Danish Energy Agency

SUB-APPENDIX 5.B

Examples of Subsidy Rate & Annual Settlement calculations

Contract on subsidy for carbon capture, transport, and Storage

Instructions for tenderers

The tenderers shall not fill in or complete this Appendix and it should not be submitted as a part of the tenderer's offer.

Sub-Appendix 5.B contains examples of the calculation of deductions in the calculation of the Subsidy Rate and examples of calculations made in connection with the Annual Settlement. The Sub-Appendix is provided solely for illustrative purposes and to present non-exhaustive examples of the subsidy calculation. In case of any discrepancies between this Sub-appendix and Appendix 5, Subsidy and economy scheme, Appendix 5 shall prevail.

This guidance text will be deleted by the DEA in connection with conclusion of the Contract.

Content

1. INTRODUCTION

This Appendix contains examples of the calculations of the Subsidy Rate and examples of calculations made in connection with the Annual Settlement.

All examples in this Appendix are made without indexation to illustrate how the mechanisms for the determination and calculation of the Subsidy Rate deductions work in principle. This means that the Offered Rate and baseline values are used in the examples without calculation of the indexed value in order to keep the examples simple and illustrative. Reference is made to clause 5 in Appendix 5, Subsidy and economy scheme, for a detailed description of which variables are subject to indexation and how these calculations are made.

It is emphasized that the examples are not an exhaustive representation of all possible scenarios.

The colored squares in the table of each example highlights the variables that may affect the calculation of the deductions and of the Subsidy Rate in the specific scenario.

Capitalised terms used in this Appendix shall have the meaning ascribed to them in Appendix 2, Definitions.

2. EXAMPLES OF DETERMINATION AND CALCULATION OF SUBSIDY RATE DEDUCTIONS REGARDING TOTAL EUA & CO_2-RELATED TAX SAVINGS (FOSSIL CO_2)

A total of seven examples have been included in order to illustrate the calculation of possible deductions in the calculation of the Subsidy Rate when the provisional EUA savings per tonne and/or provisional tax savings per tonne differ from the Baseline EUA Savings Per Tonne and/or Baseline Tax Savings Per Tonne.

The examples are based on an operator, who:

- capture and store fossil CO_2 subject to EUA, and CO_2-related taxes;
- has not specified a Baseline Total Carbon Credit Income, nor specified a Forecast Total Carbon Credit Income;
- has an Offered Rate of 850.00 DKK; and
- has an Annual Forecast Quantity equal to the Annual Quantity.

The examples reflect the determination and calculation of Subsidy Rate deductions regarding total EUA and CO_2-related tax savings as set out in clause 8 of Appendix 5 Subsidy and economy scheme.

The examples also reflect calculation of the Subsidy Rate based on the assumptions above[1] and without taken into account any future legislation regarding biogenic/atmospheric allowances, for operators that might be subject to such future legislation with respect to a biogenic /atmospheric fraction of the Contracted Quantity.

This means that the examples reflect a calculation of the Subsidy Rate as set out in clause 6.2 of Appendix 5, Subsidy and economy scheme – where the "*Excess income carbon credits*" is 0 (zero) and without indexation in accordance with clause 5 of Appendix 5, Subsidy and economy scheme.

Example 2.1: Market value of EUA is higher than Baseline EUA Value

Variables & parameters	…	*Baseline values*	*Forecast Values*	…
Baseline Fossil EUA Fraction		50%		
Baseline EUA Value		750.00		
Baseline EUA Savings Per Tonne		375.00		
Forecast Fossil EUA Fraction			50%	
Market value of EUA			850.00	
Provisional EUA savings per tone			425.00	
Difference between provisional EUA savings per tonne & Baseline EUA Savings Per Tonne ("subtotal one")			50.00	
…				
Baseline Tax Savings Per Tonne		375.00		
Provisional tax savings per tonne			375.00	
Difference between provisional tax savings per tonne & Baseline Tax Savings Per Tonne ("subtotal two")			0.00	
…				
"Subtotal one" + "subtotal two"			50.00	…
Subsidy Rate deduction			50.00	
Offered Rate			850.00	
Subsidy Rate			800.00	

[1] And without the calculation of indexed value of Offered Rate and baseline values, see clause 1.

In example 2.1, the market value of EUA has proven to be 100.00 DKK higher than the Baseline EUA Value. The Forecast Fossil EUA Fraction remains at 50% - the same as the Baseline Fossil EUA Fraction. This means that the EUA savings have increased by 50.00 DKK per tonne of CO_2.

Since the Baseline Tax Savings Per Tonne and the provisional tax savings per tonne are of equal value, the savings from CO_2-related taxes remain the same. As a result, the increase of total EUA and CO_2 related tax savings amount to 50.00 DKK per tonne.

As the total EUA and CO_2-related tax savings has increased compared to baselines of the offer, the calculation of the Subsidy Rate shall be subject to a deduction equal to this increase of savings. The Subsidy Rate will therefore be 50.00 DKK less than the Offered Rate of 850.00 DKK. As a result, the Subsidy Rate is calculated to be 800.00 DKK.

The calculation can be expressed as follows:

$$\text{Subsidy Rate} = Offered\ Rate_t - (\Delta Savings_{EUA} + \Delta Savings_{tax}) - 0.9 \cdot Excess\_income_{CarbonCredits}$$

$$\Delta Savings_{EUA} + \Delta Savings_{tax} = (50\ + 0) = 50 > 0, \text{ so}$$

$$800 = 850 - (50) - 0.9 \cdot 0$$

Example 2.2: Market value of EUA is lower than Baseline EUA Value

Variables & parameters	…	*Baseline values*	*Forecast Values*	…
Baseline Fossil EUA Fraction		50%		
Baseline EUA Value		750.00		
Baseline EUA Savings Per Tonne		375.00		
Forecast Fossil EUA Fraction			50%	
Market value of EUA			650.00	
Provisional EUA savings per tonne			325.00	
Difference between provisional EUA savings per tonne & Baseline EUA Savings Per Tonne (“subtotal one”)			-50.00	
…				

Baseline Tax Savings Per Tonne		375.00		
Provisional tax savings per tonne			375.00	
Difference between provisional tax savings per tonne & Baseline Tax Savings Per Tonne (“subtotal two”)			0.00	
…				
“Subtotal one” + “subtotal two”			-50.00	
Subsidy Rate deduction			0	
Offered Rate			850.00	
Subsidy Rate			850.00	

In example 2.2, the market value of EUA has proven to be 100.00 DKK lower than the Baseline EUA Value. The Forecast Fossil EUA Fraction remains at 50% - the same as the Baseline Fossil EUA Fraction. This means that the EUA savings have decreased by 50.00 DKK per tonne of CO_2.

Since the Baseline Tax Savings Per Tonne and the provisional tax savings per tonne are of equal value, the savings from CO_2-related taxes remain the same. As a result, the decrease of total EUA and CO_2-related tax savings amount to 50.00 DKK per tonne of CO_2.

As the total EUA and CO_2-related tax savings has not increased, the calculation of the Subsidy Rate is not subject to any deduction. This means that the Subsidy Rate will be equal to the Offered Rate of 850.00 DKK.

The calculation can be expressed as follows:

$$\text{Subsidy Rate} = Offered\ Rate_t - (\Delta Savings_{EUA} + \Delta Savings_{tax}) - 0.9 \cdot Excess\_income_{CarbonCredits}$$

$$\Delta Savings_{EUA} + \Delta Savings_{tax} = ((-50)\ + 0) = (-50) < 0, \text{ so}$$

$$850 = 850 - (0) - 0.9 \cdot 0$$

Example 2.3: Forecast Fossil EUA Fraction & Forecast Total Tax Savings are higher compared to the baseline values

Variables & parameters	…	*Baseline values*	*Forecast Values*	…
Baseline Fossil EUA Fraction		50%		

Baseline EUA Value		750.00		
Baseline EUA Savings Per Tonne		375.00		
Forecast Fossil EUA Fraction			65%	
Market value of EUA			750.00	
Provisional EUA savings per tonne			487.50	
Difference between provisional EUA savings per tonne & Baseline EUA Savings Per Tonne (“subtotal one”)			112.50	
…				
Baseline Total Tax Savings		37,500,000.00		
Annual Quantity		100,000		
Baseline Tax Savings Per Tonne		375.00		
Forecast Total Tax Savings			42,500,000.00	
Annual Forecast Quantity			100,000	
Provisional tax savings per tonne			425.00	
Difference between provisional tax savings per tonne & Baseline Tax Savings Per Tonne (“subtotal two”)			50.00	
…				
“Subtotal one” + “subtotal two”			162.50	…
Subsidy Rate deduction			162.50	
Offered Rate			850.00	
Subsidy Rate			687.50	

In example 2.3, the operator has submitted a forecast containing a higher Forecast Fossil EUA Fraction, and a higher Forecast Total Tax Savings compared to the corresponding baseline values. This results in higher EUA and tax savings per tonne of CO_2 compared to the operator’s projections at the time of submission of the offer. The increase of EUA savings, due to the increase of the Forecast Fossil EUA Fraction, amount to 112.50 DKK per tonne of CO_2.

