

# Annual General Meeting 2005

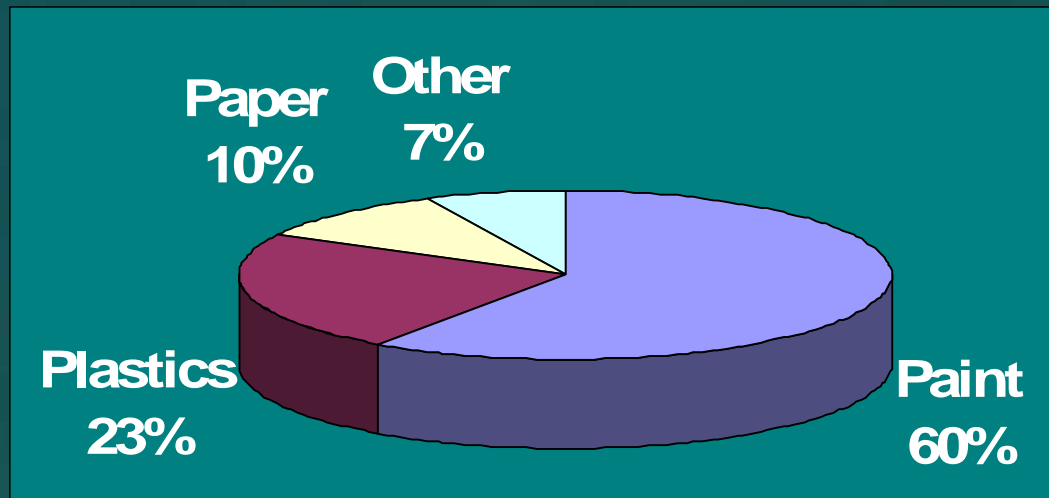
24th November  
2005



**Building the  
future  
through  
ERMS SR**

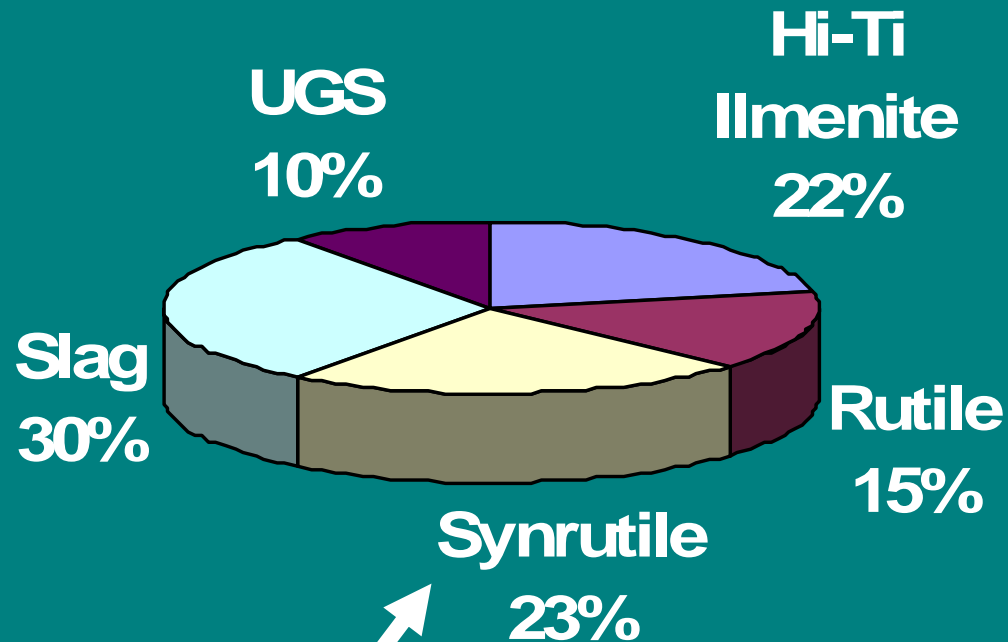
# Titanium Dioxide Industry

- 91% of titanium used as  $\text{TiO}_2$  pigment
- US\$8 billion industry; 4.8M tonnes  $\text{TiO}_2$



- Two processes for pigment :
  - Sulfate (40%) – ilmenite, Ti slag
  - Chloride (60%) – high Ti feedstock

# Chloride Feedstock Consumption (2004) (2.9 million tonnes of TiO<sub>2</sub> units )



> \$US 300M

# ERMS SR and the TiO<sub>2</sub> Industry


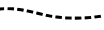


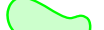
- Growth in high grade feedstock market
- Market shortfall – UGS expansion but no new SR plants planned
- Attractive economics (>20k tpa plant)
  - Highest grade SR
  - Iron co-product
- Opportunities in Australia.....
  - Ilmenite supply agreements?
  - SR sales agreements?

