# KALINA POWER LIMITED (ASX:KPO)



MAKING CLEAN POWER FROM WASTE HEAT IN A RANGE OF INDUSTRIES Efficient, Safe, Reliable, Proven



## Financing Summary - ASX:KPO

Current issued capital: 148,335,253

Major shareholders: Harrington Global Limited – 24.9% and John Byrne – 20.7%

- Current financing includes a \$5,500,000 Rights Issue at 3:4 and a separate \$1,800,000 Private Placement
  - Both priced @ 5 cents per share with 1 option for every 2 shares. Option priced @ 5 cents to 30 August 2017
  - Rights Issue: \$3,350,000 underwritten
  - Private Placement: \$750,000 completed / balance pending shareholder approval for increased placing capacity
  - Price of previous equity issues in February 2015 and September 2015 for total of \$3,900,000 was @ 10c per share
- Financing enables roll out currently underway in China and Rest of the World
  - anticipated EBITDA rising from \$2,300,000 in FY2018 to over \$27,000,000 by FY2020
  - Several opportunities being explored, each significantly transformative for the company's valuation



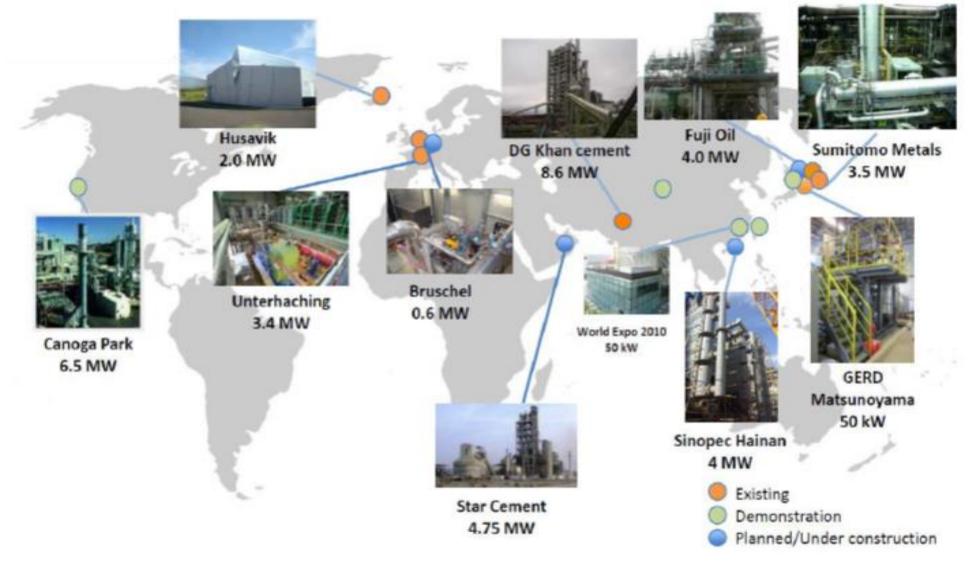
## Electricity From Waste Heat - A Massive Market And A Global Priority

- A 4 Megawatt KALiNA Cycle<sup>®</sup> plant can offset upwards of 19,000 tonnes of CO2 per year in displacing coal fired electricity which releases around 500 kg/MWh (US Department of Energy)
- Generating electricity from waste heat is a multi-billion dollar, international market currently addressed with a handful of companies using various iterations of the Organic Rankine Cycle ("ORC")
  - Market leader is ORMAT: (NYSE) / Market Cap ~ US\$2.1 Billion
  - The KALiNA Cycle® is a proprietary industrial power process that is 20-40% more efficient than ORC.
  - KALiNA Cycle® has been successfully commercialised across a range of industries
  - The Company has completed a restructuring to position the KALiNA Cycle® for global deployment:
    - Eliminated over \$12.5 million of external debt and simplified corporate structure
    - Restructuring existing license agreements to control compliance for design and project execution
    - New senior management, strengthened technical team and a revised board of directors
    - Capital efficient, corporate partnering business plan to meet international demand
    - Several transformative projects underway: each can create significant value to shareholders