The operator has submitted a Forecast Total Tax Savings that is 5,000,000.00 DKK higher than the Baseline Total Tax Savings. When divided with the Annual Forecast Quantity and the Annual Quantity respectively (both 100,000 tonnes), in order to transform the total tax savings into an amount per tonne of CO_2, the increase of CO_2-related tax savings amounts to 50.00 DKK per tonne of CO_2.

Adding these two sums together amounts to increase of total EUA and CO_2-related tax savings of 162.50 DKK per tonne of CO_2.

As this means that the total EUA and CO_2-related tax savings have increased compared to the corresponding baseline savings, the calculation of the Subsidy Rate shall be subject to a deduction of an amount equal to the increase of total EUA and tax savings. The Subsidy Rate will therefore be 162.50 DKK less than the Offered Rate of 850.00 DKK. As a result, the Subsidy Rate is calculated to be 687.50 DKK.

The calculation can be expressed as follows:

$$\text{Subsidy Rate} = Offered\ Rate_t - (\Delta Savings_{EUA} + \Delta Savings_{tax}) - 0.9 \cdot Excess\_income_{CarbonCredits}$$

$$\Delta Savings_{EUA} + \Delta Savings_{tax} = (112.5\ + 50) = 162.5 > 0, \text{ so}$$

$$687.5 = 850 - (162.5) - 0.9 \cdot 0$$

Example 2.4: Forecast Fossil EUA Fraction & Forecast Tax Savings are lower compared to the baseline values

Variables & parameters	…	*Baseline values*	*Forecast Values*	…
Baseline Fossil EUA Fraction		50%		
Baseline EUA Value		750.00		
Baseline EUA Savings Per Tonne		375.00		
Forecast Fossil EUA Fraction			40%	
Market value of EUA			750.00	
Provisional EUA savings per tonne			300.00	
Difference between provisional EUA savings per tonne & Baseline EUA Savings Per Tonne (“subtotal one”)			-75.00	
…				
Baseline Total Tax Savings		37,500,000.00		
Annual Quantity		100,000		
Baseline Tax Savings Per Tonne		375.00		
Forecast Tax Savings Per Tonne			32,500,000.00	

Annual Forecast Quantity			100,000	
Provisional tax savings per tonne			325.00	
Difference between provisional tax savings per tonne & Baseline Tax Savings Per Tonne (“subtotal two”)			-50.00	
…				
“Subtotal one” + “subtotal two”			-125.00	
Subsidy Rate deduction			0	…
Offered Rate			850.00	
Subsidy Rate			850.00	

In example 2.4, there is no difference between the Baseline EUA Value and the market value of EUA. However, the operator has submitted a forecast containing a lower Forecast Fossil EUA Fraction and a lower Forecast Total Tax Savings compared to the corresponding baseline values due to a lower fraction of the Annual Forecast Quantity being subject to EUA and CO_2-related taxes. This results in decreased EUA savings per tonne of CO_2. The decrease of EUA savings, due to the decrease of the fossil EUA fraction, amount to -75.00 DKK per tonne of CO_2.

The operator has a Forecast Total Tax Savings that is 5,000,000.00 DKK less than the Baseline Total Tax Savings. When divided with the Annual Quantity and the Annual Forecast Quantity respectively (both 100,000 tonnes), in order to transform the total tax savings into an amount per tonne of CO_2, the decrease of tax savings amounts to -50.00 DKK per tonne of CO_2.

Adding these two sums together amounts to decrease of total EUA and CO_2-related tax savings of -125.00 DKK per tonne of CO_2.

As the total EUA and CO_2-related tax savings have not increased compared to the corresponding baseline savings, the calculation of the Subsidy Rate is not subject to any deduction. This means that the Subsidy Rate will be equal to the Offered Rate of 850.00 DKK.

The calculation can be expressed as follows:

$$\text{Subsidy Rate} = Offered\ Rate_t - (\Delta Savings_{EUA} + \Delta Savings_{tax}) - 0.9 \cdot Excess\_income_{CarbonCredits}$$

$$\Delta Savings_{EUA} + \Delta Savings_{tax} = \big((-75) + (-50)\big) = (-125) < 0, \text{ so}$$

$$850 = 850 - (0) - 0.9 \cdot 0$$

Example 2.5: Market value of EUA is higher than Baseline EUA Value and Forecasted Fossil EUA Fraction & Forecast Total Tax Savings are lower compared to the baseline values

Variables & parameters	…	*Baseline values*	*Forecast Values*	…
Baseline Fossil EUA Fraction		50%		
Baseline EUA Value		750.00		
Baseline EUA Savings Per Tonne		375.00		
Forecast Fossil EUA Fraction			40%	
Market value of EUA			1,000.00	
Provisional EUA savings per tonne			400.00	
Difference between provisional EUA savings per tonne & Baseline EUA Savings Per Tonne (“subtotal one”)			25.00	
…				
Baseline Total Tax Savings		37,500,000.00		
Annual Quantity		100,000		
Baseline Tax Savings Per Tonne		375.00		
Forecast Total Tax Savings			32,500,000.00	
Annual Forecast Quantity			100,000	
Provisional tax savings per tonne			325.00	
Difference between provisional tax savings per tonne & Baseline Tax Savings Per Tonne (“subtotal two”)			-50.00	
…				
“Subtotal one” + “subtotal two”			-25.00	
Subsidy Rate deduction			0	…
Offered Rate			850.00	
Subsidy Rate			850.00	

In example 2.5, the market value of EUA and the operator’s Forecast Fossil EUA Fraction and Forecast Total Tax Savings affect the calculation of Subsidy Rate deduction in opposite directions.

Firstly, the market value of EUA of 1,000.00 DKK is higher than the Baseline EUA Value of 750.00 DKK.

Secondly, the operator has submitted a Forecast Fossil EUA Fraction, that is ten percentage points lower than the corresponding baseline value.

Even though the operator now expects to Store less Fossil CO_2 subject to EUA than projected at the time of submission of the offer, which – if the value of EUA were unchanged – would result in less EUA savings, the increase of market value of EUA outweighs this effect. The provisional EUA savings per tonne has therefore increased by 25.00 DKK per tonne of CO_2 compared to the Baseline EUA Savings Per Tonne.

Thirdly, the operator's Forecast Total Tax Savings is 5,000,000.00 DKK less than the Baseline Total Tax Savings. When divided with the Annual Forecast Quantity and the Annual Quantity respectively (both 100,000 tonnes), in order to transform the total tax savings into an amount per tonne of CO_2, the less tax savings amount to -50.00 DKK per tonne of CO_2.

Adding the increase of EUA savings and decrease of CO_2-related tax savings together amounts to -25.00 DKK, which is the total change in savings.

As the total EUA and CO_2-related tax savings have not increased compared to the corresponding baseline savings, the calculation of the Subsidy Rate is not subject to any deduction. This means that the Subsidy Rate will be equal to the Offered Rate of 850.00 DKK.

