draft proposals and in particular to **Block 2; ROC Retirement as a means of demonstrating additionality**. If one assumes that Block 2 is an explanation of how the RET-ROCS mechanism is supposed to provide a benefit then the flaws become immediately apparent. It is claimed that retiring ROCS *"will increase the value of ROCS"* presumably by forcing more money into the buyout fund. By itself this statement is nonsense! It is only registered Suppliers who pay money into the buyout fund and it is these suppliers as a whole who get all that same money returned to them as redistribution from the buyout fund; the more money they pay in the more money they get back. The only difference is that the money lost by those suppliers who retire ROCS is transferred to those suppliers who do not retire ROCS; this is no different to the way in which the normal working of the Renewables Obligation balances the profits obtained by those who buy ROCS against the lack of profit experienced by those who purchase, or are forced to purchase, buyout instead. The retired ROCS mechanism, by itself, results in no net

gain and therefore no net benefit of any sort. The next statement is that as a result of the increased value of the payback per ROC *"traders should be prepared to pay more"* for the ROCS they purchase. Why? Traders buy ROCS in order to make a profit from the return they get from the buyout fund; where is the proof that traders feel obliged to pass some of this profit on to renewables generators? The claim that *"This would be likely to tip the balance in favour of marginal investment in new capacity in the longer term"* is therefore nothing more than wishful thinking!

The Guidelines specify that any green offering should be based on **transparency, additionality** and **verification**. Retired ROCS schemes fail to satisfy any of these three vital criteria. They do not provide 'transparency' in the sense that the consumer clearly understands what benefits are being promised and there is no self-certification process to demonstrate exactly how these benefits are to be achieved. The schemes fail to deliver 'additionality' as a benefit over and above whatever benefits would otherwise pertain in the absence of the scheme. 'Verification' is the process whereby operators of green offering schemes produce data to demonstrate and prove that in each Obligation Period the promised benefits have actually been delivered; for RET-ROCS schemes there are no benefits and so there can be no proof and no appropriate verification.

The Dossier goes into greater detail and provides supporting argument for all these criticisms.

Regards,



William Oxenham

Enclosed : -

Dossier - **An Assessment of RET-ROCS Schemes** (minus Chapter 6)

# An Assessment of RET-ROCS Schemes

## Contents

# 1. Renewables Obligations Certificates (ROCS) Market

1.1 Renewables Obligations Certificates (ROCS) are issued by OFGEM and accredited to approved Renewable Energy Electricity Generating Plants at a rate of one Certificate per mWh of 'green' electricity produced. These ROCS have no intrinsic value in themselves and their worth depends solely on what Electricity Supply Companies are prepared to pay for them in order to satisfy the Government, in the shape of OFGEM, that they meet their "Obligation" to source a given percentage of their purchased electricity from registered 'green' electricity sources. This percentage was set at 3% for the Renewables Obligation Period running from March 2002 to March 2003. This was the first period for which results were available and all quoted figures and references in these notes apply, unless stated otherwise, specifically to this 2002 - 2003 period.

1.2 Electricity Generating Plants issued with ROCS are free to sell them together with, or separately from, their sales of electricity to Electricity Supply Companies.

1.3 The Government has decreed that the measure of a Supplier's compliance with its Obligation is to be determined by its holding of accredited ROCS, which in 2002/2003 must not have been less than 3% of its total purchases. As an alternative to purchasing or otherwise obtaining ROCS the Supplier can instead purchase "buyout" from OFGEM at a rate of £30 per MWh. This figure has become a yardstick against which the cost-benefit of purchasing or selling ROCS has come to be judged. In subsequent years the set percentage will be raised in accordance with the Table issued under the Renewables Obligation Order.

1.4 For the Renewables Obligation to function best the available supply of renewable electricity in any one obligation period needs always to fall short of that required for all suppliers to fulfill their obligation. Obviously, if there was a glut or oversupply of renewable electricity such that all suppliers were easily able to meet their obligation then the *surplus* ROCS would be worthless and even those required to fulfill obligations would be purchased at prices below that required to purchase buyout. There would be no payback money in the buyout fund and the attraction of paying renewable generators a premium price, over and above that of equivalent buyout, for ROCS-accompanied renewable electricity would not exist. The set percentages for each obligation period ought therefore to have been carefully calculated so as to ensure that this does not happen.

1.5 In the present situation (02-03-04-05) the production of renewable electricity is insufficient to provide the set percentage of total electricity demand and there is a shortfall of ROCS which forces some Electricity Supply Companies to purchase buyout from OFGEM instead. The money so obtained is held by OFGEM in a buyout fund which at the end of the year is redistributed to all Supply Companies in proportion to their accredited holding of ROCS. It is this pay-back from the buyout-fund that has made it attractive for Supply Companies to purchase ROCS in preference to purchasing buyout and this situation has led to the establishment of a "market" (the ROC-Market) in which ROCS are bought and sold in speculative fashion as traders try to outguess each other as to the size of the pay-back they can expect from the redistribution of the buyout-fund at the end of the year.

