

**FINANCIAL HEDGING
PROGRAMME FOR
ENEMALTA**

12th August 2005

Fuel Procurement Advisory Committee

1. INTRODUCTION

- In the 2005 Budget speech the Hon Prime Minister stated that “Ser inwaqqfu wkoll kumitat konsultattiv ... biex jaghti pariri dwar kif l-ahjar li nixtru z-zeit biex insibu l-aktar prezzijiet li jaqblu ghalina. Il-mod li bih jinxtara z-zeit m’ghandux jibqa’ issue politiku” (page 55).

- **The Fuel Procurement Advisory Committee** was set up in January 2005 specifically:
- to advise Management as to the constituent risks connected with the best practices and the purchase of fuel and other oils imported by Enemalta Corporation, and
- to advise Enemalta Corporation in the fields of oil purchasing, economics, risk management, currency movement and the use of financial instruments.

Work of Advisory Committee

- Review of specifications of fuel oil and gas oil
- Review of tendering documentation process
- Looking into long term purchasing agreements
- Developing financial hedging programme

2. HEDGING POLICY FRAMEWORK

- **OBJECTIVE:** To safeguard against the impact of unexpected increases in fuel prices vis-à-vis an established benchmark.
- **PLANNING HORIZON:** Current financial year plus following financial year, that is, minimum 13 months, maximum 24 months.

- **AREAS:** Fuel Oil and Gas Oil
- US Dollar
- May consider also Petrol, Diesel and LPG
- **INSTRUMENTS:** Matching exposures, Spot, futures (forwards or swaps), collars, options, building a reserve fund (self-insurance).

Matching exposures and Spot

- Matching exposures occurs when Enemalta purchases in US dollars and could sell in US dollars for the same average of the month: eg jet fuel
- Spot is when Enemalta purchases on the spot market as in the present position: eg. Mediterranean plats average of the month plus/minus a percentage.

Forwards, Futures or Swaps

- Forward (futures or swaps) is when Enemalta agrees to purchase a given quantity in the future (one month, three months, six months) at an agreed price today.
- Hence Forwards (futures or swaps) effectively lock in a known price today for the future.

Buy Call Option

- A call option is when Enemalta pays a premium to have the right to purchase below a maximum price.
- If price goes above maximum, Enemalta is protected with maximum, but if price falls, Enemalta will have the right to forget about the contract and purchase spot at low prices.

Collar (Buy call and sell put)

- A collar is when a maximum and minimum band is established around a given price.
- Hence Enemalta is protected if prices rise above the maximum, while it accepts spot prices if they remain within the band.
- However Enemalta has to accept the minimum price if spot prices fall below the minimum.

Self-insurance

- A reserve fund (self-insurance) is when Enemalta builds an insurance fund when prices are relatively (historically) low to use when prices become relatively (historically) high.

HEDGING RULES:

- Divide planning horizon in 6 monthly periods:
2 periods for each financial year.
- **Minimum** of hedging exposures: 30 %, 20 %, 10 %, and 0 % for each subsequent period.
- **Maximum** of hedging exposures: 100 %, 80%, 60%, and 40% for each subsequent period.

- Maximum 80% for second 6 month period may be increased to 100% if Board would like complete 100% hedging for full financial year.

3. CURRENT SELLING POSITION

- Electricity: sell fixed price (fixed tariffs plus fuel surcharge)
- Fuel surcharge passes to consumers up to 48 % of fuel cost increases every six months.
- Petroleum: retail products adjusted quarterly based on previous quarter average market rates.
- Aviation: monthly average of previous month.

CURRENT PURCHASING POSITION:

- Fuel oil and Gas oil – monthly averages
- Petroleum products – monthly averages
- Aviation – buy 3 months supply with the price of the average of month of purchase (mismatch with selling price).

4. HEDGING RECOMMENDATION

- 4TH Quarter 2005 1st Quarter 2006
- **MARKET VIEW:** Neutral to Slightly Bullish on oil up to March 2006.
- US \$ strengthens against Euro, falls during first half of 2006.

■ The forecasts on 16th May 2005, of Mr Lawrence Axelrod of Poten & Partners, New York, Enemalta's oil consultant were the following:

- Average prices for 2005:
 - WTI \$ 48.65 Brent \$ 46.15
- Expected average prices for 2006:
 - WTI \$ 44 Brent \$ 42

Recommendation for Fuel Oil and Gas Oil:

- Quarter 4 - 2005
- Futures (swap) 20 %, Collar 30 %, Spot 50 %
- Quarter 1 – 2006
- Futures (swap) 10 %, Collar 20 %, Spot 70 %
- Portfolio of instruments
- Diversification reduces overall volatility

Prices as at 14th July 2005

- **Spot** fuel oil was \$ 300 and gas oil \$546 per metric tonne.
- **Forward** prices for fuel oil were: Quarter 4 \$ 301, Quarter 1 \$ 313
- **Forward** prices for gas oil were: Quarter 4 \$ 580, Quarter 1 \$582

■ Collar for fuel oil: Quarter 4 max \$316 min \$291

■ Quarter 1 max \$328 min \$303

■ Collar for gas oil: Quarter 4 max \$ 595 min \$ 570

■ Quarter ~~4~~₁ max \$ 597 min \$ 572

- **Wider collars** are also available in the market with the ratios of plus \$ 3 above forward, minus \$ 2 below forward price.
- **Note:** This hedging recommendation has to be implemented in the light of the 2005 Budget speech concerning the fuel surcharge.