The calculation can be expressed as follows:

$$\text{Subsidy Rate} = Offered\ Rate_t - (\Delta Savings_{EUA} + \Delta Savings_{tax}) - 0.9 \cdot Excess\_income_{CarbonCredits}$$

$$\Delta Savings_{EUA} + \Delta Savings_{tax} = (25 + (-50)) = (-25) < 0, \text{ so}$$

$$850 = 850 - (0) - 0.9 \cdot 0$$

Example 2.6: Market value of EUA is lower than Baseline EUA Value and Forecasted Fossil EUA Fraction & Forecast Total Tax Savings are higher compared to the baseline values

Variables & parameters	…	*Baseline values*	*Forecast Values*	…
Baseline Fossil EUA Fraction		50%		
Baseline EUA Value		750.00		
Baseline EUA Savings Per Tonne		375.00		

Forecast Fossil EUA Fraction			65%	
Market value of EUA			650.00	
Provisional EUA savings per tonne			422.50	
Difference between provisional EUA savings per tonne & Baseline EUA Savings Per Tonne (“subtotal one”)			47.50	
…				
Baseline Total Tax Savings		37,500,000.00		
Annual Quantity		100,000		
Baseline Tax Savings Per Tonne		375.00		
Forecast Total Tax Savings			48,750,000.00	
Annual Forecast Quantity			100,000	
Provisional tax savings per tonne			487.50	
Difference between provisional tax savings per tonne & Baseline Tax Savings Per Tonne (“subtotal two”)			112.50	
…				
“Subtotal one” + “subtotal two”			160.00	…
Subsidy Rate deduction			160.00	
Offered Rate			850.00	
Subsidy Rate			690.00	

In example 2.6, the operator has increased provisional EUA savings per tonne despite a decrease in the market value of EUA compared to the Baseline EUA Value. The operators provisional tax savings per tonne have also increased compared to the Baseline Tax Savings Per Tonne.

Firstly, the market value of EUA of 650.00 DKK is lower than the Baseline EUA Value of 750.00 DKK. Secondly, the operator has also submitted a Forecast Fossil EUA Fraction that is 15 percentage points higher than the Baseline Fossil EUA Fraction.

Even though the market value of EUA has turned out to be lower compared to the Baseline EUA Value, the operator now expects to Store more Fossil CO_2 subject to EUA than projected at the time of the offer, and this effect outweighs the impact of a lower market value of EUA. The operator’s provisional EUA savings per tonne have therefore increased by 47.50 DKK per tonne of CO_2 compared to the Baseline EUA Savings Per Tonne.

Thirdly, the operator has submitted a Forecast Total Tax Savings that is 11,250,000.00 DKK higher than the Baseline Total Tax Savings. When divided with the Annual Forecast Quantity and the Annual Quantity respectively (both 100,000 tonnes), in order to transform the total tax savings into an amount per tonne of CO_2, the increase of CO_2-related tax savings amounts to 112.50 DKK per tonne of CO_2.

Adding the increase of EUA savings per tonne and increase of CO_2-related tax savings per tonne together amounts to 160.00 DKK per tonne, which is the total increase of savings.

As the total EUA and CO_2-related tax savings have increased compared to the corresponding baseline savings, the calculation of the Subsidy Rate shall be subject to a deduction of an amount equal to this increase of savings. The Subsidy Rate will therefore be 160.00 DKK less than the Offered Rate of 850.00 DKK. As a result, the Subsidy Rate is calculated to be 690.00 DKK.

The calculation can be expressed as follows:

$$\text{Subsidy Rate} = Offered\ Rate_t - (\Delta Savings_{EUA} + \Delta Savings_{tax}) - 0.9 \cdot Excess\_income_{CarbonCredits}$$

$$\Delta Savings_{EUA} + \Delta Savings_{tax} = (112.5\ + 50) = 162.5 > 0, \text{ so}$$

$$687.5 = 850 - (162.5) - 0.9 \cdot 0$$

Example 2.7 Market value of EUA is lower than Baseline EUA Value and Forecast Total Tax Savings are higher than Baseline Total Tax Savings

Variables & parameters	…	*Baseline values*	*Forecast Values*	…
Baseline Fossil EUA Fraction		50%		
Baseline EUA Value		750.00		
Baseline EUA Savings Per Tonne		375.00		
Forecast Fossil EUA Fraction			50%	
Market value of EUA			500.00	
Provisional EUA savings per tonne			250.00	
Difference between provisional EUA savings per tonne & Baseline EUA Savings Per Tonne (“subtotal one”)			-125.00	
…				

Baseline Total Tax Savings		37,500,000.00		
Annual Quantity		100,000		
Baseline Tax Savings Per Tonne		375.00		
Forecast Total Tax Savings			47,500,000.00	
Annual Forecast Quantity			100,00	
Provisional tax savings per tonne			475.00	
Difference between provisional tax savings per tonne & Baseline Tax Savings Per Tonne (“subtotal two”)			100.00	
…				
“Subtotal one” + “subtotal two”			-25.00	
Subsidy Rate deduction			0	…
Offered Rate			850.00	
Subsidy Rate			850.00	

In example 2.7, the Forecast Total Tax Savings has increased compared to the baseline value, while the Forecast Fossil EUA Fraction remains equal to the Baseline Fossil EUA Fraction. This outcome may e.g. occur if legislative changes results in an increase of the Emission Tax and/or CO_2 Tax rates.

The operator has therefore submitted a Forecast Total Tax Savings that is 10,000,000.00 DKK higher than the Baseline Total Tax Savings. When divided with the Annual Quantity and the Annual Forecast Quantity respectively (both 100,000 tonnes), in order to transform the total tax savings into an amount per tonne of CO_2, the increase of tax savings amounts to 100.00 DKK per tonne of CO_2.

Furthermore, the market value of EUA has proven to be 250.00 DKK lower than the Baseline EUA Value. The Forecast Fossil EUA Fraction remains at 50% - the same as the Baseline Fossil EUA Fraction. This means that the EUA savings have decreased by 125.00 DKK per tonne of CO_2.

When adding the decrease of EUA savings and the increase of tax savings, the sum amounts to -25.00 DKK, i.e. a decrease of the total EUA and tax savings.

As the total EUA and CO_2-related tax savings have not increased compared to baseline savings, the calculation of the Subsidy Rate is not subject to any deduction. This means that the Subsidy Rate will be equal to the Offered Rate of 850.00 DKK.

The calculation can be expressed as follows:

$$\text{Subsidy Rate} = Offered\ Rate_t - (\Delta Savings_{EUA} + \Delta Savings_{tax}) - 0.9 \cdot Excess\_income_{CarbonCredits}$$

$$\Delta Savings_{EUA} + \Delta Savings_{tax} = (-125 + 100)) = (-25) < 0, \text{ so}$$

$$850 = 850 - (0) - 0.9 \cdot 0$$

3. EXAMPLES OF DETERMINATION AND CALCULATION OF SUBSIDY RATE DEDUCTIONS REGARDING CARBON CREDIT INCOME AND OTHER ALLOWANCES SAVINGS (BIOGENIC AND ATMOSPHERIC CO_2)

The following examples illustrate the calculation of possible deductions in the calculation of the Subsidy Rate when the operator submits a forecast containing a Forecast Total Carbon Credit Income that differs from the Baseline Total Carbon Credit Income.

Example 3.2 - 3.6 also illustrate the possible impact on calculation of the Subsidy Rate in scenarios where future legislation entails that participation in the EU Emissions Trade Scheme (ETS), or a similar EU-mandated trade scheme, becomes either mandatory for emitters of Biogenic CO_2 or voluntary for emitters of Biogenic CO_2 and operators capturing Atmospheric CO_2.

The examples are based on an operator, who:

- capture and store biogenic CO_2;
- does not store fossil CO_2 subject to EUA and CO_2-related taxes;
- has an Offered Rate of 850.00 DKK, and
- has an Annual Forecast Quantity equal to the Annual Quantity

The examples reflect the determination and calculation of Subsidy Rate deductions regarding Carbon Credit income (as set out in clause 9 of Appendix 5, Subsidy and economy scheme) and other allowances savings (as set out in clause 10 of Appendix 5, Subsidy and economy scheme).

The examples also reflect calculation of the Subsidy Rate based on the assumptions above and without the calculation of indexed value of Offered Rate and baseline values.

This means that the examples reflect calculation of the Subsidy Rate as set out in the formulas in clause 6.2 – 6.4 of Appendix 5 [2] where $(\Delta Savings_{EUA} + \Delta Savings_{tax})$ is 0 (zero) and without indexation in accordance with clause 5 of Appendix 5, Subsidy and economy scheme.

Example 3.1 Forecast Total Carbon Credit Income is higher than Baseline Total Carbon Credit Income – no income from other allowances savings

Variables & parameters	…	*Baseline values*	*Forecast Values*	…
Baseline Total Carbon Credit Income		15,000,000.00		
Forecast Total Carbon Credit Income			20,000,000.00	
Annual Forecast Quantity			100,000	
Provisional excess Carbon Credit income per tonne			50.00	
90% of provisional excess Carbon Credit income per tonne			45.00	
…				
Subsidy Rate deduction			45.00	
Offered Rate			850.00	
Subsidy Rate			805.00	

In example 3.1, the operator has specified a Baseline Total Carbon Credit Income of 15,000,000.00 DKK. The operator has furthermore submitted a Forecast Total Carbon Credit Income of 20,000,000.00 DKK. The difference between the forecast and the baseline is 5,000,000.00 DKK.