1,6 Since the value of a ROC is in this way determined by the "market forces" prevailing in the ROC-Market it may, depending on circumstances, be worth something or it may be worth nothing!

1.7 Because of the high profits presently to be made from wind-power there is great pressure on suppliers to construct as many wind farms as possible, as fast as possible, and so a 'glut' situation may well develop in the foreseeable future. This oversupply will in the 'free' electricity market lead to an accompanying reduction in the price paid for ROCS and this can only have an adverese effect on the sale of renewable electricity. See Block Diagram Fig 3

# 2. The Electricity Market

2.1 The Electricity Market is a 'Free Market' and within it electricity as a Commodity is bought and sold competitively in the same way as stocks & shares are traded on the Stock Exchange. Supplier Companies bid for the electricity produced by Generator Companies with the market-price of electricity rising and falling depending on whether demand exceeds supply or supply exceeds demand.

2.2 In these free market conditions the high cost of wind power makes it hopelessly uncompetitive and fundamentally unsaleable without the subsidy derived from the Government's Renewables Obligation. The effect of this is to make it an attractive purchase for Suppliers even at a price £30/MWh, or more, above the market price at any time. This extra cost is passed on to all consumers who pay it in the form of increased electricity bills.

2.3 The purchase of renewable electricity, primarily from wind power is attractive because of the 'carrot & stick' effect produced by the Renewables Obligation. The 'stick' is the requirement to spend £30/MWh either purchasing renewable electricity or purchasing OFGEM buyout instead. The 'carrot' which makes it more attractive to purchase renewable electricity is the prospect of using the ROCS purchased along with renewable energy to obtain a share of the buyout-fund at redistribution time.

2.4 This attraction only applies to the purchase of enough renewable electricity to satisfy any individual Suppliers Obligation, as above that ceiling there is no 'obligation' on the supplier to purchase any more buyout and therefore no need to spend the extra premium of £30/MWh, or more, purchasing renewable electricity instead.

2.5 The purchase of more ROCS than is required to satisfy the obligation is not a good idea! At the present time, 02/03, superfluous ROCS which cost £30 or more to buy will when submitted to OFGEM be rewarded with a payback of only £16 from the buyout-fund thus resulting in a net loss of £14 per ROC. If these superfluous ROCS are for some reason 'retired' or otherwise scrapped then there is no payback from the buyout fund and each ROC so 'retired' generates a loss of £30 - or more depending on what had to be paid to purchase it.

2.6 In the normal course of trading the skullduggery practised in the market may result in some Suppliers inadvertently holding superfluous ROCS at the end of the Obligations Period, but then an interval of about 6 months between March and October is allowed for suppliers to determine exactly what their Obligation is, the number of ROCS needed to satisfy it and also the number of surplus ROCS they may be holding. Within this interval they are able to trade these surplus ROCS with other Suppliers who have insufficient ROCS to satisfy their Obligation and who are prepared to purchase ROCS at a price which enables them also to make a profit on the return they get from the buyout-fund.

2.7 If this last minute trading operates to everyone's satisfaction then at redistribution time all Suppliers are able to just meet their Obligation either with ROCS or with buyout or else with a combination of both. Ideally no Supplier is left with superfluous ROCS. Interestingly it can be expected that those Suppliers with the biggest sales and therefore the biggest Obligation will naturally end up with the biggest number of ROCS and so receive the biggest payback from the buyout-fund. In the absence of any great changes in in the circumstances of the major Supply Companies the pattern set at the end of the first Obligation Period 2002/2003 is likely to be repeated in 2003/2004 and subsequent Obligation Periods. (It does!)

2.8 It is of interest also to consider the relative attraction of buying ROCS-bearing renewable electricity as the trading situation changes as the market develops. An Obligations period runs from March one year to March the next year: this is followed by an interval of 6 months up to 1st October which is the deadline date for Suppliers to submit their lists of ROCS and present payment for any buyout they may have to purchase. But redistribution of the buyout fund is delayed until the following December whilst OFGEM checks all submitted records. ROCS however have to be paid for on delivery, thus at the start of an Obligations Period traders might be paying a premium of £30/MWh for renewable electricity without any assurance that they will recover part of this amount as payback from the buyout-fund when this is redistributed some 21 months later. At the

present time more and more wind farms are coming on line so more and more Suppliers will be able to meet their Obligation by purchasing ROCS. This means less money goes into the buyout-fund and the payback per ROC is reduced. At the start of an Obligations period traders are therefore in an unenviable position: if they buy ROCS at a premium price they will be losing 18 months interest on their initial outlay and this has to be set against their estimate of the payback amount which they will not receive for 21 months. In these circumstances they may be tempted to drive a very hard bargain with the wind power companies and perhaps drive the premium down to a level below £30/MWh. Towards the end of the Obligations period the supply situation becomes clearer and the traders' estimates become more precise. So, providing a shortfall in renewable electricity can be forecast with reasonable certainty, the premium paid could rise above £30 as traders compete for the expected payback from the buyout-fund.

