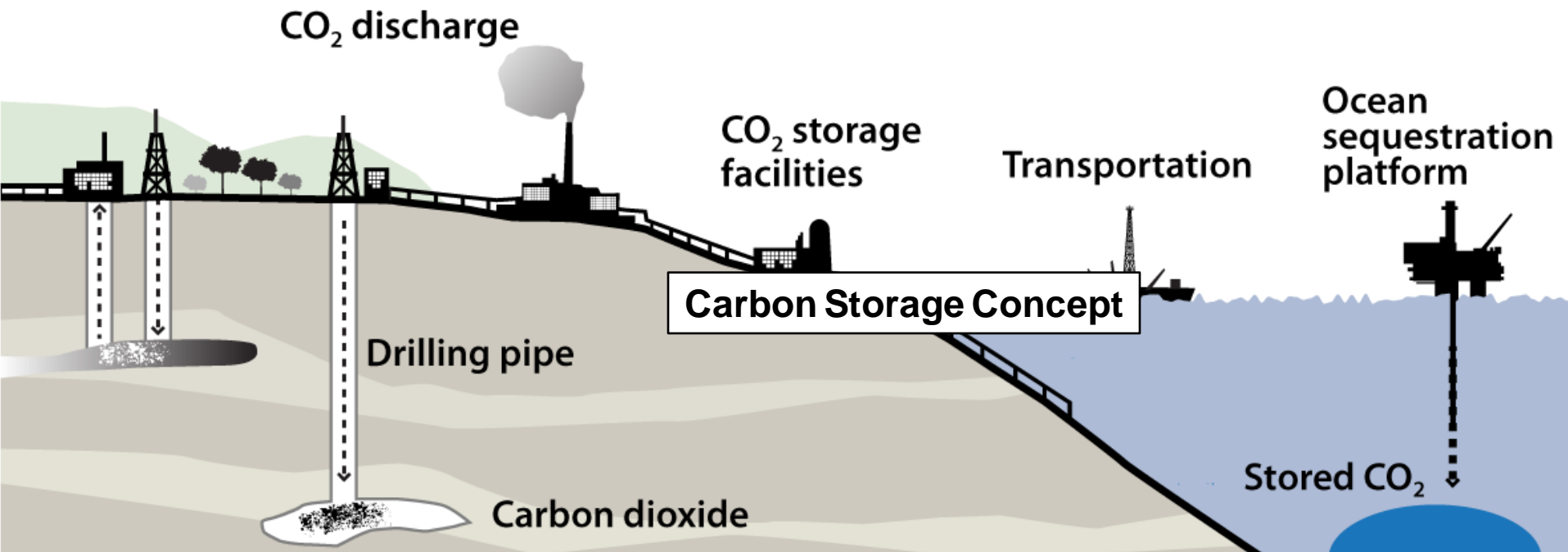




CARBON STORAGE (CCS)





PROBLEM & SOLUTION

Problem: 27B tonnes CO₂ emitted annually from emitters...

Solution: **Electro Reduction of Carbon Dioxide**



Current Market Price
\$1500 per tonne





CARBON RECYCLING SOLUTIONS

MANTRA (Canada)	CALERA (US)	CARBON RECYCLING (Iceland)
<ul style="list-style-type: none"> •Inputs: CO2, water and electricity 	<ul style="list-style-type: none"> •Inputs: CO2, fly ash, brines, manufactured alkalinity 	<ul style="list-style-type: none"> •Inputs: CO2, geothermal power
<ul style="list-style-type: none"> •Outputs: Formic acid – precursor chemical for many other chemicals 	<ul style="list-style-type: none"> •Outputs: Carbonates produced for construction materials – i.e. Gypsum; caustic and acid mineral carbonates 	<ul style="list-style-type: none"> •Outputs: synthetic fuel - methanol
<ul style="list-style-type: none"> •No proximity limitations 	<ul style="list-style-type: none"> •Proximity and transportation issues 	<ul style="list-style-type: none"> •Siting and proximity is limited to geothermal power sites
<ul style="list-style-type: none"> •Strong economic potential 	<ul style="list-style-type: none"> •Economics questionable 	<ul style="list-style-type: none"> •Low production cost due to use of geothermal energy
<ul style="list-style-type: none"> •Minimal environmental permitting required 	<ul style="list-style-type: none"> •Environmental permitting required 	<ul style="list-style-type: none"> •Environmental permitting required





MANTRA'S COMPETITIVE STRENGTHS

- Formic acid serves as a building block to many other products
- Not limited by proximity
- Scalable and turnkey technology
- High margins on end product