The provisional excess Carbon Credits income per tonne is the difference (5,000,000.00 DKK) divided by the Annual Forecast Quantity (100,000 tonnes). In this example that amount equals 50.00 DKK.

The calculation of the Subsidy Rate is subject to a deduction of 90% of such excess income. This means that the Subsidy Rate will be 45.00 DKK less than the Offered Rate of 850.00 DKK. As a result, the Subsidy Rate is calculated to be 805.00 DKK.

The calculation can be expressed as follows:

[2] Example 1 reflects the formula in clause 6.2, example 2, 3 and 4 reflect the formula in clause 6.3 and example 5 and 6 reflect the formula in clause 6.4.

$$\text{Subsidy Rate} = Offered\ Rate_t - (\Delta Savings_{EUA} + \Delta Savings_{tax}) - 0.9 \cdot Excess\_income_{CarbonCredits}$$

$$0.9 \cdot Excess_{income_{CarbonCredits}} = 0.9 \cdot 50 = 45 > 0, \text{ so}$$

$$805 = 850 - (0) - (45)$$

Example 3.2 Calculation of a Subsidy Rate deduction if participation in the ETS becomes <u>mandatory</u> (Biogenic CO_2) – no income from Carbon Credits specified

Variables & parameters	…	*Baseline values*	*Forecast Values*	…
Forecast Biogenic Allowances Fraction			50%	
Market value of Biogenic Allowances			750.00	
Provisional biogenic allowances savings per tonne			375.00	
…				
Subsidy Rate deduction			375.00	
Offered Rate			850.00	
Subsidy Rate			475.00	

In example 3.2, Biogenic CO_2 has become subject to EU ETS (<u>mandatory</u>) and the operator has not specified any income generated by Carbon Credits in the offer or in the forecast.

This means that only a deduction regarding the biogenic allowances savings will apply in the calculation of the Subsidy Rate. The provisional biogenic allowances savings per tonne amounts to 375.00 DKK, calculated by multiplying the Forecast Biogenic Allowances Fraction of 50% with the market value of biogenic allowances of 750.00 DKK.

The calculation of the Subsidy Rate shall be subject to a deduction equal to the new savings stemming from the mandatory inclusion of Biogenic CO_2 in the ETS and the Subsidy Rate will therefore be 375 DKK less than the Offered Rate of 850.00 DKK. As a result, the Subsidy Rate is calculated to be 475.00 DKK.

The calculation can be expressed as follows:

$$\text{Subsidy Rate} = Offered\ Rate_t - (\Delta Savings_{EUA} + \Delta Savings_{tax}) - 0.9 \cdot Excess_{income_{CarbonCredits}} - (Savings_{BiogenicAllowances} + decreased\_income_{CarbonCredits})$$

$$(Savings_{BiogenicAllowances} + decreased\_income_{CarbonCredits}) = 375 + 0 = 375 > 0, \text{ so}$$

$$475 = 850 - (0) - 0.9 \cdot 0 - (375 + 0)$$

Example 3.3 Calculation of a Subsidy Rate deduction if participation in the ETS becomes <u>mandatory</u> (Biogenic CO_2) – inclusion in the ETS has negatively affected the operator's Carbon Credit income

Variables & parameters	…	*Baseline values*	*Forecast Values*	…
Baseline Total Carbon Credit Income		15,000,000.00		
Forecast Total Carbon Credit Income			0.00	
Annual Forecast Quantity			100,000	
Provisional excess Carbon Credit income per tonne			0	
Decrease of Carbon Credit Income ("subtotal one")			-150.00	
…				
Forecast Biogenic Allowances Fraction			50%	…
Market value biogenic allowances			750.00	
Provisional biogenic allowances savings per tonne ("subtotal two")			375.00	
…				
"Subtotal two" + "subtotal one"			225.00	
Subsidy Rate deduction			225.00	…
Offered Rate			850.00	
Subsidy Rate			625.00	

In example 3.3, the operator has specified a Baseline Total Carbon Credit Income of 15,000,000.00 DKK. However, after the mandatory inclusion into the ETS,[3] the operator's Forecast Total Carbon Credit Income has dropped to 0.00 DKK. The difference between the forecast and the baseline is therefore -15,000,000.00 DKK.

As such, the operator has no excess income from Carbon Credits, but instead a decreased Carbon Credit income. The decreased Carbon Credits income per tonne is the difference between the Baseline Total Carbon Credit Income and Forecast Total Carbon Credit Income (-15,000,000.00 DKK) divided by the Annual Forecast Quantity (100,000 tonnes). This amount equals -150.00 DKK.

The provisional biogenic allowances savings per tonne amounts to 375.00 DKK, calculated by multiplying the Forecast Biogenic Allowances Fraction of 50% with the market value biogenic allowance of 750.00 DKK.

As the operator has no excess income from Carbon Credits, the only possible deduction is the savings of biogenic allowances but taking into account the decreased income of Carbon Credits.

As such, the operator's savings of biogenic allowances per tonne CO_2 are higher than the decrease of Carbon Credit income. This means that the calculation of the Subsidy Rate shall be subject to a deduction of an amount equal to the difference between the provisional biogenic allowances savings per tonne and the decrease of Carbon Credit income per tonne. The deduction is calculated by adding the decrease of Carbon Credit income per tonne (a negative amount) to the biogenic allowances saving. This amounts, in this example, to 225.00 DKK, which consequently will constitute the deduction in the calculation of the Subsidy Rate. As a result of the deduction, the Subsidy Rate is calculated to be 625.00 DKK.

The calculation can be expressed as follows:

$$\text{Subsidy Rate} = Offered\ Rate_t - (\Delta Savings_{EUA} + \Delta Savings_{tax}) - 0.9 \cdot Excess_{income_{CarbonCredits}} - (Savings_{BiogenicAllowances} + decreased\_income_{CarbonCredits})$$

$$(Savings_{BiogenicAllowances} + decreased\_income_{CarbonCredits}) = (375 + (-150)) = 225 > 0, \text{ so}$$

$$625 = 850 - (0) - 0.9 \cdot 0 - (225)$$

If the operator had had a loss of income from Carbon Credits exceeding the Provisional Biogenic Allowances Savings per tonne (375.00 DKK), meaning that the sum of these amounts would be a negative amount, the

[3] This may occur if e.g. the operator's ability to sell carbon credits is directly inhibited by the operator's inclusion into the ETS.

calculation of the Subsidy Rate would not be subject to a deduction, as the Subsidy Rate cannot exceed the Offered Rate[4]. In such an example, the Subsidy Rate would be equal to the Offered Rate, i.e. 850.00 DKK.

Example 3.4 Calculation of a Subsidy Rate deduction if participation in the ETS becomes mandatory (Biogenic CO_2) – inclusion in the ETS has not negatively affected the operator's Carbon Credit income

Variables & parameters	…	*Baseline values*	*Forecast Values*	…
Baseline Total Carbon Credit Income		15,000,000.00		
Forecast Total Carbon Credit Income			20,000,000.00	
Annual Forecast Quantity			100,000	
Provisional excess Carbon Credit income per tonne			50.00	
90% of provisional excess Carbon Credit income per tonne ("subtotal one")			45.00	
Decrease of Carbon Credit Income			0.00	
…				
Forecast Biogenic Allowances Fraction	…		50%	…
Market value biogenic allowances			750.00	
Provisional biogenic allowances savings per tonne ("subtotal two")			375.00	
…				
"Subtotal one" + "subtotal two"			420.00	…
Subsidy Rate deduction			420.00	
Offered Rate			850.00	
Subsidy Rate			430.00	

In example 3.4, the operator has specified a Baseline Total Carbon Credit Income of 15,000,000.00 DKK. Inclusion into the ETS has not negatively affected the operator's Carbon Credit income. Consequently, the operator's decrease of Carbon Credit income is 0. On the contrary, the operator has submitted a Forecast Total Carbon Credit Income of 20,000,000.00 DKK, which is higher than the corresponding baseline value,

[4] Note, the Subsidy Rate cannot exceed the Offered Rate adjusted in accordance with clause 5.2, Appendix 5, but for the sake of simplicity the examples are without the indexation.

resulting in an excess Carbon Credit income. The difference between the forecast and the baseline is 5,000,000.00 DKK.

