

## **ASX Quarterly Report for the Period Ended 31 March 2010**

### **HIGHLIGHTS**

#### **India**

- **Eden signed co-operation agreement with GAIL (India) Ltd and Mahanagar Gas Ltd to jointly undertake the first commercial size Indian Hythane® demonstration project in Mumbai**
- **Eden executed a non-binding terms sheet with Indian Oil Corporation Limited through which, subject to certain conditions being satisfied, the two companies will enter into a farm-in agreement to scale up a new Pyrolysis technology jointly developed by Eden and the University of Queensland, to produce hydrogen and ultra-strong solid carbon fibres and nanotubes from methane gas.**
- **The trial period for the first three sales of its Optiblend® dual fuel system in Assam in north-eastern India was successfully completed and Eden received payment in full for these systems.**
- **Discussions with Gujarat State Petroleum Corporation are continuing and the possibility of two higher profile demonstrations projects is being considered.**
- **Approval received for development of a second Indian Hythane bus engine.**

#### **United States**

- **San Francisco Airport Hythane® Project is progressing, with the hydrogen and Hythane station on target to become operational by mid-late 2010**
- **Initial US marketing attracts strong interest from dealers of a major engine manufacturer in Hythane Company's OptiBlend Dual Fuel Kit and first US installation completed.**

#### **UK & Australia**

- **Work program and budget proposal completed by Origin Energy Ltd received and being considered.**
- **Detailed Information Memorandum completed on Eden's geothermal project and marketing activities have begun.**
- **UK Coal Bed Methane joint venture completes initial review and plans are being considered to develop several pilot production wells over the next three years.**

# **HYDROGEN, HYTHANE® AND DUAL FUEL PROJECTS**

## **Background - India**

Progress continued with Eden's various hydrogen and Hythane® projects in India during the quarter. In 2006, India adopted a Hydrogen Roadmap that proposes to have 20% of all vehicles running on a hydrogen based fuel by 2020, and plans to use hydrogen enriched natural gas (Hythane®) as the transitional fuel. At present there are approximately 12 Indian cities that have established natural gas distribution networks, in which expanding numbers of natural gas fueled vehicles, particularly buses, are operating. The Indian Government has announced a new target to expand such networks to 200 cities by 2015 – opening up a potentially huge Hythane® market across the country.

Additionally, commercial production of natural gas from the large offshore KG basin commenced in April 2009, which is expected to significantly increase the amount of available natural gas in the coming years. These factors together make India the primary target market for Eden's hydrogen and Hythane® technology.

## **Progress on Eden's Indian Projects**

### **1 Indian Hythane Bus Demonstration Projects**

During the quarter there was substantial progress on the proposed Mumbai Hythane® bus demonstration project with a cooperation agreement with GAIL (India) Ltd ("GAIL") and Mahanagar Gas Ltd ("MGL") during the quarter. These projects each plan the installation of a hydrogen reformer and Hythane® blending and dispensing facilities, and testing of Hythane® fuel on between 50-75 buses over a 6-12 month period.

GAIL (otherwise known as Gas Authority of India) is the largest distributor of Natural Gas in India. MGL is a joint venture company jointly owned by GAIL, BG Group and the Government of Maharashtra, which owns and operates pipelines and markets Natural Gas in and around the Mumbai area to a broad commercial, domestic and industrial customer base of more than 25 million people.

The demonstration project in Mumbai will involve Eden establishing a Hythane® refuelling station at a suitable bus depot to fuel buses, progressively increasing to 50-70 buses. The bus depot in Mumbai is operated by BEST, the state owned Mumbai bus operator that operates more than 4000 buses, half of which are already using natural gas and all of which are planned to be operating on natural gas within the next three years. MGL supplies BEST with all its natural gas requirements.

Upon successful completion of the demonstration project the parties will endeavour to negotiate a commercial agreement for the ongoing promotion and marketing of Hythane® by MGL in its area of operation.