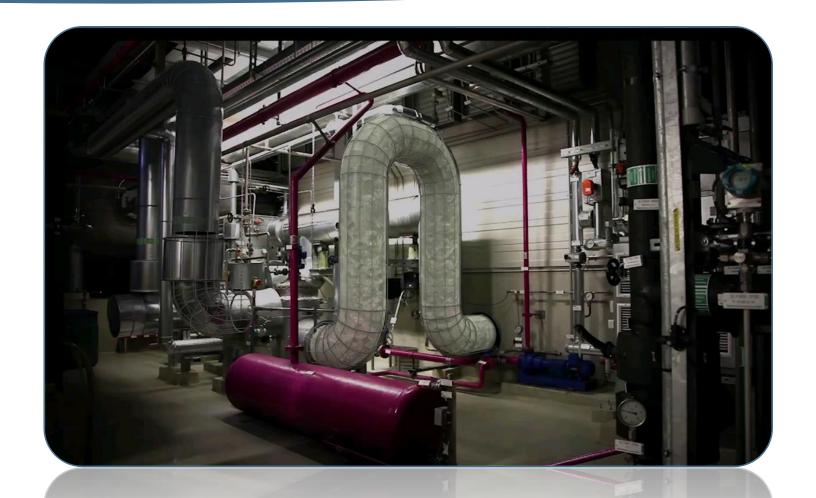
## KALINA Cycle® Ready For Worldwide Deployment - US\$126 Million Spent To Date

### **Commercially Deployed In A Range Of Industries -15 Plants**





# KALINA Cycle® Virtual Plant Tour Explains How The Technology Works



For a seven minute video tour of the KALiNA Cycle® Geothermal plant in Unterhaching, Germany, please visit: <a href="https://www.KALiNApower.com">www.KALiNApower.com</a>



## KALINA Cycle® vs Organic Rankine Cycle (ORC)

- ORC and KALiNA Cycle® both use waste heat to boil a working fluid that have a lower boiling temperature than water Boiled working fluid creates a vapour to drive a turbine to generate electricity; similar to the conventional steam cycle
- ORC installations have confirmed market demand for a rapidly growing multi-billion dollar sector
- ORC working fluids are typically fixed concentrations of either Pentane, Butane or refrigerants like r134 or r245
- Some ORC working fluids are explosive, toxic, ozone depleting and limited for use in some jurisdictions
- KALiNA Cycle® working fluid is a variable mixture of ammonia and water which has many advantages:
  - Adjustable concentrations of ammonia with water can address variations in the waste heat source and this allows optimized boiling temperatures that can result in improved performance of 20-40% over ORC
  - Ammonia is not ozone depleting, not explosive and is accepted in wide use throughout the world
  - Ammonia and water have a similar molecular weight:
    - Vapour generated can be used with a wide range of turbine sizes (cost and performance efficient)
    - Competitive capital costs and operating costs
- KALiNA Cycle® has extensive proprietary know-how and maintains a strong and growing patent portfolio



## **Tipping Point For Worldwide Deployment - Proven Technology**

### HIGHLIGHTS OF TECHNIP STONE & WEBSTER TECHNICAL REPORT

"The technology is robust, its advantages are substantial and given the extent of technology validation performed to date, Technip believes with appropriate technical and commercial support, there is a potential for the KALiNA Cycle® to be adopted on an industrial scale worldwide"

"The sound thermodynamic basis of the performance and efficiency advantages of the KALiNA Cycle® technology in real-world settings have been successfully validated...confirms that the technology is fundamentally efficient, reliable and safe and can be delivered across a range of heat-source parameters, including those often found but generally not utilized in common industrial settings"



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- 38,000 employees in 48 Countries.
- Range of services including for Petrochemical and renewable energy sector.
- 40 years experience in EPC, commissioning, start-up and plant testing.
- 2014 revenue of €\$10.7bn



