

# ASX Announcement

4 April 2012

## Wasabi Energy Making Progress Towards Key Commercial Milestones in Turkey.



- Waste-heat to power Kalina Cycle® opportunities in Turkey confirmed to be greater than 1,700 MWe
- Wasabi Energy has evaluated projects with potential Kalina Cycle® capacity exceeding 150 MWe
- Wasabi Energy through its wholly owned subsidiary Imparator Enerji has recently entered into a series of commercial arrangements, including the purchase of an option to acquire an interest in an advanced geothermal project

Wasabi Energy (ASX:WAS, AIM:WAS, OTCQX:WSBLY) is pleased to provide an update on the significant progress its wholly owned subsidiary Imparator Enerji<sup>1</sup> has made in the Republic of Turkey. Sustained growth in Turkey's economy and the corresponding increase in energy demand provides Wasabi Energy with a unique market opportunity to implement its innovative Kalina Cycle® power generation technology. Imparator Enerji was established in Turkey in early 2011, to pursue Kalina Cycle®<sup>2</sup> project development opportunities in both the Generation (IPP) and Technology (EPC) divisions of the business (*figure 1*).

Increased industrial activity in Turkey and the rapid modernisation of the country has resulted in an unprecedented demand for energy, particularly electrical power in Turkey. Recent reports indicate that Turkey currently imports approximately 75% of all its energy requirements and continued growth is likely to put additional pressure on the supply and security of energy in Turkey. During the last decade, the Government of Turkey has implemented a comprehensive reform agenda in the energy sector specifically designed to increase competition and encourage investment. Imparator Enerji is positioning itself to benefit from opportunities created by energy policies including a focus on industrial energy efficiency and support for renewable energy sources like geothermal in the form of a feed-in tariff.

### Core Business Divisions - Imparator Enerji



Fig.1

Additional details regarding Imparator Enerji have been provided in the following sections:

- >> Market Opportunities ..... page 2.
- >> Turkish Energy Sector ..... page 3.
- >> Comment from Management ..... page 4.

<sup>1</sup> - Imparator Enerji Limited Sirketi, is a company registered under the Laws of Turkey with offices located at Louis Vuitton Orjin Binasi Bostan Sokak No 15 Kat 5-6 Tesvikiye Nisantasi Istanbul 34367 Turkey.

<sup>2</sup> - Kalina Cycle® is a registered trademark of Global Geothermal Limited<sup>3</sup>. The Kalina Cycle® is a patented power cycle technology owned by Global Geothermal Limited.

<sup>3</sup> - Global Geothermal Limited (U.K.) and Recurrent Engineering LLC (U.S.) are wholly owned subsidiaries of Australian Securities Exchange (ASX: WAS) and AIM (AIM: WAS) listed, Wasabi Energy Limited.

## Kalina Cycle® Market Opportunities in Turkey

The Kalina Cycle® is a highly versatile power cycle technology capable of efficiently converting thermal energy from a range of heat sources into electrical power. Imparator Enerji has identified

Market: **WASTE-HEAT TO POWER**

### Overview

Turkey is one of the largest producers and exporters of glass, textiles, cement and iron & steel products in Europe. In turn, these and other significant industrial sectors are responsible for approximately 40% of all energy consumption in Turkey.

### Market Potential - Kalina Cycle®

The Kalina Cycle® is suitable for recovering waste heat and generating power from the industrial heat sources outlined below. This analysis excludes one of the largest sources of waste heat, thermal energy from the power generation sector.

Target Industry in Turkey	Market Potential (MWe)	Imparator Priority Rating (L-H)
<b>INDUSTRIAL ENERGY EFFICIENCY<sup>4</sup></b>		
Paper & Fibreboard	100 MWe	Low
Glass	120 MWe	Medium
Food	200 MWe	Low
Textile	240 MWe	Low
Petrochemical	250 MWe	High
Cement & Lime*	280 MWe	High
Iron & Steel	300 MWe	High
Other	210 MWe	Opportunistically
<b>TOTAL</b>	<b>1,700 MWe</b>	

\* - FLSmidth is the global licensee for the Kalina Cycle® in the cement & lime industries. Refer to 20 June 2011 announcement.