The provisional excess Carbon Credits income per tonne is the difference (5,000,000.00 DKK) divided by the Annual Forecast Quantity (100,000 tonnes). This amount equals 50.00 DKK. The calculation of the Subsidy Rate is subject to a deduction of 90% of this excess income, equal to 45.00 DKK.

Furthermore, the calculation of the Subsidy Rate is also subject to a deduction equal to the savings of biogenic allowances. The provisional biogenic allowances savings per tonne amount to 375.00 DKK, which is calculated by multiplying the operator's Forecast Biogenic Allowances Fraction of 50% with the market value of the biogenic allowances of 750.00 DKK.

This means that the Carbon Credit income and savings from biogenic allowances per tonne CO_2 has increased compared to the corresponding baseline values. The calculation of the Subsidy Rate shall be subject to a deduction of an amount equal to the sum of 90% of the excess Carbon Credit income per tonne and the biogenic allowances savings. This sum amounts to 420 DKK. As a result, the Subsidy Rate is calculated to be 430.00 DKK.

The calculation can be expressed as follows:

$$\text{Subsidy Rate} = Offered\ Rate_t - (\Delta Savings_{EUA} + \Delta Savings_{tax}) - 0.9 \cdot Excess_{income_{CarbonCredits}} - (Savings_{BiogenicAllowances} + decreased\_income_{CarbonCredits})$$

$$(Savings_{BiogenicAllowances} + decreased\_income_{CarbonCredits}) = (375 + 0)) = 375 > 0$$

$$0.9 \cdot Excess_{income_{CarbonCredits}} = 0.9 \cdot 50 = 45 > 0, \text{ so}$$

$$430 = 850 - (0) - (45) - (375)$$

Example 3.5 Calculation of a Subsidy Rate deduction if participation in the ETS becomes <u>voluntary</u> (Biogenic and Atmospheric CO_2) – no income from Carbon Credits specified

Variables & parameters	…	*Baseline values*	*Forecast Values*	…
Forecast Biogenic Allowances Fraction			50%	
Market value biogenic allowances			750.00	

Provisional biogenic allowances savings per tonne			375.00	
…				
90% of Provisional biogenic allowances savings			337.50	
Subsidy Rate deduction			337.50	
Offered Rate			850.00	
Subsidy Rate			512.50	

In example 3.5, the operator (or a Sub-Supplier that the operator bases the performance of the Contract on) has chosen to participate in the voluntary ETS. The operator has not specified an income from Carbon Credits in the offer or the forecast. The deduction of the Subsidy Rate will therefore be calculated only on the basis of the biogenic allowances savings.[5] The deduction in the calculation of the Subsidy Rate will be 90% of the savings of biogenic allowances.

The operator's provisional biogenic allowances savings per tonne amount to 375 DKK, which is calculated by multiplying the operator's Forecast Biogenic Allowances Fraction of 50% with the market value of the biogenic allowances of 750.00 DKK.

90 % of such allowances savings per tonne will constitute the deduction in the calculation of the Subsidy Rate This sum amounts to 337.50 DKK. As a result, the Subsidy Rate is calculated to be 512.50 DKK.

The calculation can be expressed as follows:

$$\text{Subsidy Rate} = Offered\ Rate_t - (\Delta Savings_{EUA} + \Delta Savings_{tax}) - 0.9 \cdot Excess_{income_{CarbonCredits}} - 0.9 \cdot (Savings_{BiogenicAllowances} + decreased\_income_{CarbonCredits})$$

$$(Savings_{BiogenicAllowances} + decreased\_income_{CarbonCredits}) = (375 + 0)) = 375 > 0$$

$$\& \ Excess_{income_{CarbonCredits}} = 0, \text{ so}$$

$$512.5 = 850 - (0) - (0.9 \cdot 0) - (0.9 \cdot 375)$$

[5] For the purpose of this example, it is assumed that the operator only captures and Stores Biogenic CO_2. However, the same example would be applicable if the operator captured and stored Atmospheric CO_2.

Example 3.6 Calculation of a Subsidy Rate deduction if participation in the ETS becomes voluntary (Biogenic and Atmospheric CO_2) - participation in the ETS has negatively affected the operator's Carbon Credit income

Variables & parameters	…	*Baseline values*	*Forecast Values*	…
Baseline Total Carbon Credit Income		15,000,000.00		
Forecast Carbon Credit Income			10,000,000.00	
Annual Forecast Quantity			100,000	
Excess Carbon Credit Income			0.00	
Decrease of Carbon Credit income ("subtotal one")			-50.00	
…				
Forecast Biogenic Allowances Fraction			50%	…
Market value biogenic allowances			750.00	
Provisional biogenic allowances savings per tonne ("subtotal two")			375.00	
…				
Excess income ("subtotal two" + "subtotal one")			325.00	…
90% of excess income per tonne			292.50	
Subsidy Rate deduction			292.50	
Offered Rate			850.00	
Subsidy Rate			557.50	

In example 3.6 the operator (or a Sub-Supplier that the operator bases the performance of the Contract on) has chosen to participate in the voluntary ETS.[6] As the operator has no excess income from Carbon Credits, the only possible deduction in the calculation of the Subsidy Rate shall be 90% of the savings of biogenic allowances but taking into account the decrease of income of Carbon Credits.

[6] For the purpose of this example, it is assumed that the operator only captures and Stores Biogenic CO_2. However, the same example would be applicable if the operator captured and stored Atmospheric CO_2.

The provisional biogenic allowances savings per tonne amount to 375.00 DKK, which is calculated by multiplying the operator's Forecast Biogenic Allowances Fraction of 50% with the market value of the biogenic allowances of 750.00 DKK.

However, the operator's participation in the ETS has negatively affected the income from Carbon Credits. Therefore, the operator has submitted a lower Forecast Total Carbon Credit Income (10,000,00.00 DKK) compared to the Baseline Total Carbon Credit Income (15,000,000.00 DKK). The difference between the forecast and the baseline is -5,000,000.00 DKK.

The decrease of Carbon Credit income pr tonne is this difference (-5,000,000.00 DKK) divided by the Annual Forecast Quantity (100,000 tonnes). This amount equals -50.00 DKK.

In order to determine whether a reduction shall apply the provisional biogenic allowances savings is added together with the amount equal to the decrease of the Carbon Credits income. This amounts to 325.00 DKK.

The calculation of the Subsidy Rate is subject to a deduction of 90% of this sum of the biogenic allowances savings and the decrease of the Carbon Credit income. This equals 292.50 DKK. As a result, the Subsidy Rate will be calculated to be 557.50 DKK.

The calculation can be expressed as follows:

$$\text{Subsidy Rate} = Offered\ Rate_t - (\Delta Savings_{EUA} + \Delta Savings_{tax}) - 0.9 \cdot Excess_{income_{CarbonCredits}} - 0.9 \cdot (Savings_{BiogenicAllowances} + decreased\_income_{CarbonCredits})$$

$$(Savings_{BiogenicAllowances} + decreased\_income_{CarbonCredits}) = (375 + (-50))) = 325 > 0$$

$$\& \ Excess_{income_{CarbonCredits}} = 0, \text{ so}$$

$$557.5 = 850 - (0) - (0.9 \cdot 0) - (0.9 \cdot 325)$$

4. EXAMPLES OF DETERMINATION AND CALCULATION OF A SUBSIDY RATE DEDUCTION FOR OPERATORS WITH A CARBON CREDIT INCOME WHO ALSO STORE FOSSIL CO_2 SUBJECT TO EUA

These examples reflect the determination and calculation of Subsidy Rate deductions regarding total EUA and CO_2 related tax savings (as set out in clause 8 of Appendix 5, Subsidy and economy scheme), carbon credit

income (as set out in clause 9 of Appendix 5, Subsidy and economy scheme) and other allowances savings (as set out in clause 10 of Appendix 5, Subsidy and economy scheme).

The examples also reflect calculation of the Subsidy Rate based on the assumptions below and without the calculation of indexed value of Offered Rate and baseline values.

4.1 Example 4.1 Higher EUA & tax savings and higher Carbon Credit Income

Example 4.1 illustrates a scenario where the following apply:

- Market value of EUA is higher than Baseline EUA Value;
- Forecast Fossil EUA Fraction and provisional tax savings per tonne are higher compared to the baseline values;
- Forecast Total Carbon Credit Income is higher than the Baseline Total Carbon Credit income;
- No inclusion of Biogenic/Atmospheric CO_2 in ETS;
- The Annual Forecast Quantity is equal to the Annual Quantity; and
- The Offered Rate is 850.00 DKK.