# 3 "RSPB-Energy" Scheme

3.1 There are several green offerings which rely on the RET-ROCS principle. The RSPB-Energy scheme described here is included only on account of it being a *typical example* of these.

3.2 In October 2003 the RSPB in an effort to "do more" for the cause of renewable energy generation renegotiated their Contract with Scottish & Southern Energy so as to raise a contribution from RSPB-E subscribers equal to 10% of their annual Electricity Bills.

3.3 In return for the extra money so derived, SSE undertook to "retire" an "equivalent worth" of any ROCS accredited to them by OFGEM or else obtained from other sources; in this case "retired" actually means "dead" and the "equivalent worth" of these ROCS is determined by the ROC-Market value pertaining at the time of 'retirement'. From that time on SSE do not sell these Retired ROCS nor do they make "make use" of them in any other way. They are in effect - scrapped!

3.4 The theory behind this transaction is that the Retired ROCS removed from the ROC-Market under the RSPB-E scheme will result in an artificial shortage of ROCS which will cause one or other of the participating Electricity Supply Companies to purchase extra buyout in their place. This extra buyout then goes to increase the buyout-fund which OFGEM, at the end of the year, redistributes amongst all participating Suppliers in proportion to the number of ROCS accredited to them. In addition, since the retired ROCS are not presented for payment the amount they would have gathered from the buyout fund remains in the buyout fund, effectively increasing the payout to non-retired ROCS by that amount.

3.5 Thus, it is hoped, those Suppliers not purchasing enough 'green' electricity to satisfy their "Obligation" (3% of their total purchases in 02/03) will be penalised by having to purchase extra buyout, whilst those who do purchase enough or more than enough 'green' electricity will be rewarded by receiving extra pay-back from the buyout fund. Since at the present time not enough renewable electricity is being produced to satisfy the 3% "Obligation" the supply of ROCS is limited and Suppliers have to purchase a significant amount of buyout in their place, so much so that the buyout fund builds up strongly and at the end of the year holds a very considerable amount of money (£79 million at the end of 02/03, £157 million at end of 03/04). This means that the ROCS held by Suppliers attract a handsome premium when the buyout-fund is finally redistributed by OFGEM, so explaining why in the run-up to the 'Redistribution' ROCS are bought and sold on the ROC-Market at prices which may be considerably more than the buyout price.

3.6 It can be seen then that the immediate effect of the RSPB-Energy scheme is to artificially enhance the payback from the buyout fund given to all holders of non-retired ROCS.

3.7 It can also be seen that the operation of the RSPB-E scheme relies solely on the manipulation of the Electricity Market by the action of the supplier in retiring superfluous ROCS and is independent of how much

money subscribers to the scheme pay the supplier (SSE) to compensate for the expense of purchasing superfluous ROCS. This compensation is subject only to a private contract between supplier and subscriber.

# 4 The Retired-ROCS Mechanism : -

*Does not work! - and acceptance of deleted ROCs as proof of a "green supply offering" is both misconceived and inadequate.*

4.1 To illustrate this claim consider the case where certain suppliers wishing to provide a green offering purchase a greater number of ROCS than are required to meet their Obligation. Then at the end of the Obligation Period but before the redistribution of the buy-out fund these suppliers inform OFGEM that they will 'retire', i.e. delete, all or some of their superfluous ROCS. The deletion of these retired ROCS reduces the number of ROCS qualifying for a share of the buy-out fund and so increases the redistribution ('pay-back') value of each remaining ROC. Thus those supply companies attempting to provide a 'green offering' in this way lose the redistribution value of all their Retired ROCs but see their competitors benefit from the increased redistribution value of the ROCs they very wisely retained!

4.2 The ultimate effect of the Retired ROC mechanism as applied in this instance is therefore seen to penalise suppliers who contribute to the operation of such schemes and reward other suppliers who make no attempt to provide similar 'green offerings'. **This result is the exact opposite of what the Retired ROC mechanism is said to achieve!**

4.3 The replacement amount of £30 per Retired-ROC, going into the buyout-fund, is at the end of the year redistributed amongst *all* Supply Companies in proportion to their holdings of ROCS as recorded by OFGEM. If all suppliers were able to meet their obligation then the biggest suppliers who naturally have the biggest obligation would end up with the biggest ROC holdings. In practice this is seen to be true and in 02/03 just three companies British Gas, Powergen and London Electricity ended up with almost 60 % of the ROC holdings and and so received almost 60% of the buyout fund. Now, any *increase* in the buy-out fund, from whatever cause, is distributed across all suppliers in parallel with the normal payout from the buyout fund so 60% of the *extra* buyout contributed by retired ROCS schemes will also end up in the hands of these same three companies.