Under the terms of the agreement Eden will supply the Hythane® refuelling station including an auto-thermal reformer to produce the necessary hydrogen from Natural Gas, compression, blending, storage and dispensing equipment. Eden will also be responsible for the installation, operation, maintenance, supervision and safety of the equipment and will retain ownership of

the equipment. Eden will provide training to MGL personnel to enable them to operate the equipment.

GAIL will work with Eden and MGL and will support the demonstration project and assist in arranging all Hythane® standards and regulations and statutory clearances required for the project. MGL will provide all necessary site works for the installation of the equipment, and will provide all Natural Gas, water and electricity required for the project.

Planning approvals and installation of the equipment will take approximately 9 months and it is planned to then run the buses for a further 6 months. On completion of the demonstration project, Eden will compile a comprehensive report on the outcome and, subject to suitable results, the parties propose to negotiate the possible ongoing commercial terms for the promotion and marketing of Hythane® by MGL in its areas of operation, including the possible right for MGL to exclusively market Hythane® in Mumbai and other areas where MGL has operations.

During the quarter, a site for the previously announced proposed demonstration with Gujarat State Petroleum Corporation, with which Eden has entered into a preliminary memorandum of agreement, was selected and preliminary engineering drawings and designs completed. A full budget and a detailed proposal was prepared and a formal agreement, which was subject to board approval was also executed. However since the end of the quarter, the GSPC board has decided to place this project on hold for the time being and watch the results of the other Hythane demonstrations. Discussions are continuing with GSPC and related parties but for the time being Eden will focus on the other demonstration project in Mumbai.

Proposals for conversion of one additional Indian natural gas bus engine to operate on Hythane® have been approved by the major Indian bus manufacturer, and Eden is confident that suitable, high efficiency, ultra-low emission Hythane® fuelled buses will be available for this demonstration when it begins late in 2010.

## **2 Proposed Joint Venture for Up-scaling Pyrolysis Technology**

After extensive negotiations, Eden secured an agreement with Indian Oil Corporation Limited (IOCL) on the terms of a detailed non-binding terms sheet for IOCL to farm-in to the new pyrolysis technology developed jointly by Eden and the University of Queensland with support from the Australian Research Council. Through this technology, methane (natural gas) is broken down into its atomic constituents of hydrogen gas and solid carbon, without the production of carbon dioxide, to produce carbon fibres and nanotubes that exhibit tensile strengths up to several hundred times greater than that of steel. If successfully piloted on a commercial scale, the process could have important implications for the widespread commercialisation of these ultra-strong forms of carbon that can be used in composite materials for the construction, electronics, aerospace and vehicle building industries.

IOCL, India's flagship national oil company and downstream petroleum major, is India's largest commercial enterprise, with a sales turnover in 2008-09 of more than A\$60 billion – the highest-ever for an Indian company. It is also the highest ranked Indian company in the prestigious Fortune 'Global 500' listing, having moved up 11 places to 105th position in 2009. IOCL's involvement in the farm-in agreement will be managed by its R&D division which operates an A\$250 million world class R&D facility at Faridabad near Delhi.

In addition Eden reached a preliminary in-principle agreement with the University of Queensland (“UQ”) for Eden to purchase from UQ, in consideration of the issue to UQ of 3,750,000 fully paid ordinary shares in Eden, its 50% interest in the patents and intellectual property developed by this project.

This acquisition will enable Eden to satisfy the provisions of the Terms Sheet with IOCL, which require Eden to transfer to IOCL a 50% interest in the new technology upon IOCL firstly funding the up-scaling of the technology by approximately 18 times, to a bench scale size of 120 litres of methane per hour, and then a further thousand-fold up-scaling to a pilot plant capable of processing 120 NM<sup>3</sup>/hour of methane, which would be enough methane to run between 15-20 natural gas fuelled buses on a continuous basis. The total cost of these two phases has been estimated at approximately A\$2.6-3.6 million.

The Terms Sheet with IOCL contains a number of conditions precedent, including IOCL being satisfied with both a demonstration of the technology at UQ, and with Eden’s and UQ’s right to ownership of the intellectual property, and their right to commercialise it.