### From Fifteen Plants Deployed We Understand How To Achieve Success

#### **PAST PROJECTS**

- Projects that complied with KALiNA engineering design and equipment specification worked well
- Projects that utilized KALiNA engineering team and world class EPC firms were executed properly
- Sumitomo Metals, Fuji Oil and Unterhaching represent existing KALiNA Cycle power plants in a range of industries that showcase the reliability of the technology when delivered well

#### **FUTURE PROJECTS**

- Repeatable success for global commercial deployment requires effective project delivery and execution
- Fulfilment partners provide complimentary skill sets to KALiNA's engineering and technical team ensuring repeatable delivery of reliable power plants to industry best standards
- Working with leading partners allows more rapid deployment of multiple projects with successful outcomes
- Preferred vendor partners provide high quality, standardised equipment for high performance, shorter lead times and better inventory management to deliver optimised cost benefit outcomes



## **Recent Management Additions**

- Appointed Ross MacLachlan as CEO of KALiNA Power. Mr MacLachlan has been engaged as Executive Director of KALiNA Power since May 2015. Former Director of Pristine Power which built over 600 MWe of projects and eventually sold for US\$300m to Veresen Inc. His appointment as Managing Director and CEO is in recognition of his leadership role in the reorganisation of KALiNA Power
- Engaged additional power industry professionals including several former Pristine Power management team members
- Jeffry Myers to join KPO as a Non-Executive Director. Mr Myers led the development of over three gigawatts of independent power projects as co-founder, Chairman, President and Chief Executive Officer of Pristine Power prior to its successful sale to Veresen. Mr Myers is currently a senior operating partner with Stonepeak Infrastructure Partners (a US\$5.7 billion fund) responsible for investment in the power generation sector and development and execution of independent power projects
- Recruited several senior engineering technology experts to augment the engineering and IP portfolio management capabilities of the KALiNA technical team
- Recruited George Yan with impressive credentials in project management in Canada and China on major industrial projects.
   Recently appointed as Chief Operating Officer for China subsidiary
- Appointed Tim Horgan as Executive Director and Lead Internal Counsel responsible for international licensing, contracting and compliance.



## **New World Class Partnerships**

- Engaged world class component manufacturers and engineering and design partners enabling a far more involved role by KALiNA in the execution of KALiNA Cycle projects across the project cycle
- Entered into a teaming agreement with a top 10 ranked global consulting engineering firm with over 1,000 employees, specializing in the delivery of integrated engineering solutions. The teaming partner has extensive experience with the KALiNA Cycle® and shall act as our lead third party consultant to provide process engineering and design reviews
- Entered into Memorandum of Understanding (MOU) with Cryostar SAS ('Cryostar') to develop the international joint marketing of the KALiNA Cycle utilizing Cryostar's advanced turbo-expander turbine designs
- Progressed negotiations with Geothermal Energy Research & Development Co. Ltd (GERD) a Japanese joint venture
  operating under the auspices of the former Ministry of International Trade and Industry in order to promote the research and
  development of geothermal energy. GERD venture partners include 31 major geothermal development-related private
  enterprises (including Fuji Electric, Kawasaki Heavy Industries, Mitsubishi Heavy Industries, Sumitomo and Toshiba
  Corporation). The GERD teaming agreement provides for joint marketing efforts and joint technical responses to GERD
  venture partners as well as third party geothermal solicitations
- In discussions with further partners who are leading Chinese and Japanese EPC firms for Asia and US office of global EPC firm



## Recent Regional Business Development – Potentially Transformative Projects

#### China

- Restructured operations in China to provide increased shareholdings, direct royalty payments and direct engagement and control of the deployment of the KALiNA Cycle technology
- Replaced existing licensee in order to complete the 4MWe Sinopec Hainan Petrochemical plant. Documentation to resume construction with KPO oversight is pending sign-off by Sinopec and related parties. Anticipated project completion shall occur during 2016
- Sinopec has advised that completion of the Hainan plant will lead to negotiations for up to 100 KALiNA Cycle plants