Variables & parameters	…	*Baseline values*	*Forecast Values*	…
Baseline Fossil EUA Fraction		50%		
Baseline EUA Value		750.00		
Baseline EUA Savings Per Tonne		375.00		
Forecast Fossil EUA Fraction			65%	
Market value of EUA			850.00	
Provisional EUA savings per tonne			552.50	
Difference between provisional EUA savings per tonne & Baseline EUA Savings Per Tonne (“subtotal one”)			177.50	
…				
Baseline Total Tax Savings		37,500,000.00		

Annual Quantity		100,000			
Baseline Tax Savings Per Tonne		375.00			
Forecast Total Tax Savings			48,750,000.00		
Annual Forecast Quantity			100,000		
Provisional tax savings per tonne			487.50		
Difference between provisional tax savings per tonne & Baseline Tax Savings Per Tonne (“subtotal two”)			112.50		
…					
Subsidy Rate deduction regarding total EUA and CO_2-related tax savings (“subtotal one” + “subtotal two”)			290.00		
…					
Baseline Total Carbon Credit Income		15,000,000.00			
Forecast Total Carbon Credit Income			20,000,000.00		
Annual Forecast Quantity			100,000		
Provisional excess Carbon Credit income per tonne			50.00		
Subsidy Rate deduction of 90% of provisional excess Carbon Credit income per tonne (“subtotal three”)			45.00		
…					
(“Subtotal one” + ”subtotal two”) + “subtotal three”			335.00		
Subsidy Rate deduction			335.00		
Offered Rate			850.00		
Subsidy Rate			515.00		

In example 4.1 the operator stores both Fossil and Biogenic CO_2 and has a Baseline Carbon Credit Income. The Subsidy Rate is subject to two possible deductions; 1) the sum of the EUA savings and CO_2-related tax savings and 2) 90% of the excess income from Carbon Credits.

The market value EUA has proven to be 100.00 DKK higher than the Baseline EUA Value. The operator has furthermore submitted a forecast containing an increase in the Forecast Fossil EUA Fraction compared to the Baseline Fossil EUA Fraction. Both of these factors lead to a higher provisional EUA savings per tonne compared to the operator’s Baseline EUA Savings Per Tonne. The increase of savings amounts to 177.50 DKK per tonne of CO_2.

The operator has also submitted a forecast containing a Forecast Total Tax Savings amounting to 48,750,000.00, which is higher than the Baseline Total Tax Savings. The Baseline Tax Savings Per Tonne is 375 DKK calculated on the basis of the Baseline Total Tax Savings of 37,500,000.00 and the Annual Quantity of 100,000 tonnes The Forecast Total Tax Savings is divided by the Annual Forecast Quantity of 100,000 tonnes, which results in a provisional tax savings per tonne of 487.50 DKK. In total, the provisional tax savings per tonne is therefore 112.50 DKK higher than the Baseline Tax Savings Per Tonne.

The sum of 1) the difference between provisional EUA savings per tonne and the Baseline EUA Savings Per Tonne, and 2) the difference between the provisional tax savings per tonne and the Baseline Tax Savings Per Tonne, is 290.00 DKK and represents the deduction regarding total EUA and CO_2 related tax savings in the calculation of the Subsidy Rate.

The operator has specified a Baseline Total Carbon Credit Income of 15,000,000.00 DKK. The operator has submitted a Forecast Total Carbon Credit Income of 20,000,000.00 DKK. The difference between the forecast and the baseline is 5,000,000.00 DKK, which means that the operator has an excess Carbon Credit income.

The provisional excess Carbon Credits income per tonne is this difference (5,000,000.00 DKK) divided by the Annual Forecast Quantity (100,000 tonnes). This amount equals 50.00 DKK. The calculation of the Subsidy Rate will be subject to a deduction of 90% of this excess income which is equal to 45.00 DKK.

In total, there is both higher total savings from EUA and CO_2-related taxes and excess income generated by Carbon Credits compared to the corresponding baseline value. The calculation of the Subsidy Rate shall be subject to a deduction equal to the increase of total EUA and CO_2-related tax savings and a deduction equal to 90 % of the increase of Carbon Credit income. This amounts to 335.00 DKK. As a result, the Subsidy Rate is calculated to be 515.00 DKK.

The calculation can be expressed as follows:

$$\text{Subsidy Rate} = Offered\ Rate_t - (\Delta Savings_{EUA} + \Delta Savings_{tax}) - 0.9 \cdot Excess\_income_{CarbonCredits}$$

$$\Delta Savings_{EUA} + \Delta Savings_{tax} = 177.5 + 112.5 = 290 > 0, \text{ so}$$

$$\& \ 0.9 \cdot Excess_{income_{CarbonCredits}} = 0.9 \cdot 50 = 45 > 0, \text{ so}$$

$$515 = 850 - (290) - (45)$$

4.2 Example 4.2 Higher EUA & tax savings and lower Carbon Credit Income

Example 4.2 illustrates a scenario where the following apply:

- Market value of EUA is higher than Baseline EUA Value;
- Forecast Fossil EUA Fraction and provisional tax savings per tonne are higher compared to the baseline values;
- Forecast Total Carbon Credit Income is lower than Baseline Total Carbon Credit Income;
- No inclusion of Biogenic/Atmospheric CO_2 in ETS;
- The Forecast Quantity is equal to the Annual Quantity; and
- The Offered Rate is 850.00 DKK.

Variables & parameters	…	*Baseline values*	*Forecast Values*	…
Baseline Fossil EUA Fraction		50%		
Baseline EUA Value		750.00		
Baseline EUA Savings Per Tonne		375.00		
Forecast Fossil EUA Fraction			65%	
Market value of EUA			850.00	
Provisional EUA savings per tonne			552.50	
Difference between provisional EUA savings per tonne & Baseline EUA Savings Per Tonne (“subtotal one”)			177.50	
…				
Baseline Total Tax Savings		37,500,000.00		
Annual Quantity		100,000		
Baseline Tax Savings Per Tonne		375.00		
Forecast Total Tax Savings			48,750,000.00	
Annual Forecast Quantity			100,000	
Forecast Tax Savings Per Tonne			487.50	
Difference between provisional tax savings per tonne & Baseline Tax Savings Per Tonne (“subtotal two”)			112.50	
…				

Subsidy Rate deduction regarding total EUA and CO_2-related tax savings (“subtotal one” + “subtotal two”)			290.00
…			
Baseline Total Carbon Credit Income		15,000,000.00	
Forecast Total Carbon Credit Income			5,000,000.00
Annual Forecast Quantity			100,000
Provisional excess Carbon Credit income per tonne			0.00
Excess income (“subtotal three”)			0.00
…			
(“Subtotal one” + “subtotal two”) + “subtotal three”			290.00
Subsidy Rate deduction			290.00
Offered Rate			850.00
Subsidy Rate			560.00

In example 4.2, the operator stores both Fossil and Biogenic CO_2 and has a Baseline Carbon Credit Income. The Subsidy Rate is subject to two possible deductions; 1) the sum of the EUA savings and CO_2-related tax savings and 2) 90% of the excess income from Carbon Credits.

The market value EUA has proven to be 100.00 DKK higher than the Baseline EUA Value. The operator has furthermore submitted a forecast containing an increase in the Forecast Fossil EUA Fraction compared to the Baseline Fossil EUA Fraction. Both of these factors lead to a higher provisional EUA savings per tonne compared to the operator’s Baseline EUA Savings Per Tonne. The increase in savings amounts to 177.50 DKK per tonne of CO_2.

The operator has also submitted a forecast containing a Forecast Total Tax Savings amounting to 48,750,000.00, which is higher than the Baseline Total Tax Savings. The Baseline Tax Savings Per Tonne is 375 DKK calculated on the basis of the Baseline Total Tax Savings of 37,500,000.00 and the Annual Quantity of 100,000 tonnes The Forecast Total Tax Savings is divided by the Annual Forecast Quantity of 100,000 tonnes, which results in a provisional tax savings per tonne of 487.50 DKK. In total, the provisional tax savings per tonne is therefore 112.50 DKK higher than the Baseline Tax Savings Per Tonne.

The sum of 1) the difference between provisional EUA savings per tonne and the Baseline EUA Savings Per Tonne, and 2) the difference between the provisional tax savings per tonne and the Baseline Total Tax Savings

Per Tonne is 290.00 DKK and represents the deduction regarding total EUA and CO_2 related tax savings in the calculation of the Subsidy Rate.