It is hoped that the acquisition by Eden of the UQ interest will be completed and the conditions precedent to the Terms Sheet will be satisfied over the next 1-2 months and that a formal binding Farm-in Agreement with IOCL will then be executed, pursuant to which the up-scaling process will begin. It is estimated that this up-scaling process would take between 18-24 months to complete.

Solid carbon is produced by this technology in various forms, including carbon fibres and carbon nanotubes, which have a tensile strength of up to 300 times that of steel while weighing less than 20% of the weight of steel. Super-strong, ultra light weight carbon fibre based composite materials are already used in many high technology applications, including replacing steel and aluminium in Formula 1 racing cars and other high end performance cars and by both Boeing and Airbus in their new very strong, light weight fuel-efficient aircraft, but its current production method is relatively energy intensive, and the material is presently very expensive.

Similarly, at present, the normal method of producing hydrogen from natural gas has the unwanted effect of producing carbon dioxide as a by-product.

Eden’s new technology, however, is anticipated to be more energy efficient and has the potential to not only produce hydrogen from natural gas at a relatively low cost, but to have extremely valuable solid carbon instead of carbon dioxide as its only by-product. This opens up exciting possibilities for future low cost widespread commercial use of ultra-strong and ultra-light material using carbon fibre and carbon nanotubes, particularly in the motor vehicle and aircraft industries. With automobiles for instance, it has been estimated that the total weight of the average car could be reduced by more than 50% by using carbon composite materials for both the chassis and body panels, offering a great reduction in fuel consumption resulting from the reduction in weight and also potentially huge reductions in the greenhouse gas emissions over the life of the vehicle, due to both the use of the carbon as a structural material to displace steel and aluminium, and also due to the reduced fuel consumption.

Additionally, the value of the carbon which will be produced is projected to result in the effective cost of hydrogen being greatly reduced, thereby increasing the competitive benefits of both Hythane® and hydrogen as ultra-low emission, ultra-low greenhouse gas producing fuels.

### **3 Dual Fuel Technology**

Eden has completed the development of a very efficient dual fuel kit that is capable of operating on diesel engines and displacing up to 70% of the diesel fuel with natural gas. If Hythane® is used in place of natural gas, the displacement of diesel fuel could be as high as 80-85%. The use of the natural gas will greatly reduce greenhouse gas emissions and, in places where natural gas is cheaper than diesel, will also reduce fuel costs. In various parts of India, natural gas is already significantly cheaper than diesel, and accordingly Eden has been targeting a diversified market for this technology, starting with stationary power generators and then locomotives.

The trial period of the first three OptiBlend® dual fuel systems sold in Assam in north-eastern India, was successfully completed during the quarter and payment was received in full. The final results from the trial period show the OptiBlend® dual fuel systems were displacing above expected amounts of diesel, resulting in short capital cost payback periods. These first sales were to one of the world's largest tea plantations, and were trialled on diesel generators with a power output of between 400 kVA and 1,250 kVA.

In India there are many hundreds of thousands of medium and large sized diesel-powered generators that are used to provide either back-up power or base-load power to commercial, industrial, residential and institutional complexes throughout the country. Apart from greatly reducing local air pollution resulting from NOx, carbon monoxide and particulate matter emissions, the new dual fuel kits are projected to have a pay-back period of between 6-24 months, depending upon the size of the engine and the amount of usage.

Eden is pursuing many other possible customers in both India and USA (and then planning to expand into other suitable territories). It is anticipated that a significant market will emerge in both countries (and many more as well), particularly as natural gas both becomes more widely available in India, and becomes more cost competitive in both countries compared with diesel as it is projected to do over the next few years.

## **Progress on Eden's US Projects**

### **1 San Francisco International Airport (SFO)**

For the past quarter, progress on the Hythane® station at San Francisco International Airport has involved continued negotiation of the contractual arrangements which are now nearing completion. For this project, Hythane Company has received funding for station infrastructure as well as the conversion of 27 Ford E-450 airport shuttles to run on Hythane®. The project will demonstrate the practicality of Hythane® vehicles for large-scale projects across the US.