4.4 RSPB-E and other companies operating retired ROCS schemes have no control over, and no understanding of the use these, and other Supply Companies, might make of the extra pay-back they perhaps unknowingly get from retired-ROCS contributions. It may go in increased Dividends to shareholders, it may just be swallowed up in increased Boardroom Salaries and Bonuses or most likely it may simply be used to subsidise the price of fossil fuel electricity. It is unlikely that this situation will differ much in future obligation periods. The same three big suppliers will receive the same big payback from the buyout fund.

4.5 **Conclusion** : - *If the above reasoning holds good then it is hard to come to any conclusion other than that the mere deletion or retirement of ROCs does not in any way increase either the generation or purchase of renewable energy electricity. Its only effect is to skew the redistribution process in such a way as to transfer buyout redistribution funds (payback) from 'greener' suppliers into the coffers of their 'not-so-green' competitors who may or may not pass some of their extra cash on to renewables generators in the form of increased prices for renewable electricity. But even if they do so there is little the generators can do to use their extra payments to effect the reduction in $CO_2$ emissions which is the whole objective of the retired ROCS scheme and unless this, or another acceptable environmental benefit can be identified and* **proven** *then the claim that acceptance of retired ROCs is sufficient verification and absolute proof of a "green supply offering" is simply not tenable and fails in accordance with the expectations expressed in 'Guidelines for Green-Offerings', 'ISO14021' and the 'Green Claims Code'. As long as the Renewables Obligation is working as it was designed*

*to work then it is impossible for any alien mechanism to skew its operation so as to produce an identifiable environmental benefit of any sort. For further criticisms and explanations see also FIG 1, FIG 2 & FIG 3.*

# 5 Guidelines

All Green-Offerings are expected to to take note of the guideline advice contained in the following documents. *Guidelines for Green Offerings* issued by Ofgem, *International Standard ISO 14021* and the *Green Claims Code* published by DEFRA. None of these documents have the force of law and individual Electricity Suppliers of green-offerings are expected to self-certify their own 'products'. The relevant advice contained in these guidelines is contained in the extracts listed below : -

## 5.1 Guidelines for Green Offerings : - Selected paragraphs. (In the following digest the para numbers are those found in Guidelines for Green Offerings)

5.1.1. para 1.4 - Consumers need to be able to make informed choices on the basis of reliable and verifiable information

5.1.2. para 2.3 - For consumers to make informed choices about green supply offerings reliable information is necessary on the nature of the offer being made.

5.1.3. para 2.11 - The guidelines --- are intended to assist those suppliers who intend to make green supply offerings and makes reference to potential legal liability

5.1.4. para 3.1 - *Green supply offering* refers to any contractual arrangement between supplier and consumer where it it is claimed that the supply will give rise to environmental benefit.

5.1.5. para 3.3 - Ofgem considers that it is important that ---the products supplied are accurately described in all marketing material.

5.1.6. para 4.4 - Ofgem pointed out to suppliers that advertising of the tariffs (for green offerings) should not be untrue or misleading and that claims made about them should be verifiable.

5.1.7. para 4.8 - The Trades Description act 1968 makes it a criminal offence to market goods in a way that is either false or misleading

5.1.8. para 4.10 - A misleading advertisement is --one that deceives or is likely to deceive

5.1.9. para 4.24 - A Green Claim :
* should be truthful, accurate and able to be substantiated
* should not be vague or ambiguous
* should not imply that it commands universal acceptance if there is some significant doubt or division of scientific opinion over the issue in question

5.1.10. para 5.1 - Ofgem expects suppliers to ensure that any marketing of of green supply offerings will be consistent with the relevant industry codes and the principles expressed in ISO 14021 and the DTI/DEFRA *Green Claims Code*

5.1.11. para 5.2 - Ofgem would expect to see in electricity suppliers marketing of their green supply offerings

* transparency

* additionality

* verification

5.1.12. para 5.4 - Transparency in regard to green supply offerings depends firstly on accuracy. There is a need for offerings to be clear, and to be consistent with public understanding of 'green energy'.

5.1.13. para 5.5 - All marketing and related information should be based on correct, up-to-date and specific information about the product that is being offered. Claims that are vague or that cannot be objectively substantiated should not be made.

5.1.16. para 5.6 - Any claims made concerning green supply offerings will need considerable explanation and/or qualification to ensure that they are accurate and not misleading.

5.1.17 para 5.17 - Green supply offerings can help meet the environmental goals of the government, and of the consumers who choose them, in one or both of the following ways :

* ensuring the generation and sale of energy from renewable sources that would otherwise be sourced from other sources.