### Imparator Enerji Status

Imparator Enerji and its partners have visited a number of large industrial operations in Turkey including large textile, steel, glass and fibreboard factories, as well as large power generation operations. Preliminary evaluations have included the development of conceptual Kalina Cycle® power plant designs and the exchange of additional technical information.

### Imparator Enerji Update - Commercial Status

As the licensee for the Kalina Cycle® power generation technology in Turkey, Imparator Enerji has been actively pursuing commercial Generation and Technology project opportunities in both the Waste-Heat to Power and the Renewable Energy sectors. In recent months, Imparator Enerji has entered into a series of commercial arrangements with a number of strategic partners including project developers in Turkey. The commercial arrangements include the development of project termsheets for several potential Kalina Cycle® project opportunities, including an agreement (the "Option Agreement") to purchase an option (the "Option") to acquire a 50% interest in an advanced geothermal project with a build-out opportunity to generate further power through the potential application of our innovative Kalina Cycle® technology.

significant opportunities to apply the Kalina Cycle® to projects in Turkey with thermal energy resources available in both the waste-heat to power and the renewable energy sectors.

Market: **RENEWABLE ENERGY**

### Overview

Non-thermal sources of renewable power generation, particularly wind and hydro are contributing a growing proportion of Turkey's power generation. Geothermal is also emerging as an increasingly viable renewable option.

### Market Potential - Kalina Cycle®

Geothermal power generation is a promising form of thermal renewable energy in Turkey with solar-thermal and biomass still in their infancy. The majority of geothermal resources in Turkey are low-enthalpy, ideally suited to the Kalina Cycle®.

Renewable Market in Turkey	Market Potential (MWe)	Imparator Priority Rating (Var.)
<b>GEOTHERMAL MARKET<sup>5</sup></b>		
New Projects - 2015 <sup>6</sup>	528 MWe	High
P90 Potential	1,055 MWe	High
P50 Potential	1,468 MWe	Medium
P10 Potential	2,105 MWe	Low
<b>TOTAL</b>	<b>2,105 MWe</b>	-
<b>OTHER<sup>4</sup></b>		
Solar Thermal	500 MWe	Opportunistically
Biomass	500 MWe	Opportunistically
<b>TOTAL</b>	<b>3,105 MWe</b>	

### Imparator Enerji Status

Imparator Enerji and its partners have conducted a systematic evaluation of potential power generation opportunities in the Turkish geothermal sector. Imparator Enerji is currently focused on pursuing advanced project opportunities with proven geothermal resources and has already developed conceptual Kalina Cycle® power plant designs for several projects.

The Option Agreement entered into by Wasabi Energy expires on 31 December 2013. It is subject to partner and regulatory approvals, to be received by Wasabi before exercise of the Option. Total consideration for purchase and exercise of the Option is US\$11.75 million, of which US\$100,000 is payable within seven days of the Option Agreement being signed. The total consideration also includes a US\$5 million loan note to be issued by Wasabi Energy. The balance of the total consideration, will be payable in cash in staged payments on or before 31 December 2013, and is payable if Wasabi continues with, and subsequently exercises the Option. Should it choose to exercise the Option, Wasabi Energy would also provide surety for the existing debt facility of the project company.

<sup>4</sup> - Internal analysis by Imparator Enerji based on data from MENR, Turkstat, IBS, TUBITAK, EMRA and other data including proprietary sources.

<sup>5</sup> - Estimates derived from analysis published by Istanbul Technical University, Petroleum & Natural Gas Engineering Department, titled Turkey's Geothermal Energy Potential, authored by A. Satman, E. D. Korkman Basel & U. Serpen.

<sup>6</sup> - Estimate published in, Geothermal Electricity Market in Europe report authored by Jean Philippe (Schlumberger/GeothermEX), presented at GeoPower Europe 6 December 2011.

# Turkish Energy Sector

## Overview

Sustained growth in the Turkish economy during the last decade has resulted in an exponential increase in energy consumption in Turkey and has placed significant pressures on energy supplies, particularly within the power generation sector.