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- “Il-Gvern impenjat li, l-fuel surcharge tigi riveduta kull sitt xhur skond kif ikunu l-prezzijiet internazzjonali taz-zejt” (page 55).
 - The Budget speech, however, does not clarify whether the international oil prices should be spot prices or hedged prices, or whether revisions should be on last six months (spot or hedged) prices or forthcoming six months (hedged) prices.
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Premiums paid up-front for at the money call options:

Fuel Oil: Quarter 4 \$ 23 at strike price
\$ 301 (7.64 %)
Quarter 1 \$ 29 at strike price
\$ 313 (9.26 %)

■ **Gas Oil:** Quarter 4 \$ 50 at strike price
\$ 580 (8.62 %)
Quarter1 \$ 64 at strike price
\$ 582 (10.99 %)

Recommendation for US Dollar:

- Same strategies of forwards, collars and spot recommended for fuel oil and gas oil for 4th Quarter 2005 and 1st Quarter 2006.

5. TREASURY

- A Treasury Section needs to be set up as soon as possible with one or (preferably) two Banking & Finance graduates.
 - Treasury is needed to collect latest available information from the markets, prepares reports and conducts simulations for the Fuel Procurement Advisory Committee so that recommendations will be based on solid analysis and sound information.
 - Treasury will also help in the implementation of the specific hedging transactions carried out.
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6. References

- Edward N. Krapels & Michael Pratt "Crude Oil Hedging: Benchmarking Price Protection Strategies", Risk Books, 1998.
 - John C. Hull "Fundamentals of Futures and Options Markets", 4th Edition, Prentice Hall, 2002.
 - Charles W. Smithson "Managing Financial Risk", 3rd Edition, McGraw Hill, 1998.
 - Linda Allen "Capital Markets and Institutions: A global view", John Wiley & Sons, 1997.
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■ **Thank you for your attention and interest.**