The operator has a Forecast Total Carbon Credit Income of 5,000,000.00 DKK and a Baseline Total Carbon Credit Income of 15,000,000.00. The difference between the forecast and the baseline is -10,000,000.00 DKK (i.e. a negative amount). The operator therefore has no excess Carbon Credit income.

In total, the total savings from EUA and CO_2-related taxes has increased and the operator has no excess income generated by Carbon credits compared to the corresponding baseline values. The calculation of the Subsidy Rate shall therefore only be subject to a deduction equal to increase of the total EUA and tax savings. This amounts to 290.00 DKK. As a result, the Subsidy Rate is calculated to be 560.00 DKK.

The calculation can be expressed as follows:

$$\text{Subsidy Rate} = Offered\ Rate_t - (\Delta Savings_{EUA} + \Delta Savings_{tax}) - 0.9 \cdot Excess\_income_{CarbonCredits}$$

$$\Delta Savings_{EUA} + \Delta Savings_{tax} = 177.5 + 112.5 = 290 > 0, \text{ so}$$

$$\& \ 0.9 \cdot Excess_{income_{CarbonCredits}} = 0.9 \cdot 0 < 0, \text{ so}$$

$$560 = 850 - (290) - (0)$$

5. EXAMPLES OF ANNUAL SETTLEMENT CALCULATIONS

5.1 Example 5.1 Calculation of Actual Subsidy Rate and Actual Subsidy

This example 5.1 illustrates a scenario where the DEA will calculate an Actual Subsidy Rate in accordance with step 2 (clause 12.3) in Appendix 5, Subsidy and economy scheme, since at least one of circumstances stated in clause 12.2.1, occurs in the given year.

The example also illustrates the calculation of the Actual Subsidy and a claim regarding repayment of excess subsidy in accordance with step 3 (clause 12.4) in Appendix 5, Subsidy and economy scheme.

The example illustrates a scenario where the following apply:

- Actual Fossil EUA Fraction exceeds the Baseline Fossil EUA Fraction;

- Actual Total Tax Savings exceed the Baseline Total Tax Savings;
- Actual Total Carbon Credit Income exceeds the Baseline Total Carbon Credit Income;
- No inclusion of Biogenic/Atmospheric CO_2 in ETS;
- The Offered Rate is 850.00 DKK; and
- The Verified Delivered Quantity is equal to the Annual Quantity

Variables & parameters	…	*Baseline values*	*Actual Values*
Baseline Fossil EUA Fraction		50%	
Baseline EUA Value		750.00	
Baseline EUA Savings Per Tonne		375.00	
Actual Fossil EUA Fraction			70%
Invoiced Quantity JanuaryQ1			7,50020,000
Invoiced Quantity FebruaryQ2			7,50030,000
Invoiced Quantity MarchQ3			7,50030,000
Invoiced Quantity AprilQ4			7,50020,000
Invoiced Quantity May			8,000
Invoiced Quantity June			8,000
Invoiced Quantity July			8,000
Invoiced Quantity August			8,000
Invoiced Quantity September			9,500
Invoiced Quantity October			9,500
Invoiced Quantity November			9,500
Invoiced Quantity December			9,500
Sum of Invoiced Quantities for the given year			100,000100,000
Proportional weightvalue of the Invoiced Quantity for JanuaryQ1			7.50%20%
Proportional value weight of the Invoiced Quantity for FebruaryQ2			7.50%30%

~~Proportional value~~Proportional weight of the Invoiced Quantity for March~~Q3~~			7.50%~~30%~~
~~Proportional value~~Proportional weight of the Invoiced Quantity for April~~Q4~~			7.50%~~20%~~
Proportional weight of the Invoiced Quantity for May			8.00%
Proportional weight of the Invoiced Quantity for June			8.00%
Proportional weight of the Invoiced Quantity for July			8.00%
Proportional weight of the Invoiced Quantity for August			8.00%
Proportional weight of the Invoiced Quantity for September			9.50%
Proportional weight of the Invoiced Quantity for October			9.50%
Proportional weight of the Invoiced Quantity for November			9.50%
Proportional weight of the Invoiced Quantity for December			9.50%
Market value of EUA for January~~Q1~~			839.20~~840.00~~
Market value of EUA for February~~Q2~~			839.20~~845.00~~
Market value of EUA for March~~Q3~~			839.20~~855.00~~
Market value of EUA for April~~Q4~~			839.20~~860.00~~
Market value of EUA for May			849.20
Market value of EUA for June			849.20
Market value of EUA for July			849.20
Market value of EUA for August			849.20
Market value of EUA for September			859.20
Market value of EUA for October			859.20
Market value of EUA for November			859.20
Market value of EUA for December			859.20
Weighted market value of EUA ~~$(Proportional\ weightvalue\ of\ the\ Invoiced\ Quantity\ for\ MQ1 \cdot Market\ value\ of\ EUA\ for\ MQ1) + \ldots + proportional\ weight\ of\ Invoiced\ Quantity\ for\ M12 \cdot Market\ value\ of\ EUA\ for\ M12$~~ ~~$+ (\text{for } Q2 \cdot for\ Q2) + (" for\ Q3 \cdot " for\ Q3) + (" for\ Q4 \cdot " for\ Q4)$~~			850.00
Actual EUA savings per tonne ~~$Actual\ Fossil\ EUA\ Fraction \cdot Weighted\ market\ value\ of\ EUA$~~			595.00

Difference between actual EUA savings per tonne & Baseline EUA Savings Per Tonne (“subtotal one”)			220.00
…			
Baseline Total Tax Savings		37,500,000.00	
Annual Quantity		100,000	
Baseline Tax Savings Per Tonne		375.00	
Actual Total Tax Savings			50,000,000.00
Verified Delivered Quantity			100,000
Actual tax savings per tonne			500.00
Difference between actual tax savings per tonne & Baseline Tax Savings Per Tonne (“subtotal two”)			125.00
…			
Subsidy Rate deduction regarding total EUA and CO_2-related tax savings (subtotal one + subtotal two)			345.00
…			
Baseline Total Carbon Credit Income		15,000,000.00	
Actual Total Carbon Credit Income			20,000,000.00
Verified Delivered Quantity			100,000
Actual excess Carbon Credit income per tonne			50.00
Subsidy Rate deduction of 90% of excess Carbon Credit income per tonne (“subtotal three”)			45.00
…			
Subsidy Rate deduction (“subtotal one” + “subtotal two”) + “subtotal three”			390.00
Offered Rate			850.00
Actual Subsidy Rate			460.00
…			
~~Invoiced amount Q1~~			~~10,300,000.00~~
~~Invoiced amount Q2~~			~~15,450,000.00~~
~~Invoiced amount Q3~~			~~15,450,000.00~~
~~Invoiced amount Q4~~			~~10,300,000.00~~

Total invoiced Subsidy			51,500,000.00
Actual Subsidy			46,000,000.0000
Excess subsidy subject to repayment to the DEA			5,500,000.0034,925,5,500,000.00

In example 5.1, the operator stores both Fossil and Biogenic CO_2 and has a Baseline Carbon Credit Income. The Actual Subsidy Rate is subject to two possible deductions; 1) the sum of the EUA savings and savings of CO_2-related taxes and 2) 90% of the excess income from Carbon Credits.

The weighted market value of EUA is calculated to be 850.00 DKK based on the Invoiced Quantities in tonnes for each month (Q1 = 20,000, Q2 = 30,000, Q3 = 30,000, Q4 = 20,000) and their respective proportional valueproportional weight (Q1 = 20%, Q2 = 30%, Q3 = 30%, Q4 = 20%) of the sum of quantities (100,000 tonnes) and the corresponding market value of EUA for each quarter month (Q1 = 840.00, Q2 = 845.00, Q3 = 855.00, Q4 = 860.00) in DKK. The weighted market value of EUA is 100.00 DKK higher than the Baseline EUA Value.

The operator has furthermore submitted an annual report containing an Actual Fossil EUA Fraction that is 20 percentage points higher compared to the Baseline Fossil EUA Fraction.

Both of these factors lead to increased actual EUA savings per tonne compared to the operator's Baseline EUA Savings Per Tonne. The increase of savings amounts to 220.00 DKK per tonne of CO_2.

The operator has also submitted an annual report containing an Actual Total Tax Savings amounting to 50,000,000.00 DKK, which is higher than the Baseline Total Tax Savings. The Baseline Tax Savings Per Tonne is 375.00 DKK calculated on the basis of the Baseline Total Tax Savings of 37,500,000.00 and the Annual Quantity of 100,000 tonnes The Actual Total Tax Savings is divided by the Verified Delivered Quantity of 100,000 tonnes, which results in actual tax savings per tonne of 500.00 DKK. In total, the actual tax savings per tonne is therefore 125.00 DKK higher than the Baseline Tax Savings Per Tonne.