* an increase in renewable generation capacity

5.1.18. para 5.18 - Consumers choosing a green offering need to be able to be satisfied that their support is making a difference.

5.1.19. para 5.20 - In relation to RO/ROS....the intention is that any green tariff should lead to additional generation over and above a suppliers obligation

5.1.20 para 5.22 - The premium charged for an energy-based green offering should be directed to either :

* the additional cost of purchasing renewable energy from non-RO/ROS accredited sources, or

* the cost of obtaining ROCS which are not presented as part of the renewables obligation

5.1.23. para 5.23 - Where suppliers make undertakings to match energy supplied with renewable energy the supplier should provide verifiable evidence to customers or third parties on how customers' support makes a sufficiently material difference to the environment

5.1.24. para 5.33 - Suppliers should be responsible for evaluation and provision of data necessary for the verification of the claims made in the marketing of green energy.

5.1.25. para 5.34 - The evaluation should be fully documented and the documentation retained by the claimant for the purpose of the information disclosure referred to below

5.1.27. para 5.41 - Consistent with the approach of the RO/ROS that ROCS represent the renewable component of energy that is actually supplied in Great Britain, the acquisition of ROCS by suppliers beyond those required for their obligation will be an acceptable mechanism for the verification of premium energy based products.

5.1.28. para 5.42 - The RO for England & Wales and the ROS for Scotland include provision for ROCS to be deleted on request from registered holders so that they may not be redeemed against any other supplier's obligation.

## 5.2 Specific requirements of ISO 14021

(as included in 'Appendix 3' in Guidelines for Green Offerings.)

Self-declared environmental claims and any explanatory statements are subject to all requirements in 5.7 of International Standard ISO 14021.
Such claims, including any explanatory statement:

a) shall be accurate and not misleading

b) shall be substantiated and verified

e) shall be specific as to the environmental aspect or environmental improvement which is claimed

g) shall be unlikely to result in misinterpretation

i) shall be presented in in a manner which does not imply that the product is endorsed or certified by an independent third-party organisation when it is not

j) shall not,either directly or by implication, suggest an environmental benefit which does not exist

l) shall only relate to an environmental aspect that either exists or is likely to exist within the lifetime of the product

m) shall be presented in a manner that clearly indicates that the environmental claim and explanatory statement should be read together

These requirements pertain to all green claims made for any 'product' in any medium. In this respect any green offering can be considered as a 'product'.

### 5.3 Green Claims Code

5.3.1 A Green Claim should be ,,, Truthful accurate and able to be substantiated. There is no requirement for a business to get an independent verifier to check a claim but it is prudent to be sure that the claim would be truthful and accurate and that it could be substantiated. This would include being prepared to give the relevant information to anyone who asks for the claim to be substantiated.

5.3.2 A Green Claim should **not** be vague or ambiguous. Claims should always avoid the vague use of terms such as 'sustainable', 'green', 'non-polluting' and so on.

5.3.4 A Green Claim should **not** imply that it commands universal respect if there is actually some doubt or division of scientific opinion over the issue in question.

5.3.5 The legal framework : This code does not detract from the powers available to the authorities under the law. Within the UK, Trading Standards Officers have powers under the Trade Descriptions Act to deal with claims which are demonstrably false or are found to be misleading. The Director General of Fair Trading can also take action against misleading claims under the Control of Misleading Advertising regulations 1998.

5.3.6 As is the case for ISO14021 the Green Claims Code covers **all** green claims of any sort, including but not limited to green-offerings.