TARGET MARKETS FOR ERC ADOPTION

Cement Manufacture

Coal Power Production

Natural Gas Production

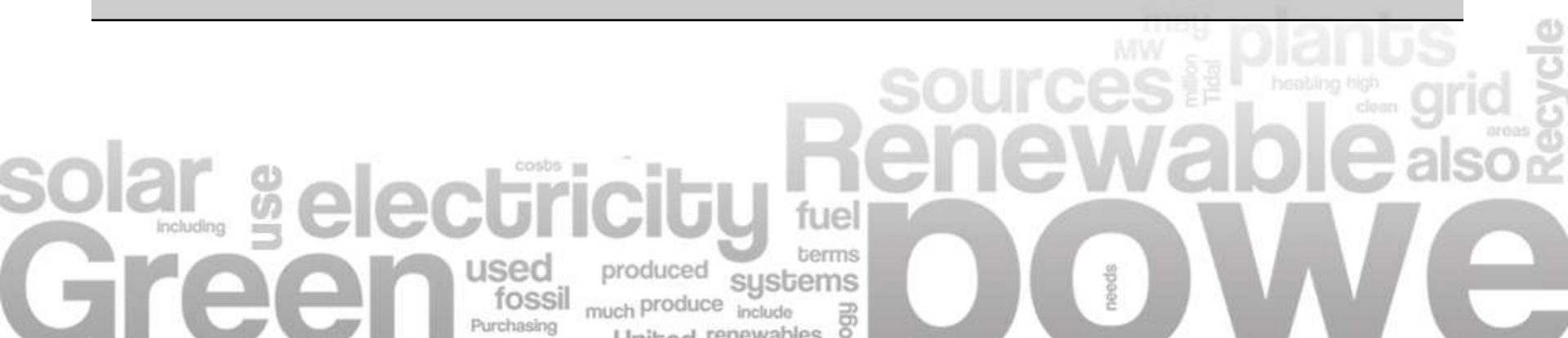
Iron and Steel Production

Petrochemical Production

Aluminum Production

Oil Sands Extraction

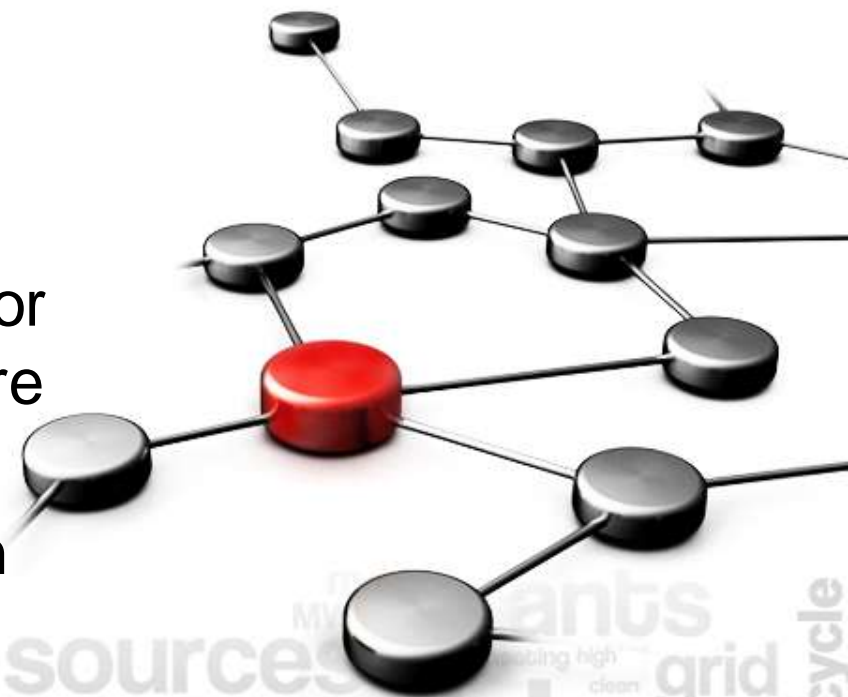
Chemical Production





INTELLECTUAL PROPERTY PATENTS

- Mantra acquired IP in 2007
- Initial patent pending WO 2007/041872 A1
 - By Prof. Colin Oloman, inventor Clean Energy Research Centre University of BC
- PCT underway – examinations in process in Australia and China



sources plants grid Recycle
Renewable also
Green electricity fuel
solar use including
Green used produced systems
fossil much produce include
Purchasing United renewables
needs
power