Whilst Turkey has abundant renewable energy resources including hydro, geothermal, solar and wind, the vast majority of Turkey's energy requirements, especially in the transport power generation and industrial sectors are sourced from fossil fuels. Major pipelines delivering oil and gas from the Caspian region to major European markets traverse much of Turkey, however Turkey's indigenous sources of coal, gas and oil are relatively small. In recent years, natural gas has become a fuel of choice in Turkey, especially for power generation where the fuel accounts for approximately 72% of all new power generation capacity installed in the last decade<sup>7</sup>.

In an effort to reduce Turkey's dependence on energy imports, Turkey has implemented one of the most aggressive renewable energy targets globally, aiming to produce 30% of its electricity from renewable energy sources by 2023.

## Power Generation - Key Statistics & Forecasts<sup>9</sup>

- 55,000 MW of installed power generation capacity
- 3,632 MW, forecast annual increase in power generation required in Turkey until 2020
- US\$100 billion, forecast investment to be made in power generation, transmission and distribution sectors by 2020
- 32% per capita energy consumption compared to Europe

## Forecast Peak Electricity Demand (Megawatts)<sup>9</sup>

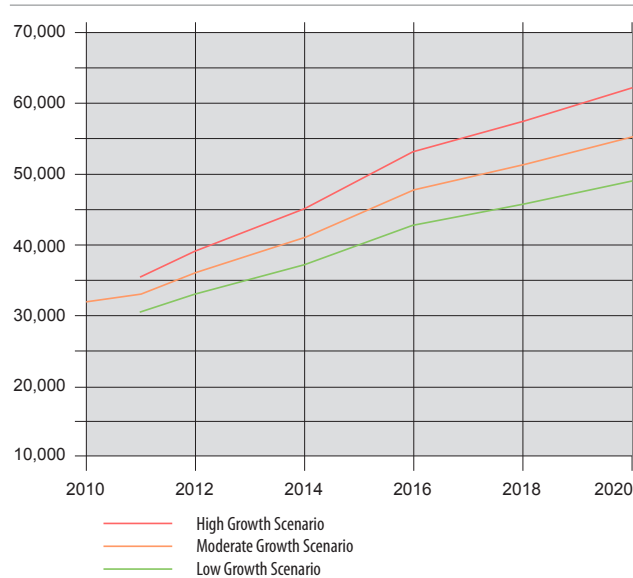


Fig.2

## Energy Policy

According to the Republic of Turkey's Ministry of Energy & Natural Resources, Turkey's energy policy aims to<sup>8</sup>:

- Ensure maximum use of renewable resources
- Increasing energy efficiency
- Discouraging import dependency
- Making energy available for the consumers in terms of cost, time and amount
- Exploiting public and private facilities within the framework of free market practices
- Securing a strong position for our country in regional and global trade of energy
- Ensuring the availability of diversified resources, routes and technologies
- Minimising negative environmental impact while producing and using energy and natural resources

This policy framework supported by stringent energy efficiency requirements, an ambitious renewable energy target and the recent introduction of feed-in tariffs, is expected to continue to provide strong long term support for the adoption of large scale power generation technologies such as the Kalina Cycle<sup>®</sup>.

## Power Generation - Market Opportunities

Recognising the supportive investment environment and the significant opportunities in the Turkish power generation market, a large number of major international energy companies have entered the power sector in Turkey in recent years. The increased activity in the sector is underpinned by Turkey's forecast requirement for an additional 30,000 megawatts of power generation capacity by 2020 (figure 2).

In February 2012 the European Union and the Government of Turkey announced major initiatives to achieve a closer collaboration in energy markets, particularly the power sector. The increased harmonisation of power markets will result in Turkey having broader access to European power markets and is expected to result in power generators in Turkey being able to sell power into higher priced European markets.

The increased EU-Turkey collaborations are likely to simplify the sale of carbon credits and significantly increase funding options for renewable energy and waste-heat to power projects in Turkey both from industry, financial partners and development agencies. Imparator Enerji is working with project sponsors proposing both waste-heat to power and geothermal projects in Turkey and is providing technical support regarding the engineering and development of several significant Kalina Cycle<sup>®</sup> projects.