# 6 'Policing' Green Offerings

# RET - ROCS Block Diagram - FIG 1

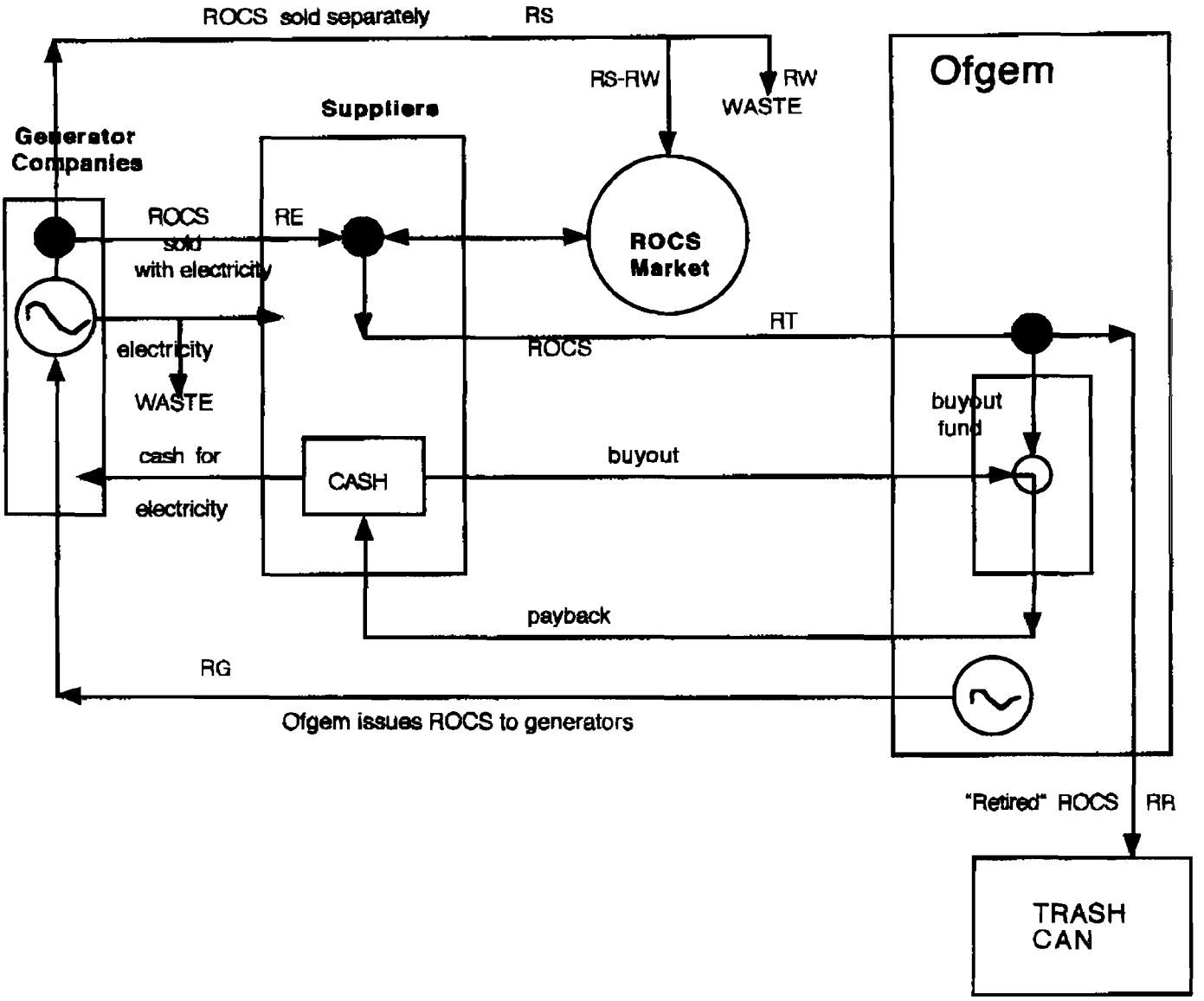



FIG 1 describes the general situation in which the Renewables Obligation and the Retired ROCS schemes function interactively between the electricity market the ROCS market and Ofgem. The sequence is initiated by suppliers submitting cash to renewable generators for the purchase of an amount of electricity $E_G$ for which Ofgem issues an equivalent amount of ROCS = $R_G$. The generators sell some of these ROCS ($R_E$) along with the electricity E purchased by suppliers and sell some ROCS ($R_S$) separately in the ROCS market. Any surplus ROCS ($R_W$) not purchased by suppliers go to waste, as also does the electricity associated with them. The total number of ROCS presented to Ofgem is $R_S$-$R_W$+$R_E$ = $R_T$. Of these a number $R_R$ are described as 'retired' and are thrown in the Trash Can. The remainder are accepted by Ofgem where their only function is to trigger the redistribution of the buyout fund which comprises all the buyout monies paid in by suppliers who were unwilling or unable to purchase ROCS instead. The prices paid by suppliers for electricity and/or ROCS have to take note of the £30/MWh buyout price which each supplier has to be pay to Ofgem if he fails to purchase sufficient ROCS to fulfill his Obligation and these prices may be market-price plus £30/MWh plus an additional "competitive adjustment" or they may be less than £30/MWh depending on the condition of the market in terms of supply and demand. Once a supplier has obtained sufficient ROCS to satisfy his obligation he is freed of the requirement to purchase buyout in their place and the premium he is prepared to pay for ROCS may therefore drop below the buyout price and depends only on his estimate of the payback they will command from the buyout fund.