A Brief Introduction to Hedging Instruments

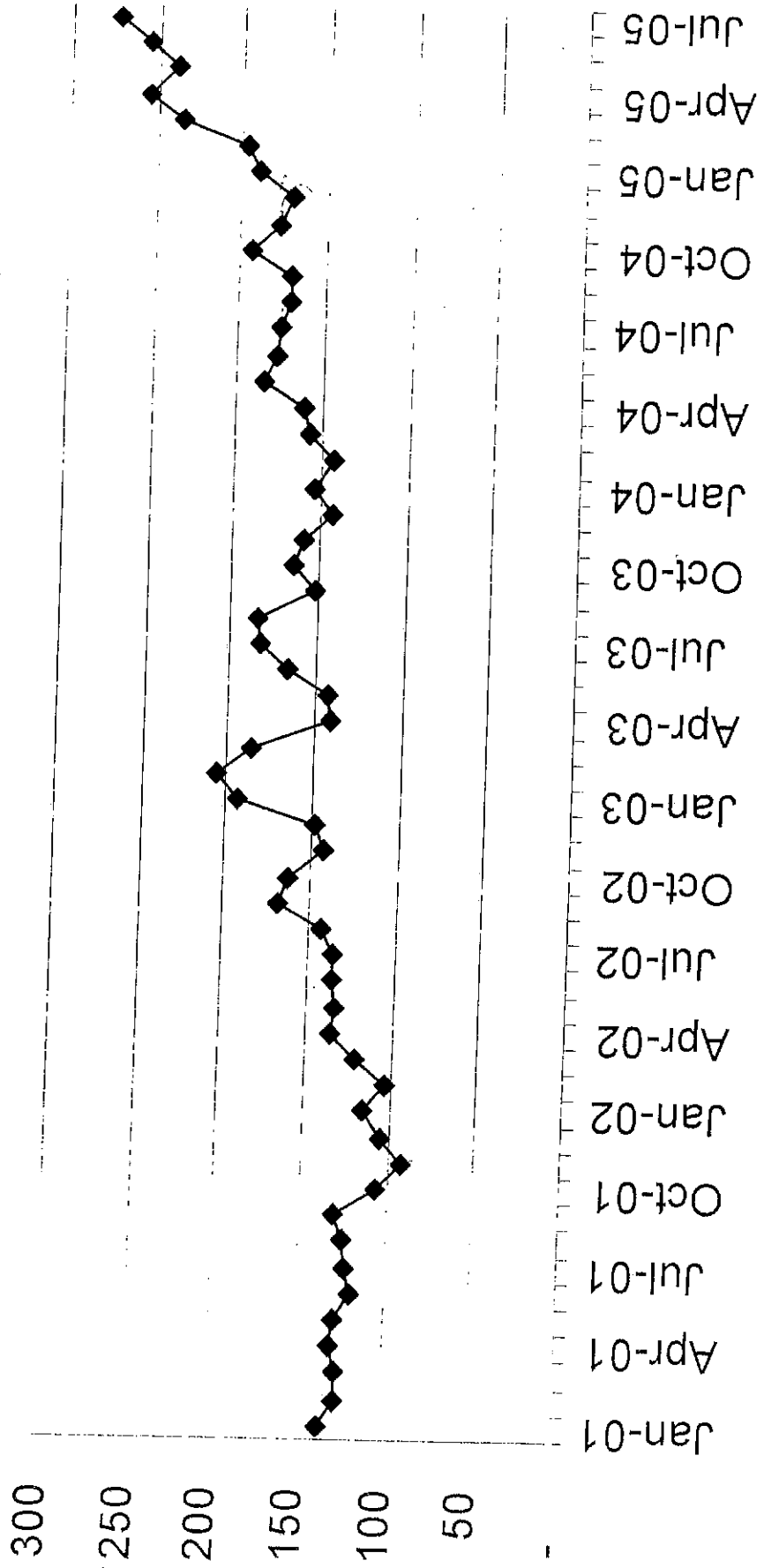
12 August 2005

Sales Estimates for 2005-2006

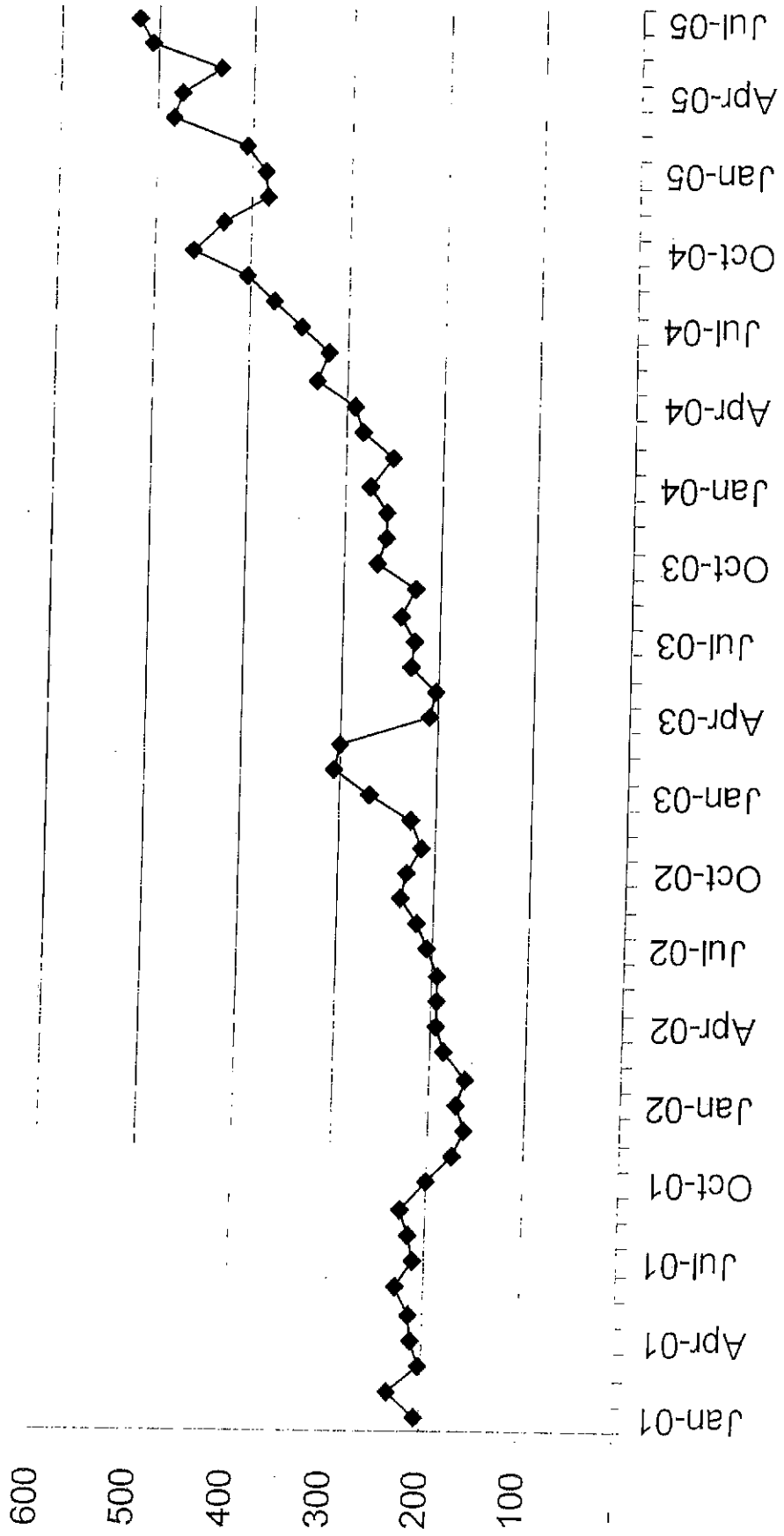
ENEMALTA CORPORATION - PETROLEUM DIVISION

	Estimated Sales Mt	Estimated cost price USD/Mt	Cost in USD	Cost in Lm USD 2.75/Lm
Diesel	100,000.00	563.13	56,313,000	20,477,000
Unleaded	46,000.00	539.11	24,799,060	9,018,000
LRP	18,700.00	539.11	10,081,357	3,666,000
Kerosene	3,600.00	566.99	2,041,164	742,000
TFO	8,600.00	357.93	3,078,164	1,119,000
LHO	8,600.00	471.01	4,050,686	1,473,000
Jet A1	88,500.00	566.99	50,178,615	18,247,000
AvGas	95.00	741.11	70,405	26,000
Fuel Oil (P/S)	601,807.19	290.50	174,823,485	63,572,000
Gasoil (P/S)	53,776.43	571.25	30,719,786	11,171,000
LPG (Gas)	23,200.00	479.50	11,124,400	4,045,000
Propane (Gas)	300.00	499.50	149,850	54,000
	953,178.62		367,429,972	133,611,000