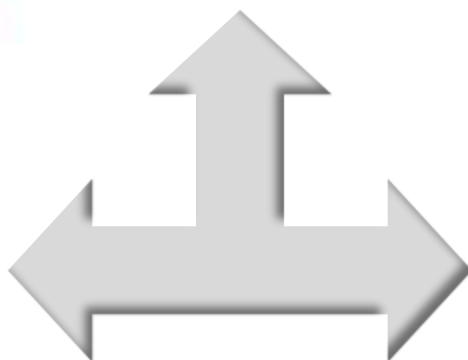


MANTRA ENERGY ALTERNATIVES LTD - a green chemicals company -

MANTRA'S PARTNERS



Powertech 

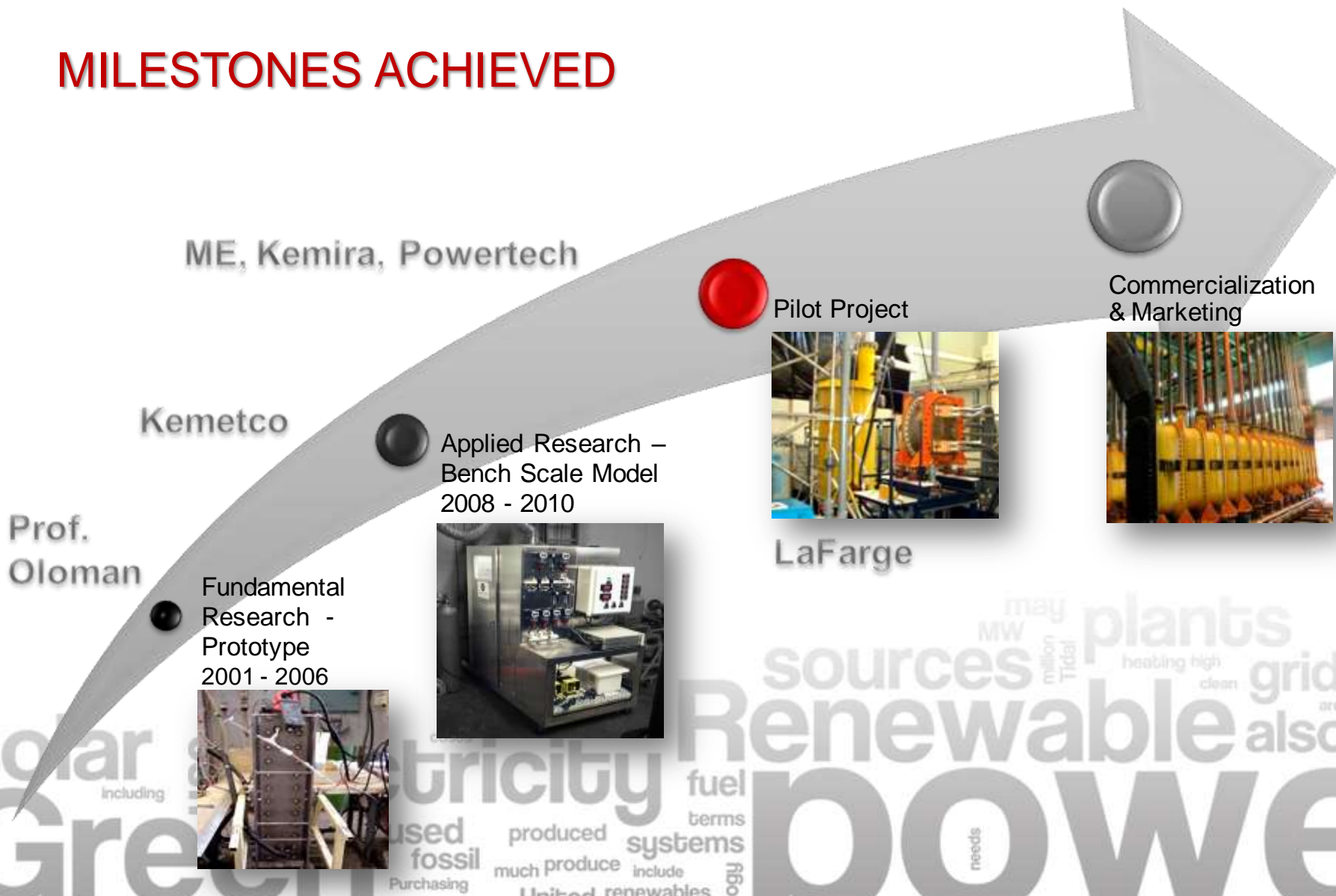


kemira





MILESTONES ACHIEVED



ME, Kemira, Powertech

Commercialization & Marketing

Pilot Project



LaFarge

Kemetco

Applied Research –
Bench Scale Model
2008 - 2010



Prof.
Oloman

Fundamental
Research -
Prototype
2001 - 2006





USE OF FUNDS

- Build of the Lafarge demonstration facility in Richmond, BC
- Optimization of demonstration facility
- Completion of global patenting of ERC
- Marketing and promotion
- HR expansion – executive management and engineering
- New product development & IP
- G & A





ERC SHORT-TERM GOALS

- Initial plant deployment size – 100 kg per day
- Scale-up upon successful flowtesting
- Kemira off-take agreement
- Early adoption licensing