Funding is being supplied by the Bay Area Air Quality Management District (BAAQMD) and the San Mateo County Government, with additional funding anticipated through two separate grants from the Department of Energy (DOE). Recently, the major merchant gas company with which Hythane Company is working on this project, received grant funding for its hydrogen fueling station adjacent to the Hythane® station. This award is a significant boost to the Hythane® project as it makes low-cost hydrogen readily available at the site

Once the agreements are finalised, the design and permitting stage of the SFO Hythane project will be completed, with construction planned for later this year. Both the hydrogen and

Hythane® stations are projected to be completed and operational sometime during the second half of 2010.

## **2 Dual Fuel Kits**

Dealers throughout the US for a major engine manufacturer continue to show a strong interest in the OptiBlend® Dual Fuel Kit developed by Hythane Company. The OptiBlend® Kit, which is the same as that currently being introduced into India, allows the conversion of a diesel generator to run on up to 70% natural gas. In addition to being a less expensive fuel, natural gas provides dramatic emission reductions over diesel fuel.

Noting the advantages of the OptiBlend® over other commercially available kits, many US dealers are now actively marketing the kit, specifically in the Gulf Coast area. This region is heavily dependent upon backup diesel generators for power during natural disasters such as hurricanes. The OptiBlend® allows a doubling of available power for a given amount of diesel, which adds to the appeal of the kit for these regions of the US.

In late 2009, Hythane Company received its first US order for an OptiBlend® kit to be used as the US demonstration project and the installation was completed in December 2009. It is now awaiting installation of a new catalyst system after which EPA certification of the emissions reductions can be completed which will provide support for future marketing. This has been delayed and is likely to be tested during the June quarter.

## **Process Gas to Liquids Research Project – The University of Queensland**

Eden and The University of Queensland (“UQ”) have lodged a provisional patent application on a new simplified method of producing liquid hydrocarbons and hydrogen from methane (natural gas), and have secured a \$500,000 Australian Research Council Grant to fund a significant portion of the 3 year project. Preliminary indications are that the new process has potential for production of both ethylene (which is used in the plastics industry as a major feedstock) and liquid motor vehicle fuel from natural gas. During the quarter work commenced and initial encouraging results were achieved.

## **ENERGY PROJECTS**

### **UK Coal bed Methane, Conventional Natural Gas and Shale Gas Project**

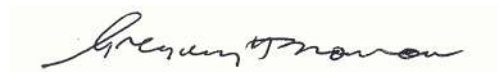
During the quarter, the major gas company that acquired 90% of Eden’s interest in the coal bed methane in four of its 18 licences and which is meeting all the costs of the next £500,000 of expenses, continued a review of all past work in the area. Plans are being considered for development of several pilot wells over the next three years.

Additionally, the review undertaken of previous seismic surveys over the licence areas in South Wales and plans are being formulated for a further detailed seismic review of the promising conventional gas and shale gas targets.

Discussions have also commenced with our joint venture partner with a view to possibly establishing a joint company as a highly resourced UK-based gas producer. Further discussions are planned during the March quarter to evaluate market conditions and assess terms for the establishment of such a joint entity.

## **Australian Natural Gas and Geothermal Projects**

An Information Memorandum has been prepared to assist with finding a suitable partner or cornerstone investor to progress Eden's geothermal interests. No activity occurred on Eden's South Australian Natural Gas Play.



**Gregory H Solomon**

*Executive Chairman*

### ***About Eden Energy Limited***

Eden Energy Ltd is a diversified clean energy company that listed on the Australian Securities Exchange in June 2006. Eden has interests in hydrogen production, storage & transport fuel systems, including the low emission Hythane hydrogen-methane blend, coal seam & abandoned mine methane in the UK, conventional gas in SA, low temperature pyrolysis research into hydrogen production and geothermal energy production.