### Japan

- 500 KWe geothermal project with GERD at Itoigawai. Initial purchase order for US\$135,000 completed with further purchase order underway.
   The potential project has support from SoftBank and Chiyoda engineering. GERD and Ministry of Environment plan to exploit 100's of hot spring locations in Japan with KALiNA Cycle
- KALiNA Power and Chiyoda are in discussions regarding a closer working relationship across Asia and for the roll out of other Geothermal
  projects in Japan and Asia including in Indonesia and the Philippines

#### **USA**

Several international EPC firms in technical discussions with KALiNA for development of KALiNA Cycle projects

#### Canada

Former Pristine Power independent power developers in discussions with KALiNA on regional project development



### **Highlights Of Business Plan**

### Targeting criteria

- Markets and opportunities that are capital efficient: customer and third party funding available to minimise dilution to the Company. KPO ownership of future projects will be considered on selective economic criteria
- Markets where multiple project opportunities exist (i.e. Sinopec 100+)
- Markets with supportive regulatory regimes with either funding availability or legislated requirements:
  - China (legislated energy efficiency), Japan (multiple sources of funding and legislated power prices), USA (states such as California – legislated renewable energy targets), Canada (grant funding, oil sands)
- New projects and active customers include: Sinopec, Japan Ministry of Environment, Taufkirchen in Germany
- Effective management of project execution and compliance of licensees:
  - Recruitment of additional team members with track record of building successful companies and demonstrated success in developing and constructing power projects
  - Delivering turnkey solutions to provide high quality, cost effective projects with management and oversight to ensure design and equipment specifications are met
  - Select fulfilment partners working with KALiNA will provide engineering, procurement and construction to execute and deliver projects
  - Using a turnkey licensing model provides attractive profit margins



# Example of KALiNA Cycle Plant Economics

- Capital costs for a 5MWe plant are ~ US\$16.6 million (~US\$3.325 million per MWe)\*
- Operating costs fully burdened in the range of 7.6cents per kWh

	Annualised Costs (Cents Per kWh)	Profitability of a 5MWe Plant at 15c per kWh**
Site Annual O&M Expenses per kWh	1.1 cents	
Selling, Administrative and General Expenses (SAGE) per kWh	0.7 cents	
Twenty year Nominal Capital Cost per kWh	2.1 cents	
Twenty year Nominal Cost of Turnkey Fee and License	1.0 cents	
Principal and Interest Cost per kWh	2.7 cents	
TOTAL	7.6 cents	
	Annual Revenues @ 15 cents	US\$6.2 Million
	Annual Costs @ 7.6 cents	US\$3.0 Million
	NET PRE TAX INCOME	US\$3.2 Million



# How Does KPO Make Money With It's Turnkey Licensing Model?

Turnkey Revenue Items	Gross US\$ Per MWe	KALiNA Net Proceeds Per MWe	KALiNA Net Proceeds 5MWe
EPC Margin on overall project cost	\$250,000	\$35,000	\$175,000
Turnkey Fee / Engineering Services	\$500,000	\$500,000	\$2,500,000
Total (US\$)	\$750,000	\$535,000	\$2,675,000
Recurring Annual Royalty to KALiNA* (US\$)	\$40,000	\$40,000	\$200,000/year

<sup>\*</sup> For near term projects with Sinopec in China it is anticipated that the royalty will be a one-off based on MW installed



## **KPO Pro-Forma Per MW – Anticipated EBITDA With Sinopec And ROW Projects**

Financial Year		2017	2018	2019	2020
China	Projects*	2	6	14	24
	New MW	8	24	56	96
ROW	Projects*	0	1	1	1
	New MW	0	5	10	10
Total	New MW	8	29	66	106
	Cumulative	8	37	103	209