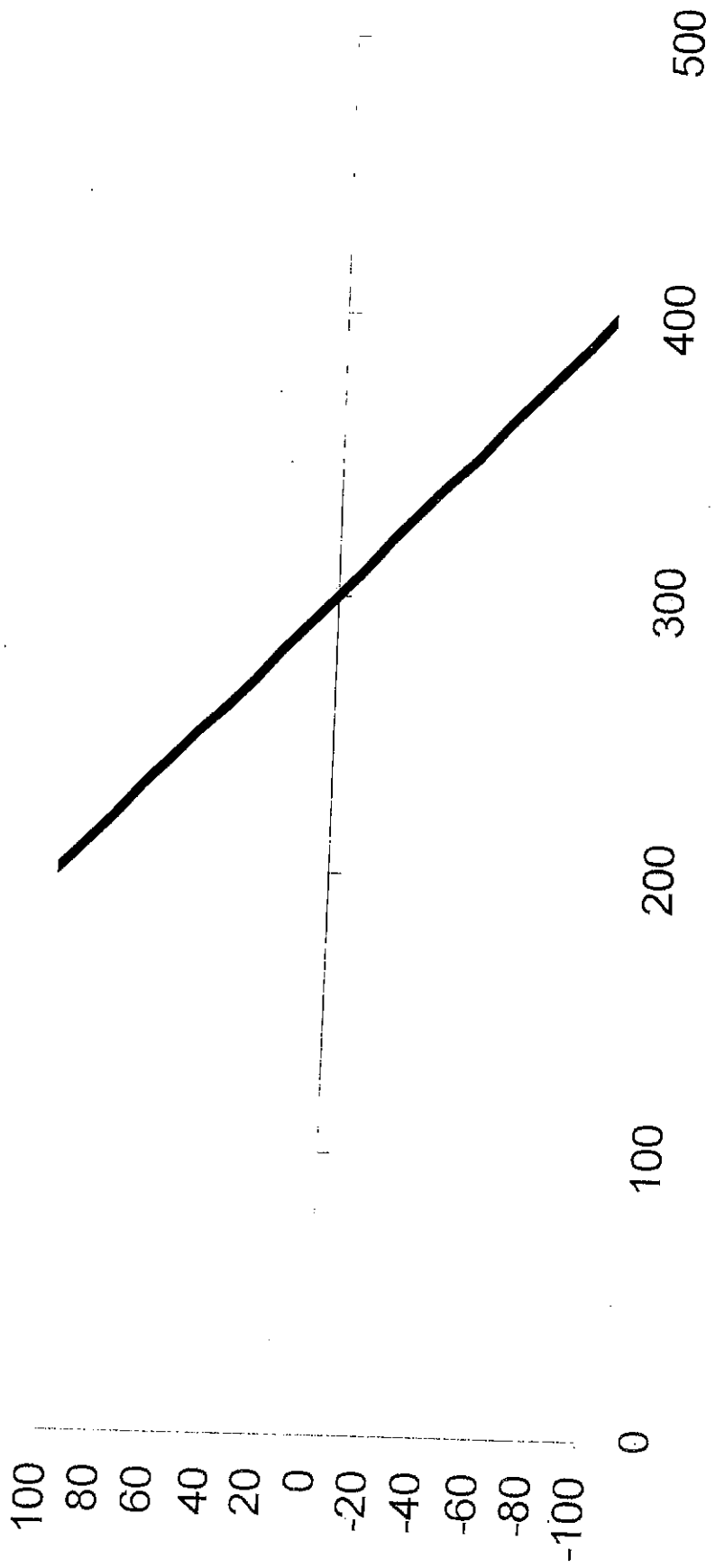
Fuel Oil



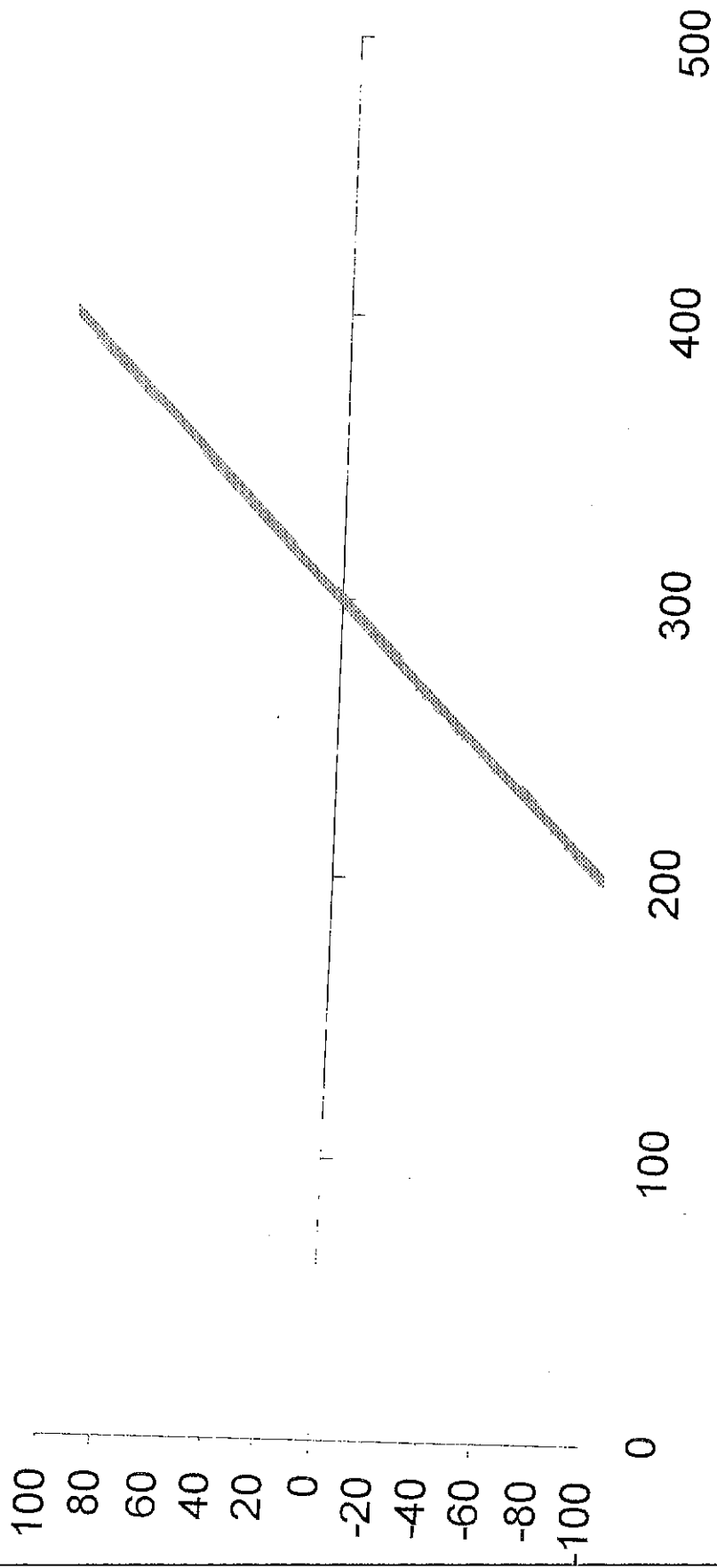
Gas Oil



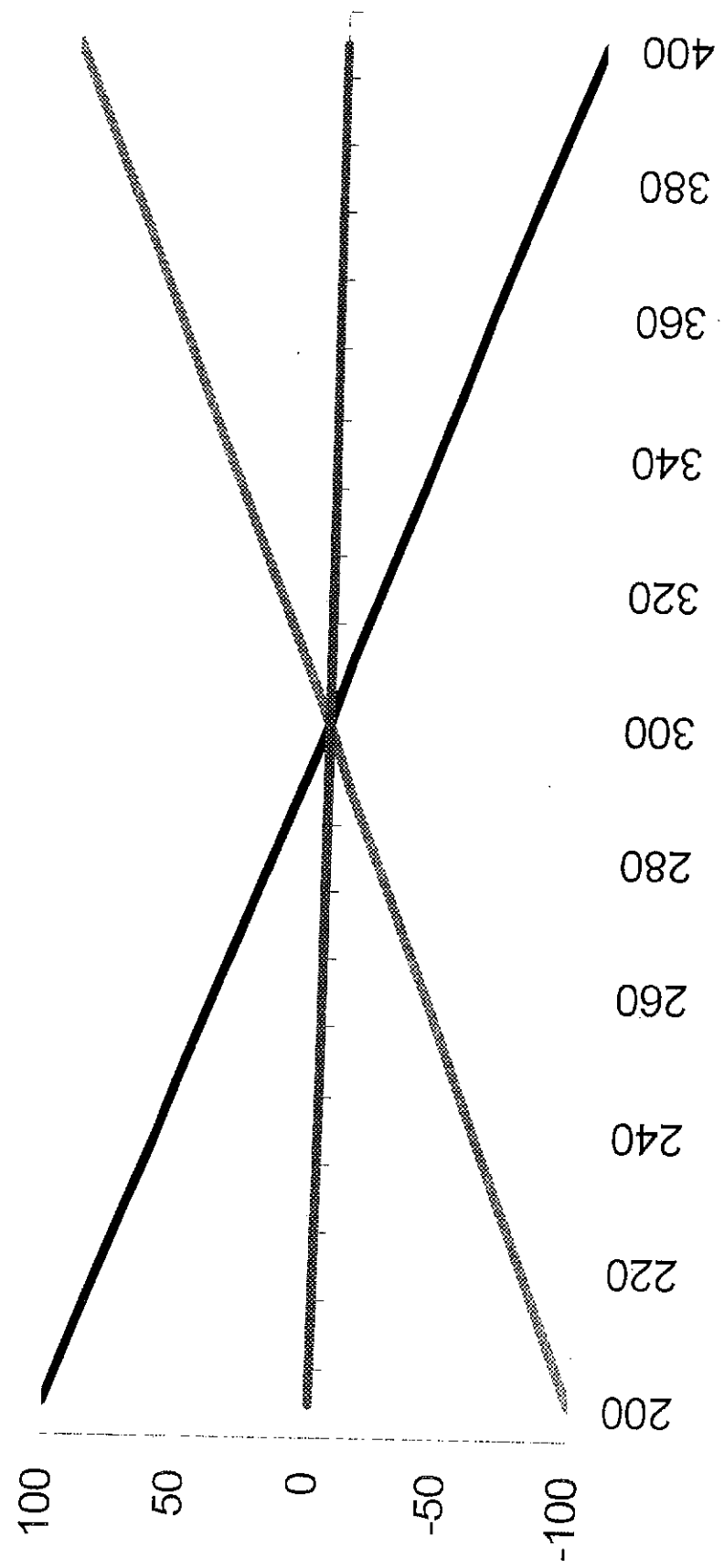
Risk Profile



Buy Forward



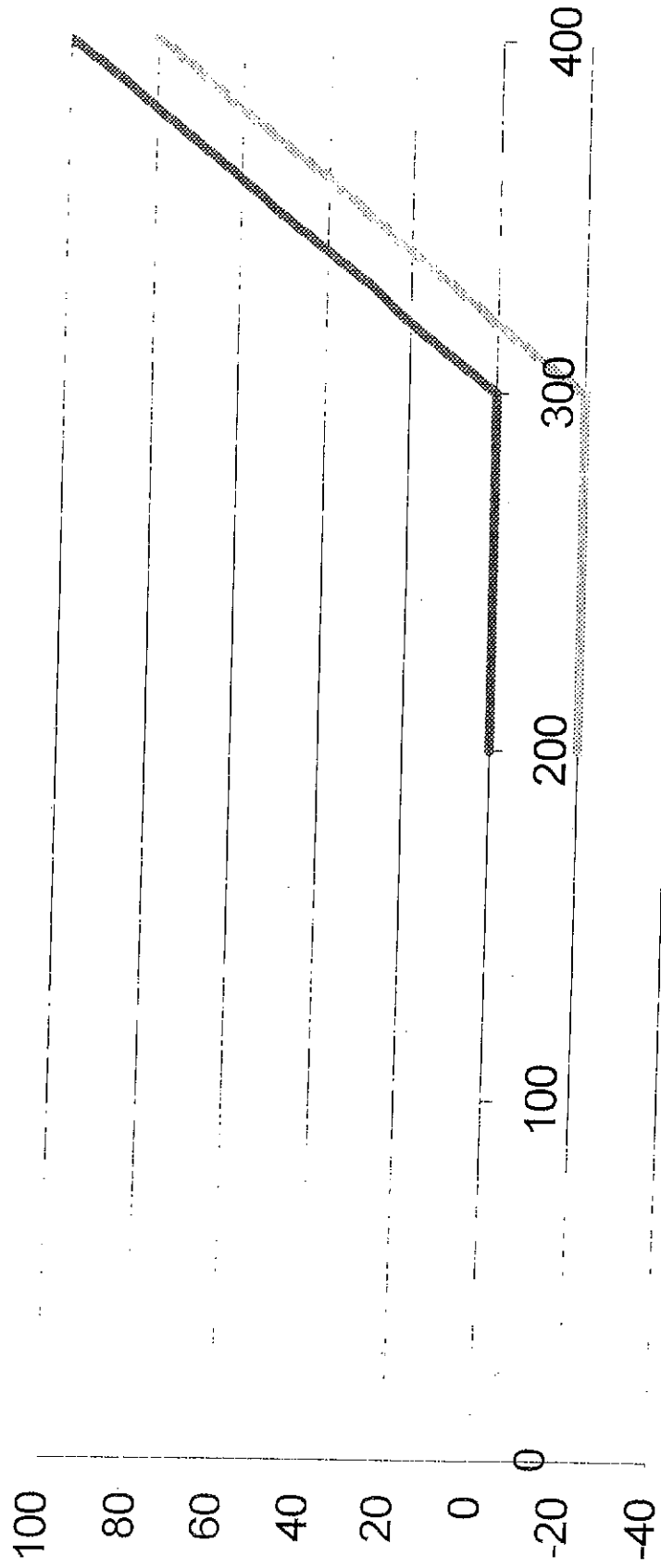
Final Position Buy Forward



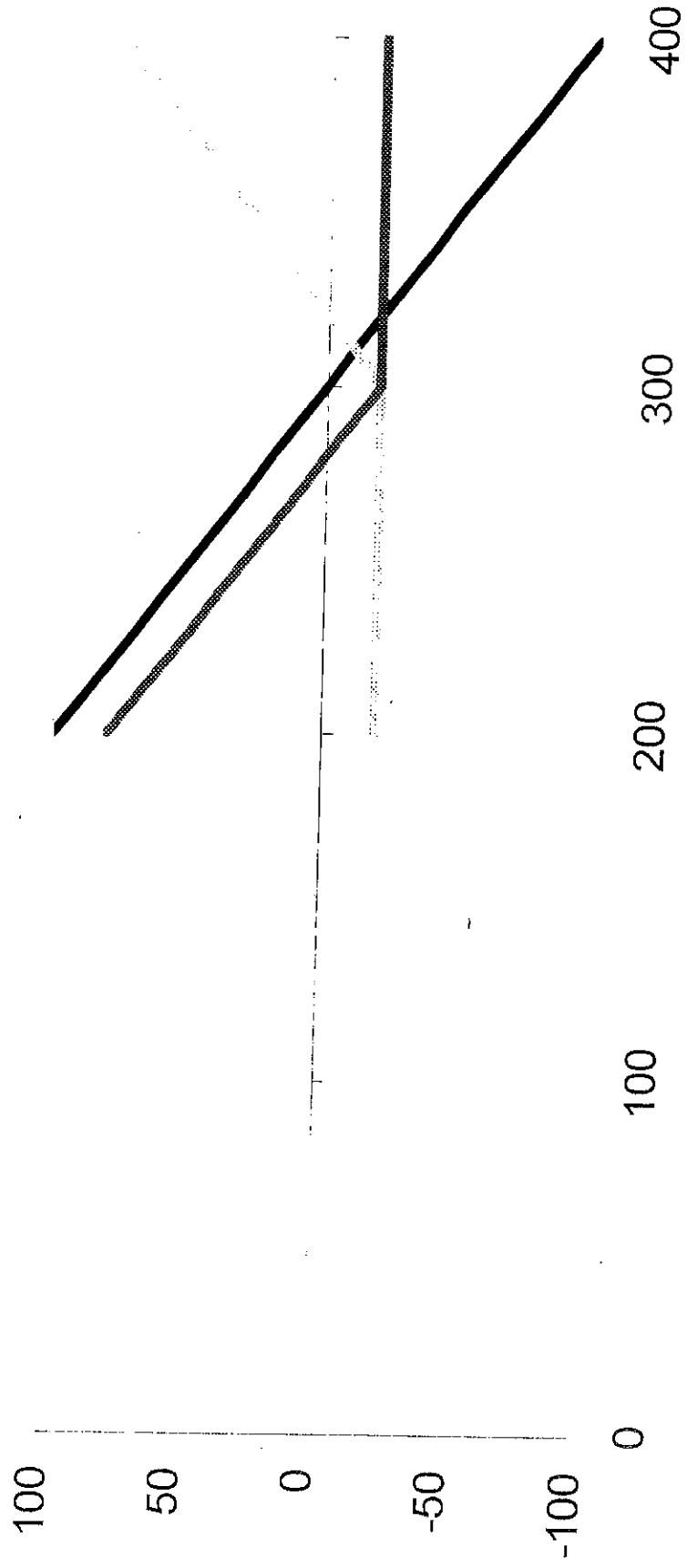
FORWARD

A	B	C	D	E	F	G
Price	Benchmark	Enemalta's Risk Profile B - A		Buy Forward at 300		Final Position
				A - B		C + E
200	300	100		-100		0
210	300	90		-90		0
220	300	80		-80		0
230	300	70		-70		0
240	300	60		-60		0
250	300	50		-50		0
260	300	40		-40		0
270	300	30		-30		0
280	300	20		-20		0
290	300	10		-10		0
300	300	0		0		0
310	300	-10		10		0
320	300	-20		20		0
330	300	-30		30		0
340	300	-40		40		0
350	300	-50		50		0
360	300	-60		60		0
370	300	-70		70		0
380	300	-80		80		0
390	300	-90		90		0
400	300	-100		100		0