All these aspects of Eden's business are part of an integrated strategy to become a major global participant in the alternate energy market, particularly focussing on the clean energy transport market, producing hydrogen without any carbon emissions, transporting the hydrogen to markets & providing the engines to power hydrogen-based transport & energy solutions.

For further information please contact Greg Solomon (+61 8 9282 5889) or visit our website ([www.edenenergy.com.au](http://www.edenenergy.com.au)).

# Appendix 5B

## Mining exploration entity quarterly report

Introduced 1/7/96. Origin: Appendix 8. Amended 1/7/97, 1/7/98, 30/9/2001.

Name of entity

EDEN ENERGY LIMITED

ABN

58 109 200 900

Quarter ended ("current quarter")

31 March 2010

### Consolidated statement of cash flows

Cash flows related to operating activities		Current quarter \$A'000	Year to March (9 Months) \$A'000
1.1	Receipts from product sales and related debtors	134	327
1.2	Payments for (a) exploration and evaluation (b) development (c) production (d) administration (e) other (see note below)	(75)   (228) (574)	(183)   (686) (1,964)
1.3	Dividends received		
1.4	Interest and other items of a similar nature received	22	68
1.5	Interest and other costs of finance paid		
1.6	Income taxes paid		
1.7	Other (provide details if material)		
<b>Net Operating Cash Flows</b>		<b>(721)</b>	<b>(2,438)</b>
<b>Cash flows related to investing activities</b>			
1.8	Payment for purchases of: (a)prospects (b)equity investments (c)other fixed assets	(2)	
1.9	Proceeds from sale of: (a) prospects (b)equity investments (c) other fixed assets		370 1,000
1.10	Loans to other entities		
1.11	Loans repaid by other entities		
1.12	Other (provide details if material)		
<b>Net investing cash flows</b>		<b>(2)</b>	<b>1,368</b>
1.13	Total operating and investing cash flows (carried forward)	<b>(723)</b>	<b>(1,070)</b>

#### Notes

1.2e Other - mainly relates to payments to suppliers and employees by Eden's wholly owned subsidiaries; Eden Energy India Pvt Ltd and Hythane Co LLC which are trading companies and these payments mainly consist of payments for cost of goods sold, inventory and overheads (in the September quarter ~\$163,000 related to one-off patent costs for the Pyrolysis Technology developed with the University of Queensland).

1.13	Total operating and investing cash flows (brought forward)	(723)	(1,070)
	<b>Cash flows related to financing activities</b>		
1.14	Proceeds from issues of shares, options, etc.		
1.15	Proceeds from sale of forfeited shares		
1.16	Proceeds from borrowings		
1.17	Repayment of borrowings		
1.18	Dividends paid		
1.19	Other (provide details if material)		
	<b>Net financing cash flows</b>	-	-
	<b>Net increase (decrease) in cash held</b>	(723)	(1,070)
1.20	Cash at beginning of quarter/year to date	2,642	3,058
1.21	Exchange rate adjustments to item 1.20	(11)	(80)
1.22	<b>Cash at end of quarter</b>	1,908	1,908

**Payments to directors of the entity and associates of the directors  
Payments to related entities of the entity and associates of the related entities**

		Current quarter \$A'000
1.23	Aggregate amount of payments to the parties included in item 1.2	114
1.24	Aggregate amount of loans to the parties included in item 1.10	-

1.25 Explanation necessary for an understanding of the transactions

Management Fees, as per agreement, were paid during the quarter to a company of which Mr GH Solomon and Mr DH Solomon are directors.  
Directors Fees paid during the period.  
Legal Fees were paid during the quarter to a firm of which Mr GH Solomon and Mr DH Solomon are partners.

**Non-cash financing and investing activities**

2.1 Details of financing and investing transactions which have had a material effect on consolidated assets and liabilities but did not involve cash flows

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2.2 Details of outlays made by other entities to establish or increase their share in projects in which the reporting entity has an interest.

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**Financing facilities available**

Add notes as necessary for an understanding of the position.