<sup>7</sup> - International Energy Agency. Energy Policies of IEA Countries, Turkey 2009 Review.

<sup>8</sup> - Republic of Turkey Ministry of Energy & Natural Resources, March 2012.

<sup>9</sup> - Estimates of Forecast Peak Electricity Demand and other statistics have been derived from public sources including Turkish Ministry of Energy & Natural Resources and Türkiye Bilimsel ve Teknolojik Araştırma Kurumu (TUBITAK)



## Comment from the Chairman

Executive Chairman of Wasabi Energy, Mr. John Byrne commented:

*"We established Imparator Enerji as a dedicated entity to specifically focus on building an independent power producer (IPP) business in Turkey by leveraging the advantages of our cornerstone technology, the Kalina Cycle®. We see enormous opportunities for the Kalina Cycle® in Turkey and are impressed with the quality and breadth of project opportunities we have been able to access in a relatively short time."*

*"Turkey is a large emerging economy in urgent need of sustainable solutions to help address the energy efficiency, energy security, power generation and emissions challenges facing the country. As a group we not only own important technologies which can address some of these challenges, we have important capabilities in project development, financing and execution which we are working to incorporate into new project opportunities in Turkey through Imparator Enerji."*

*"We are excited about the projects we are currently working on including our recent decision to purchase an option over an advanced geothermal project and other ongoing commercial arrangements."*

Yours Sincerely,

Mr. John Byrne

Executive Chairman  
Wasabi Energy



## Comment from Imparator Enerji

Managing Director & CEO of Imparator Enerji and Imparator Green Energy plc, Mr. Bahay Ozcakmak commented:

*"In recent months Imparator Enerji has made significant progress in building a scalable business around the Kalina Cycle® technology in Turkey. We have been working diligently to execute our corporate strategic plan. This has involved the formation of strategic partnerships with key market participants and the evaluation of a very large number of significant commercial opportunities in Turkey. Our ability to generate more power from a given thermal resource through our technology is a powerful source of sustained competitive advantage and positions both the generation (IPP) and technology (EPC) divisions of our business very strongly in the marketplace."*

*"We have evaluated several high quality projects with aggregate power generation capacity exceeding 150 MWe and are currently in advanced negotiations with several large Turkish companies to co-develop large Kalina Cycle® power plants in both the industrial energy efficiency and the renewable energy sectors. We have recently executed an option to acquire an ownership interest in an advanced geothermal project. A number of other projects we are currently evaluating also provide Imparator Enerji with significant project ownership opportunities."*

Yours Sincerely,

Mr. Bahay Ozcakmak

Managing Director & CEO  
Imparator Enerji

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## Imparator Enerji Corporate Information

Imparator Enerji Limited Sirketi, "Imparator Enerji" is a company registered under the Laws of Turkey with registered office and contact details as follows.

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## Corporate Information

General corporate information regarding Wasabi Energy and the companies Wasabi Energy holds a strategic investment in can be found in this section. Announcements regarding Wasabi Energy corporate developments are made to the Australian Securities Exchange (ASX) and the London Stock Exchange's, Alternative Investment Market (AIM), are also available on the Wasabi Energy website. Additional information regarding the investee companies can be found at their respective web sites, details below.