Buy Call



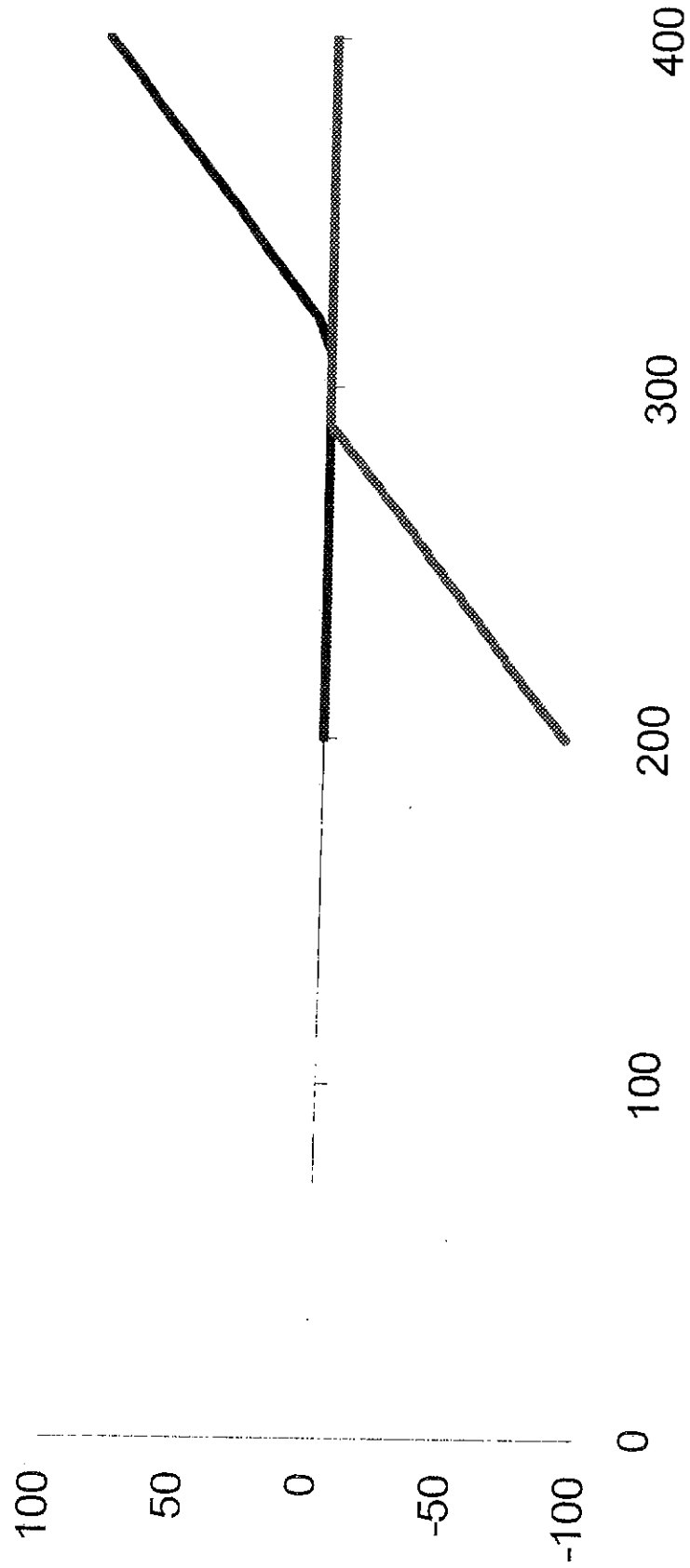
Final Profile Buy Call



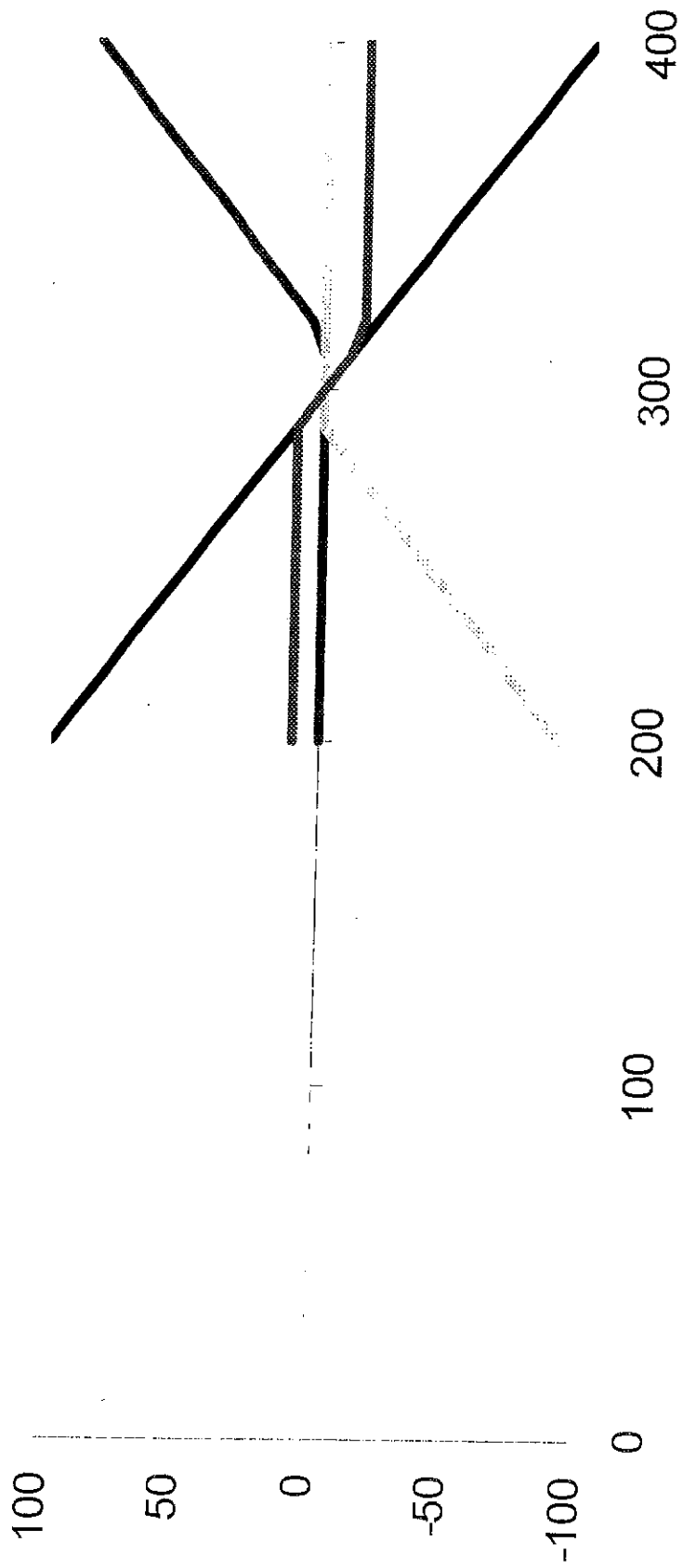
CALL OPTION

A	B	C	D	E	F	G	H	I
Price	Benchmark	Enemalta's Risk Profile	Buy Call Strike 300	Premium	Final Profile Buy Call	Final Profile Buy Call	Final Profile Buy Call	Final Profile Buy Call
		B - A		20	E - F			C + G
200	300	100	0	20	-20			80
210	300	90	0	20	-20			70
220	300	80	0	20	-20			60
230	300	70	0	20	-20			50
240	300	60	0	20	-20			40
250	300	50	0	20	-20			30
260	300	40	0	20	-20			20
270	300	30	0	20	-20			10
280	300	20	0	20	-20			0
290	300	10	0	20	-20			-10
300	300	0	0	20	-20			-20
310	300	-10	10	20	-10			-20
320	300	-20	20	20	0			-20
330	300	-30	30	20	10			-20
340	300	-40	40	20	20			-20
350	300	-50	50	20	30			-20
360	300	-60	60	20	40			-20
370	300	-70	70	20	50			-20
380	300	-80	80	20	60			-20
390	300	-90	90	20	70			-20
400	300	-100	100	20	80			-20

Buy Call and Sell Put



Collar



COLLAR

A	B	C	D	E	F	G	H	I	J	K
Price	Benchmark	Enemalta's Risk Profile		Buy Call Strike 315 Pay premium		Sell Put Strike 290 Receive premium		Buy Call Sell Put E + G		Collar C + I
		B - A								
200	300	100		0		-90		-90		10
210	300	90		0		-80		-80		10
220	300	80		0		-70		-70		10
230	300	70		0		-60		-60		10
240	300	60		0		-50		-50		10
250	300	50		0		-40		-40		10
260	300	40		0		-30		-30		10
270	300	30		0		-20		-20		10
280	300	20		0		-10		-10		10
290	300	10		0		0		0		10
300	300	0		0		0		0		0
310	300	-10		0		0		0		-10
320	300	-20		5		0		5		-15
330	300	-30		15		0		15		-15
340	300	-40		25		0		25		-15
350	300	-50		35		0		35		-15
360	300	-60		45		0		45		-15
370	300	-70		55		0		55		-15
380	300	-80		65		0		65		-15
390	300	-90		75		0		75		-15
400	300	-100		85		0		85		-15