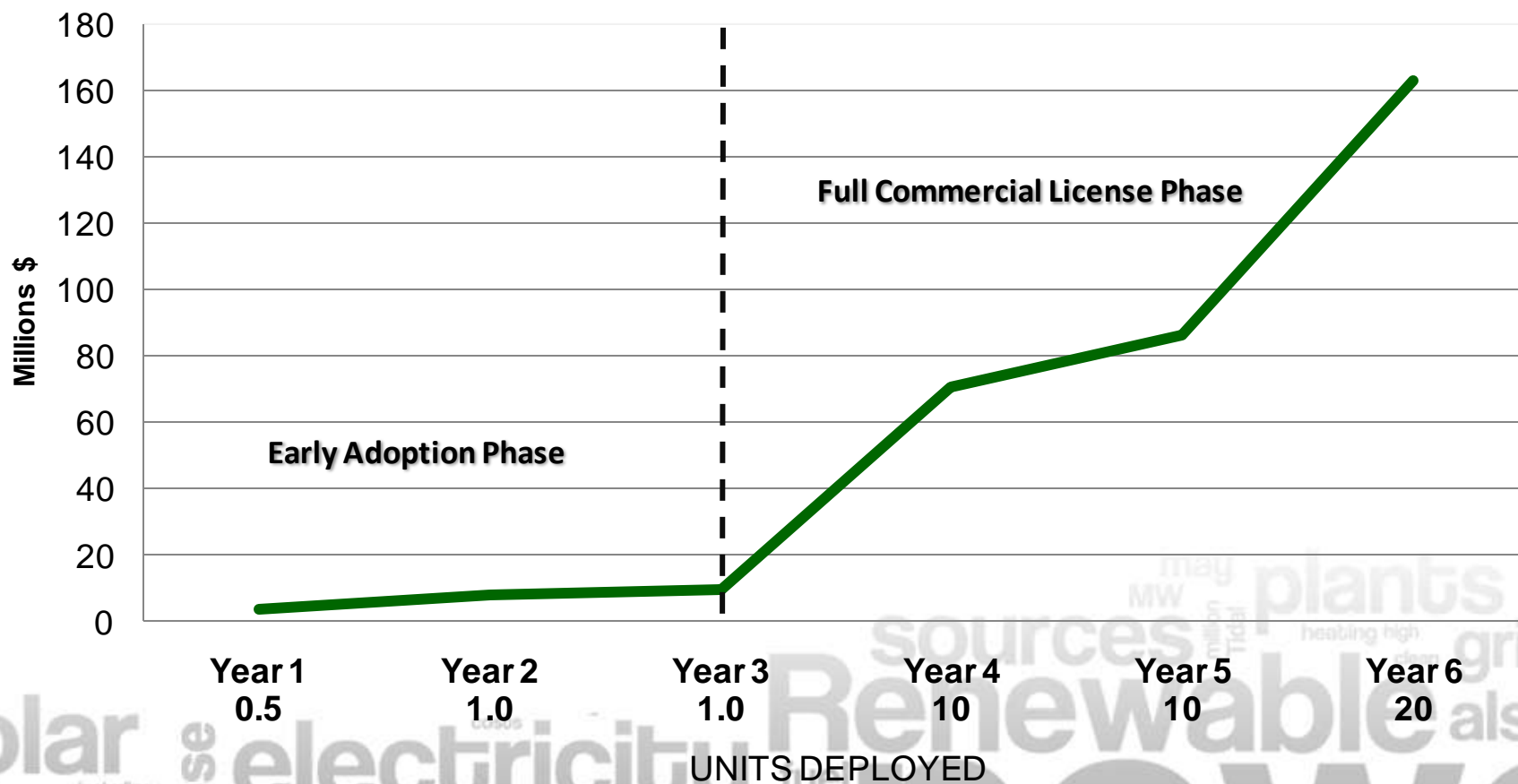


Conceptual Pilot Plant

sources
Renewable
power
solar
including
use
electricity
fuel
terms
Green
used
fossil
Purchasing
produced
much
produce
include
systems
needs
also
Recycle



PROJECTED SALES CHART





THE TEAM

Advisory and Science:

- Professor Emeritus Colin Oloman, CERC, UBC – ERC inventor
 - 40+ years in chemical engineering
 - Some 20+ patents to his credit
- Norman Chow, P.Eng, President & Director of Kemetco
 - Winner of numerous technology awards
 - Inventor of environmentally friendly metal processing technology
- Joey Jung, P.Eng, Head Researcher
 - 10+ years in electrochemical engineering and battery development

Board & Management:

- Larry Kristof, Founder, Director
 - Serial entrepreneur
 - Member of City of Surrey's cleantech council
 - 15 years in mgmt and operational capacities
- Jonathan Boughen, Director
 - 20+years in sales and operating management
- George Orr, CA, Controller
 - 25+ years in capital management and business advising