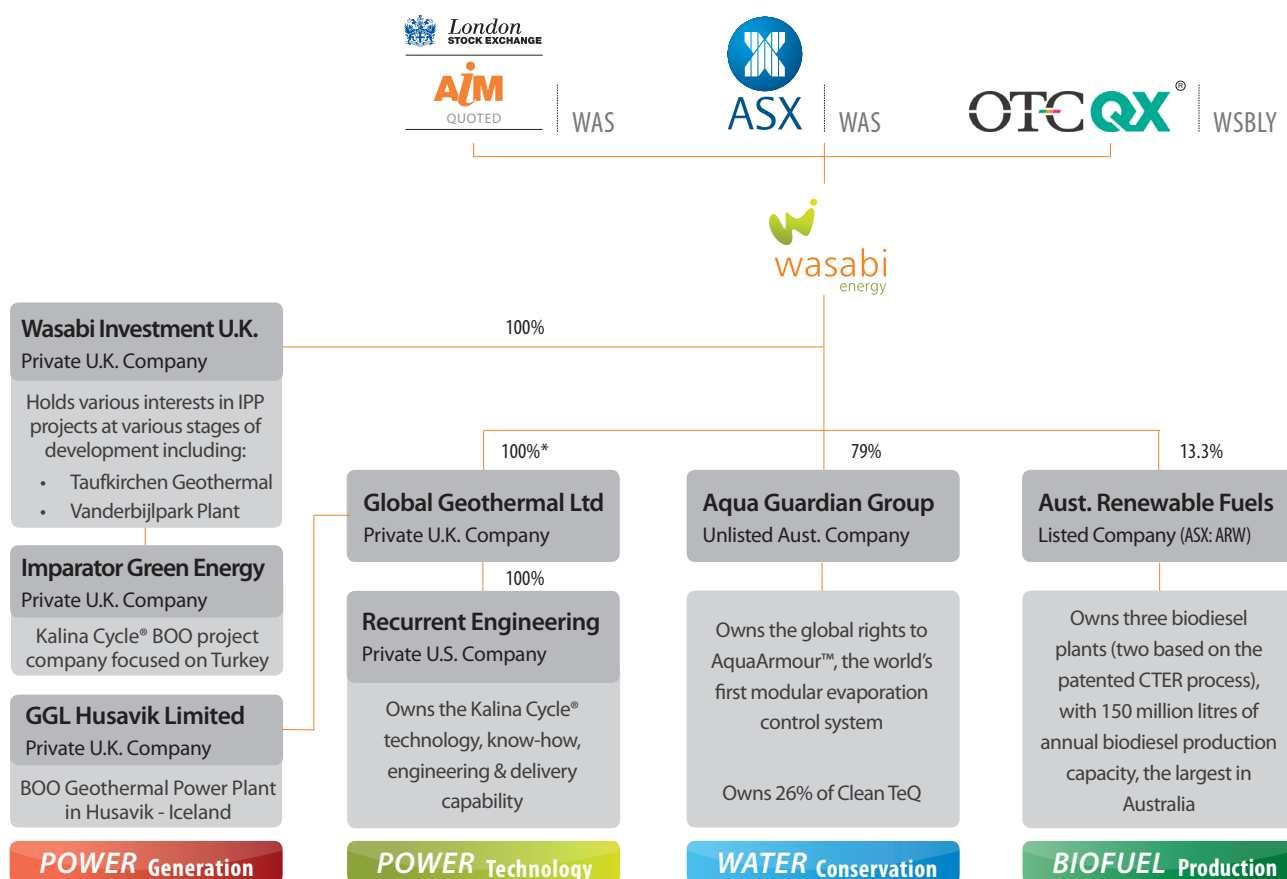


## About Wasabi Energy

Wasabi Energy Limited is listed on both the Australian Securities Exchange (ASX: WAS) and the AIM market in London (AIM: WAS) as well as American Depositary Receipts trading on OTCQX Market (OTCQX: WSBLY). Wasabi Energy is an emerging power producer that also invests in sustainable technologies. Its power business is based on the proprietary Kalina Cycle® power generation technology which utilises low grade, waste heat from industrial facilities or geothermal sources to produce electricity. In a typical industrial application of the Kalina Cycle® technology can increase energy efficiency in an industrial plant by up to 20%. Through its strategic investments Wasabi Energy owns a 79% interest in Aqua Guardian Group, the developer of the AquaArmour™ a water management, conservation and algal control product. Aqua Guardian Group also has a 22.7% interest in the air, water and minerals ASX listed company Clean Teq (ASX: CLQ). Wasabi Energy also owns a 13.3% interest in Australian Renewable Fuels, a separately ASX listed company (ASX: ARW) which produces liquid biofuels from a variety of non-food grade feedstocks.

Additional information:  
[www.wasabienergy.com](http://www.wasabienergy.com)

## Group Structure



BOO - Build-Own-Operate

\* - Subject to finalisation of 2.7% share purchase.