Over 15 months Each	Additional MW Adds	
CHINA	REVENUE	\$ 445,252.50
	EBITDA	\$ 380,475.25
ROW	REVENUE	\$ 882,854.60
	EBITDA	\$ 830,140.80



<sup>\*</sup> Estimates only– actual results may vary as formal contracts have not yet been entered into for future projects

## **Board And Management Of Kalina Power and China**

#### Ross MacLachlan, CEO

- Thirty-five years of technology development and project funding as CEO and Executive Director, previously at Lignol Energy
- Raised over US\$100 million in both the conventional energy and alternative energy sectors
- Former Director of Pristine Power which built over 600 MWe of projects eventually sold for US\$300m to Veresen Inc.

### Mark Mirolli, Engineer, Chief Technology Officer

- Twenty-five years experience in thermal power generation, design and construction and the leading expert on the KALiNA Cycle®
- Former Director of Technology Development for ABB Combustion Engineering

### **Tim Horgan, Solicitor, Executive Director**

- Former Counsel at Gillette and sat on its AMEE Operating Committee overseeing annual sales in excess of US\$1.2 billion
- Oversaw acquisition and worldwide licensing of the 2002 and 2006 FIFA World Cups for over US\$1 billion in revenues

### **Jeff Myers, (pending) Non-Executive Director**

- Senior Operating Partner of Stonepeak Infrastructure Partners, former founder and CEO of Pristine Power
- Led in the development, execution and operation of three gigawatts of independent power projects

### **Dr Malcolm Jacques, Non-Executive Director**

- International career across research, development and implementation of numerous energy technologies
- Worked previously at BP Ventures (UK), The Energy Laboratory, MIT (Cambridge, USA), Strategic Research Foundation (AUS)

### John Byrne, Non-Executive Chairman

- Thirty years experience in industrial project development and capital markets success
- Founded Western Coal Corporation which was dual listed on AIM and TSX which was sold for over US\$1 billion

### George Yan, Chief Operating Officer, China

- Senior project management professional with experience in China and North America. Founded 400+ employee EPC firm in China
- Managed several, multi-hundred million dollar Oil Sands projects with Jacobs and Worley Parsons in Canada



# Basic Capital Structure and EV Post Fundraising

- 280,586,693 Shares on Issue = \$14,029,334 (Market Cap at the issue price)
- Cash = \$4,500,000
- EV = \$9,529,334
- Short dated options (30 Aug 17) to raise up to a further \$5,056,286
- No further funding needed
- Company burn rate c.\$330,000 per month after further increasing project delivery team



# **Detailed Capital Structure And Fundraising**

Capital	Shares	Warrants Series One @ 10c to 30 Sept 2016	Warrant Series Two @ 5c to 30 Aug 2017	Warrants @ 5c between 28 April 17 and 30 Aug 17	Management Options @11c to 30 June 2018	Management Options @5.5c to 30 Nov 2019
Current	148,335,253	21,928,767	7,500,000		21,600,000	
Rights Issue @ 5c	111,251,440		55,525,720			
Placement @ 5c	21,000,000		10,500,000			
Options subject to shareholder approval				27,500,000		45,405,000
Pro-Forma Enlarged Capital	280,586,693	21,928,767	73,625,720	27,500,000	21,600,000	45,405,000

Net Working Capital (after costs and Loan repayment)			
Current Working Capital	\$800,000		
Rights Issue (assuming Shortfall placed)	\$2,752,572		
Placement (balance of \$1.8m placement announced on 1 August 2016)	\$987,000		
Total New Funds	\$4,539,572		
Warrants exercisable at 5c before 30 August 2017	\$5,056,286		



### **Disclaimer**

### **Important Information**

- This presentation may contain certain forward-looking statements that have been based on current expectations about future acts, events and circumstances
- These forward looking statements are, however, subject to risks, uncertainties and assumptions that could cause those
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# Thank you