# RET - ROCS Block Diagram - FIG 2 (Demand exceeds supply)

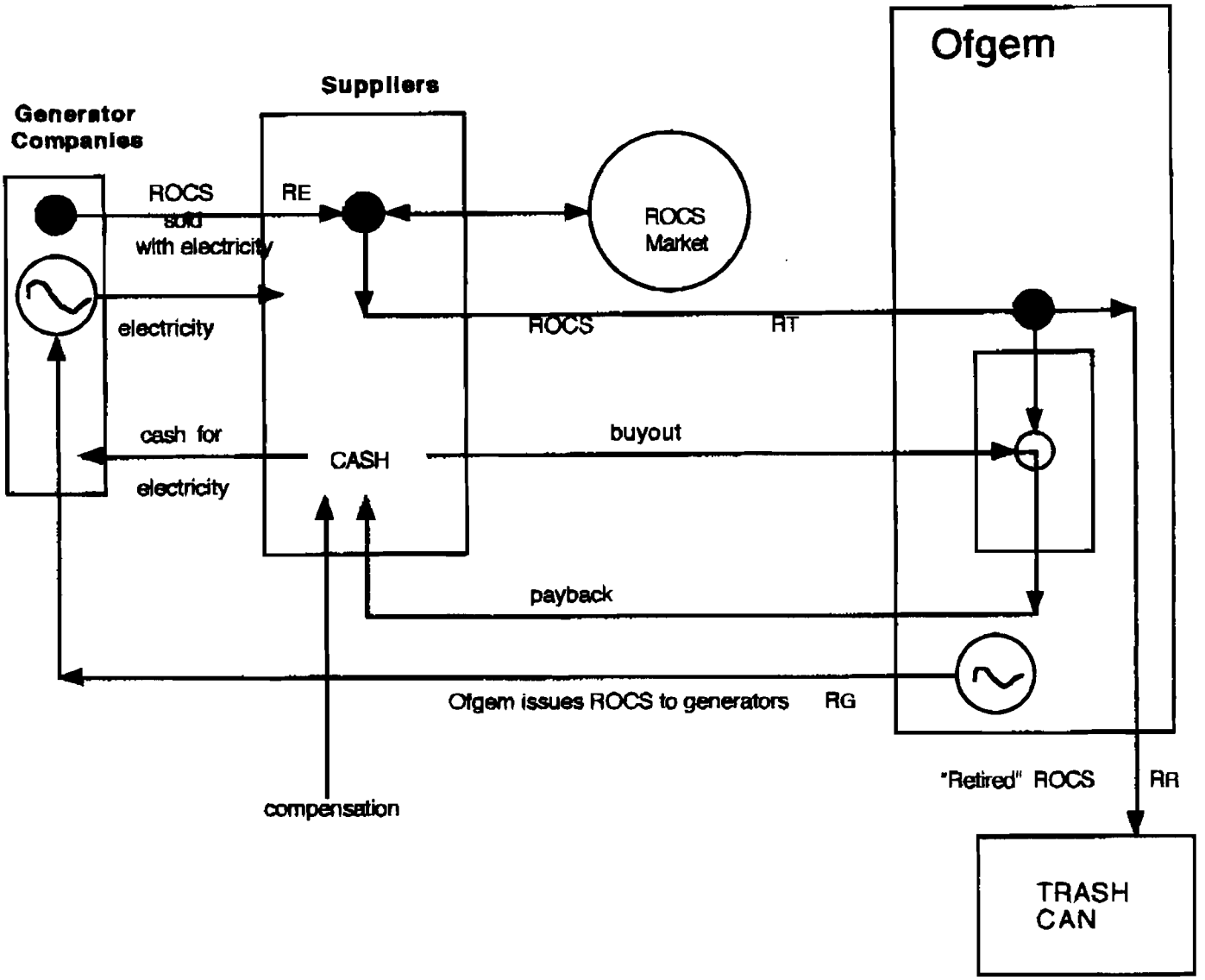



FIG 2 describes the situation when demand exceeds supply. In this case all the renewable electricity that *can* be produced *is* being sold; there is no waste electricity and so no waste ROCS. Any extra buyout suppliers are "forced" to pay into into the buyout fund is simply returned to them through payback which is then redistributed amongst suppliers in proportion to their final ROC holdings. The only effect of "retiring" ROCS is to alter the distribution of payback money between suppliers as the purchase of retired ROCS by some suppliers robs other suppliers of the chance to purchase them and so reduces their final ROC holdings. So some suppliers get more and other suppliers, mostly those who operate retired ROCS schemes, get less. If now, outside agencies compensate suppliers for the ROCS they retire it has been postulated that this encourages all suppliers to increase the price paid to generators over and above what they would have paid in the absence of such schemes. By this means it is claimed that the act of retiring ROCS provides an environmental benefit by increasing the amount of renewable energy purchased or by increasing available renewable generation capacity. Both claims fail! All the renewable electricity that can be produced is already being purchased as demand exceeds supply and there is no way of proving that the extra cash given to suppliers is increasing renewable generation capacity over and above any increase that would take place in the absence of these schemes. Equally there is no way of proving that any extra cash inadvertently passed on to generators will be used to provide an environmental benefit such as a reduction in $CO_2$ emissions either immediately or in the future.