		Amount available \$A'000	Amount used \$A'000
3.1	Loan facilities	Nil	Nil
3.2	Credit standby arrangements	Nil	Nil

### Estimated cash outflows for next quarter

		\$A'000
4.1	Exploration and evaluation	100
4.2	Development	
<b>Total</b>		<b>100</b>

### Reconciliation of cash

Reconciliation of cash at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts is as follows.		Current quarter \$A'000	Previous quarter \$A'000
5.1	Cash on hand and at bank	1,908	2,642
5.2	Deposits at call	-	-
5.3	Bank overdraft	-	-
5.4	Other (provide details)	-	-
<b>Total: cash at end of quarter (item 1.22)</b>		<b>1,908</b>	<b>2,642</b>

### Changes in interests in mining tenements

	Tenement reference	Nature of interest (note (2))	Interest at beginning of quarter	Interest at end of quarter
6.1		Interests in mining tenements relinquished, reduced or lapsed		
6.2		Interests in mining tenements acquired or increased		

## Issued and quoted securities at end of current quarter

Description includes rate of interest and any redemption or conversion rights together with prices and dates.

	Total number	Number quoted	Issue price per security (see note 3) (cents)	Amount paid up per security (see note 3) (cents)
7.1 Preference +securities (description)	NOT APPLICABLE			
7.2 Changes during quarter (a) Increases through issues (b) Decreases through returns of capital, buy-backs, redemptions				
7.3 <b>+Ordinary securities</b>	181,705,673	181,705,673		
7.4 Changes during quarter (a) Increases through issues (b) Decreases through returns of capital, buy-backs	247,251	247,251	5.5 cents	5.5 cents
7.5 <b>+Convertible debt securities</b> (description)	NOT APPLICABLE			
7.6 Changes during quarter (a) Increases through issues (b) Decreases through securities matured, converted				
7.7 <b>Options</b>	500,000 1,500,000 1,000,000 650,000 1,475,000 50,000 1,227,000 335,000 4,000,000 500,000	NIL NIL NIL NIL NIL NIL NIL NIL NIL NIL	<i>Exercise price</i> 58.5 cents 70 cents 68.5 cents 68.5 cents 68.5 cents 31 cents 45 cents 20 cents 10.625 cents 38.5 cents	<i>Expiry date</i> 5 April 2012 7 May 2010 13 May 2010 15 May 2010 15 May 2011 25 March 2011 30 June 2011 14 May 2012 20 Nov 2012 26 May 2013
7.8 Issued during quarter				
7.9 Exercised during quarter				
7.10 Expired during quarter				
7.11 <b>Debentures</b> (totals only)	NOT APPLICABLE			
7.12 <b>Unsecured notes</b> (totals only)	NOT APPLICABLE			

## Compliance statement

- 1 This statement has been prepared under accounting policies which comply with accounting standards as defined in the Corporations Act or other standards acceptable to ASX (see note 4).
- 2 This statement does give a true and fair view of the matters disclosed.

AARON PHILIP GATES  
CHIEF FINANCIAL OFFICER / COMPANY SECRETARY  
Date: 28 April 2010

## Notes

- 1 The quarterly report provides a basis for informing the market how the entity's activities have been financed for the past quarter and the effect on its cash position. An entity wanting to disclose additional information is encouraged to do so, in a note or notes attached to this report.
- 2 The "Nature of interest" (items 6.1 and 6.2) includes options in respect of interests in mining tenements acquired, exercised or lapsed during the reporting period. If the entity is involved in a joint venture agreement and there are conditions precedent which will change its percentage interest in a mining tenement, it should disclose the change of percentage interest and conditions precedent in the list required for items 6.1 and 6.2.
- 3 **Issued and quoted securities.** The issue price and amount paid up is not required in items 7.1 and 7.3 for fully paid securities.
- 4 The definitions in, and provisions of, *AASB 1022: Accounting for Extractive Industries* and *AASB 1026: Statement of Cash Flows* apply to this report.
- 5 **Accounting Standards** ASX will accept, for example, the use of International Accounting Standards for foreign entities. If the standards used do not address a topic, the Australian standard on that topic (if any) must be complied with.

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