The sum of 1) the difference between actual EUA savings per tonne and Baseline EUA Savings Per Tonne and 2) Difference between actual tax savings per tonne & Baseline Tax Savings Per Tonne is 345.00 DKK and represents a deduction regarding total EUA and CO_2 related tax savings in the calculation of the Actual Subsidy Rate.

The operator has specified a Baseline Total Carbon Credit Income of 15,000,000.00 DKK. The operator has submitted an Actual Total Carbon Credit Income of 20,000,000.00 DKK. The difference between the actual value and the baseline is 5,000,000.00 DKK.

The actual excess Carbon Credits income per tonne is this difference (5,000,000.00 DKK) divided by the Verified Delivered Quantity (100,000 tonnes). This amount equals 50.00 DKK. A deduction of 90% of this excess income, equal to 45.00 DKK, will apply in the calculation of the Actual Subsidy Rate.

As this means that both the actual total savings from EUA and CO_2-related taxes as well as excess income generated by Carbon Credits are higher compared to the offer, the calculation of the Actual Subsidy Rate shall be subject to a deduction equal to the sum of the increase of total EUA and tax savings (i.e. 345 DKK) and a deduction equal to 90 % of the excess Carbon Credit income (i.e. 45 DKK). The Actual Subsidy Rate will therefore be 390.00 DKK less than the ~~inflation-adjusted~~ Offered Rate of 850.00 DKK. As a result, the Actual Subsidy Rate is calculated to be 460.00 DKK.

The operator's total invoiced Subsidy equals 51,500,000.00 DKK based on the sum of the operator's Invoiced Amounts (not specified in this example) ~~in~~ for each month~~.quarter.~~

The operator's Actual Subsidy is calculated to be 46,000,000.00 DKK as a result of multiplying the Verified Delivered Quantity of 100,000 tonnes with the Actual Subsidy Rate of 460.00 DKK.

To determine whether the operator has received excess subsidy, the Actual Subsidy is subtracted from the total invoiced Subsidy. This difference amounts to 5,500,000.00 DKK which is the total amount of excess subsidy that has been paid to the operator for the given year and that must be repaid to the DEA.

5.2 Example 5.2 Calculation of Actual Subsidy with no calculation of Actual Subsidy rate

This example 5.2 illustrates a scenario where the DEA will perform a calculation in accordance with step 3 of the Annual Settlement as described in ~~Append~~ Appendix 5, Subsidy and economy scheme (~~reference is made to~~ clause 12.4.2) ~~,~~ in order to determine whether the operator has received excess subsidy without first ~~not~~ calculating an Actual Subsidy Rate in accordance with step ~~3~~2, ~~in Appendix 5, Subsidy and economy scheme,~~ since none of the circumstances stated in clause 12.2.1~~1.3~~, occur~~are met~~ in a given year.

~~———————~~As such, example 5.2 illustrates a scenario where the following are true:

- The Actual Fossil EUA does not exceed the Baseline Fossil EUA Fraction;
- The Actual Total Tax Savings does not exceed the Baseline Total Tax Savings;
- The Actual Total Carbon Credit Income does not exceed the Baseline Total Carbon Credit Income;

- No inclusion of Biogenic/Atmospheric CO_2 in ETS; and
- The ~~inflation-adjusted~~ Offered Rate is 850.00 DKK.~~; and~~
- ~~The Verified Delivered Quantity is equal to the Annual Quantity~~

Variables & parameters	…	*Actual Values*	…
Invoiced amount for January~~Weighted Subsidy Rate~~		8,500,000.00~~850.00~~	
Invoiced amount for February~~Invoiced Quantity January~~Invoiced Quantity Q1		8,500,000.00~~6,500~~20,000	
Invoiced amount for March~~Invoiced Quantity February~~Invoiced Quantity Q2		8,500,000.00~~6,600~~30,000	
Invoiced amount for April~~Invoiced Quantity March~~Invoiced Quantity Q3		6,500,000.00~~6,900~~30,000	
Invoiced amount for May~~Invoiced Quantity April~~Invoiced Quantity Q4		6,500,000.00~~9,500~~20,000	
Invoiced amount for June~~Invoiced Quantity May~~		5,000,000.00~~10,500~~	
Invoiced amount for July~~Invoiced Quantity June~~		5,000,000.00~~10,000~~	
Invoiced amount for August~~Invoiced Quantity July~~		5,000,000.00~~10,200~~	
Invoiced amount for September~~Invoiced Quantity August~~		8,500,000.00~~9,800~~	
Invoiced amount for October~~Invoiced Quantity September~~		8,500,000.00~~10,000~~	
Invoiced amount for November~~Invoiced Quantity October~~		9,000,000.00~~6,500~~	
Invoiced amount for December~~Invoiced Quantity November~~		9,000,000.00~~7,000~~	
Total Invoiced Subsidy~~Invoiced Quantity December~~		88,500,000.00~~6,500~~	
~~…Sum of Invoiced Quantities~~		~~100,000~~	
Invoiced Quantity January		10,000	
Invoiced Quantity February~~Invoiced amount for January~~Q1		9,500~~5,735,000.00~~17,200,000.00	
Invoiced Quantity March~~Invoiced amount for February~~Invoiced amount Q2		9,500~~5,730,000.00~~25,800,000.00	
Invoiced Quantity April~~Invoiced amount for March~~Invoiced amount Q3		7,000~~5,735,000.00~~25,200,000.00	
Invoiced Quantity May~~Invoiced amount for April~~Invoiced amount Q4		7,000~~8,605,000.00~~16,800,000.00	

Invoiced Quantity JuneInvoiced amount for May		6,0008,590,000.00	
Invoiced Quantity JulyInvoiced amount for June		6,0008,605,000.00	
Invoiced Quantity AugustInvoiced amount for July		6,0008,390,000.00	
Invoiced Quantity SeptemberInvoiced amount for August		9,5008,420,000.00	
Invoiced Quantity OctoberInvoiced amount for September		9,5008,390,000.00	
Invoiced Quantity NovemberInvoiced amount for October		10,0005,605,000.00	
Invoiced Quantity DecemberInvoiced amount for November		10,0005,590,000.00	
Sum of Invoiced QuantitiesInvoiced amount for December		100,0005,605,000.00	
…Sum of Invoiced sSubsidy		85,000,000.00	
Weighted Subsidy Rate		885.00	
Weighted Subsidy Rate		850.00	
Verified Delivered QuantityActual Subsidy		90,00085,000,000.00	
Actual Subsidy		79,650,000.00	
Total Invoiced Subsidy		88,500,000.00	
…Excess subsidy subject to repayment to the DEA		0.00	
Excess subsidy subject to repayment to the DEA		8,850,000.00	

To determine whether the operator has received excess subsidy, the DEA shall calculate a weighted Subsidy Rate. This is done by, first, summing up the operator's invoiced amounts per month and, secondly, summing up the invoiced quantities per month. This results in a total invoiced subsidy amount of 885,5000,000 DKK and . Thea total iInvoiced qQuantity ofis 100,000 tonnes. The dividing the total invoiced subsidy amount for the given year byis then divided with the total iInvoiced qQuantityies for the same year. In this example, the Invoiced Quantities are: Q1 = 20,000, Q2 = 30,000, Q3 = 30,000, and Q4 = 20,000. The Subsidy Rate is 860.00 DKK per tonne for Q1 and Q2, and 840.00 DKK per tonne for Q3 and Q4. This results in a total invoiced subsidy amount of 85,000,000 DKK. The total Invoiced Quantity is 100,000 tonnes. Accordingly, the weighted Subsidy Rate is calculated to be 88550.00 DKK per tonne.

The Actual Subsidy is calculated by multiplying the weighted Subsidy Rate of 88550.00 DKK with the Verified Delivered Quantity which in this example is 90100,000 tonnes. The Actual Subsidy is calculated to be 7985,60500,000.00 DKK.

As the Actual Subsidy is lower than ~~is equal to~~ the sum of the i~~I~~nvoiced s~~S~~ubsidy, the operator has ~~not~~ received an excess amount of subsidy. ~~,~~ The excess subsidy amounts to 8,850,000.00 DKK and that must be repaid to the DEA ~~and no Subsidy shall therefore be subject to a repayment to the DEA.~~