# RET - ROCS Block Diagram - FIG 3 (Supply Exceeds Demand)

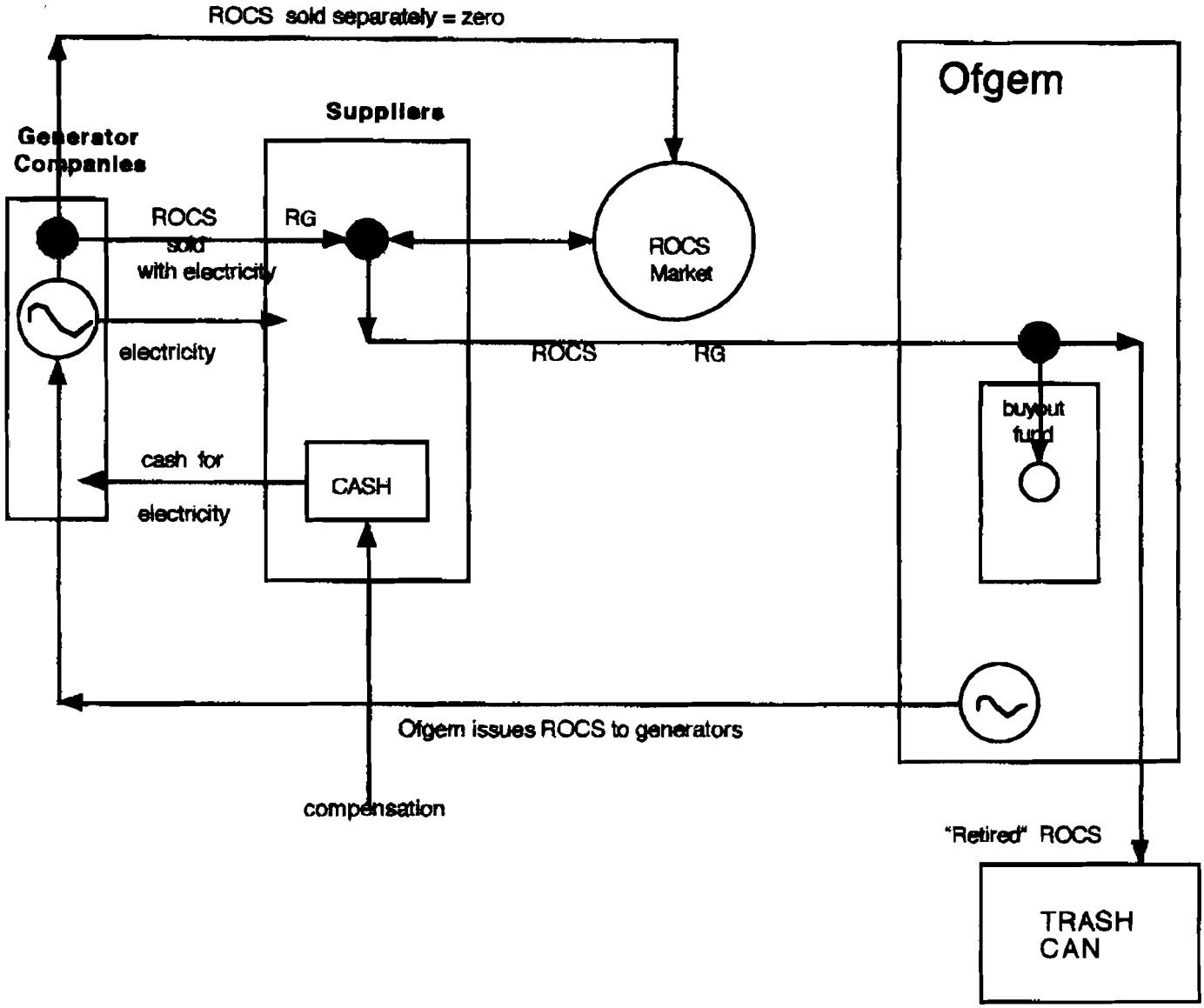



FIG 3 describes the situation when supply exceeds demand. In this case there is more renewable electricity being produced than is required to fulfill all suppliers' obligations. This results in a 'buyers market' and it is the renewables generators who have to compete for sales. It does not make sense for suppliers to purchase more high priced renewable electricity than is necessary to fulfill their obligations and in this case it may be thought that the surplus electricity would simply go to waste, but wind-power cannot be stored and *all* of it *has* to be sold whenever it becomes available, even if this is at rock-bottom prices. In these circumstances suppliers can afford to offer less than the buyout price for enough electricity to satisfy their obligation and then buy surplus renewable electricity at prices below the going market rate. This is very good news for suppliers and very bad news for renewables generators. The workings of the free-market therefore tend to ensure that is no waste electricity and no waste ROCS even if these are now worthless on account of there being nothing paid into the buyout fund and therefore no payback for the ROCS presented to Ofgem. Also, the effect of "retiring" worthless ROCS is precisely nil and any 'compensation' paid to suppliers merely adds to their profits.