# Vision for ERMS SR (2004)

1. Build a fully integrated ERMS SR Demonstration Plant ("DP")
  - to demonstrate the technology
  - to complete the Feasibility Study
2. Construct the first commercial ERMS SR plant – 30,000 tpa

# Eastern Australia Project

- Cons. Rutile producing ~100k tpa hi-Cr ilmenite
- Late 2003 – MOUs with CRL (ilmenite) & Iluka (SR)
- Early 2004 – fundraising for Bankable Feas. Study
- 2004 – SSPP + placements; started DP upgrade
- 2005 – we recognised that the Qld project had:
  - Limited expansion potential (< 50,000 tpa SR)
  - Limited project life (15 years?)
- New opportunities – Murray Basin

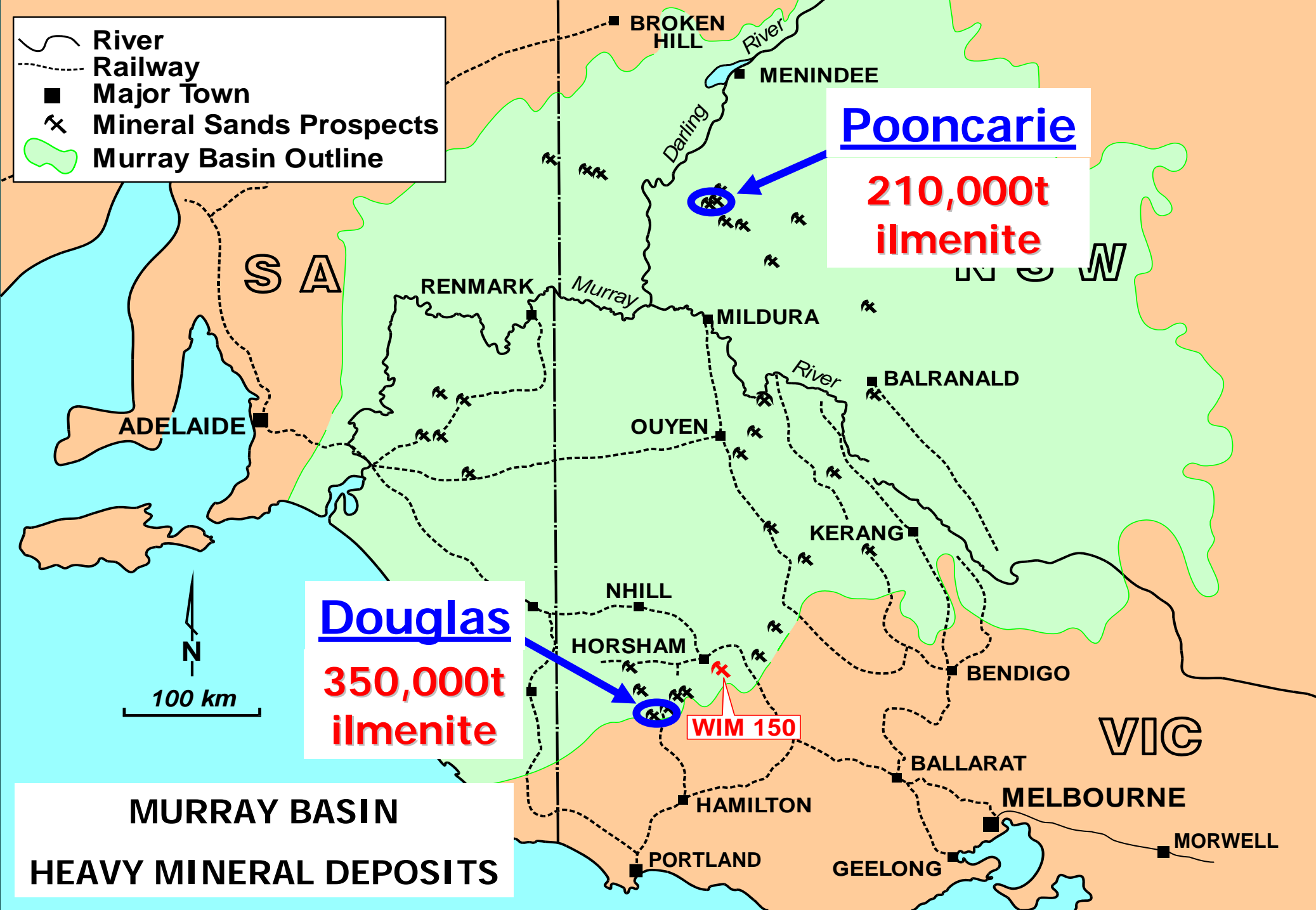
-  River
-  Railway
-  Major Town
-  Mineral Sands Prospects
-  Murray Basin Outline

**Pooncarie**  
**210,000t**  
**ilmenite**

**Douglas**  
**350,000t**  
**ilmenite**

**WIM 150**

**MURRAY BASIN**  
**HEAVY MINERAL DEPOSITS**



# Murray Basin Potential

- Ilmenite production > 500,000 tpa by 2008
- Brown coal – Latrobe Valley
- Black coal – Illawarra & Hunter Valley
- Road and broad gauge rail network
- Supportive State Governments
- Possible ERMS SR plant sites:
  - Broken Hill/Adelaide/Port Kembla (Pooncarie)
  - Hamilton/Portland (Douglas)
  - Morwell (all deposits, abundant coal)

# New Vision for ERMS SR

1. Build the integrated ERMS SR DP
  - to demonstrate the technology
  - to complete final feasibility study
2. Construct the first commercial ERMS SR plant – 60,000 tpa
3. Expand to World Class synrutile facility – 250,000 tpa ERMS SR

# The Demonstration Plant will:

- Be fully integrated (3,000 tpa ERMS SR)
  - Roasting & mag separation; continuous leaching; EARS acid regeneration & iron metallisation
- Minimise scale-up risk (20:1 for 60,000 tpa SR)
- Confirm continuous process reliability
- Provide data to obtain performance guarantees from equipment suppliers
- Provide parameters for engineering design/sign-off for feasibility study & financing

# ERMS SR Demonstration Plant

Continuous  
Leach

Filter

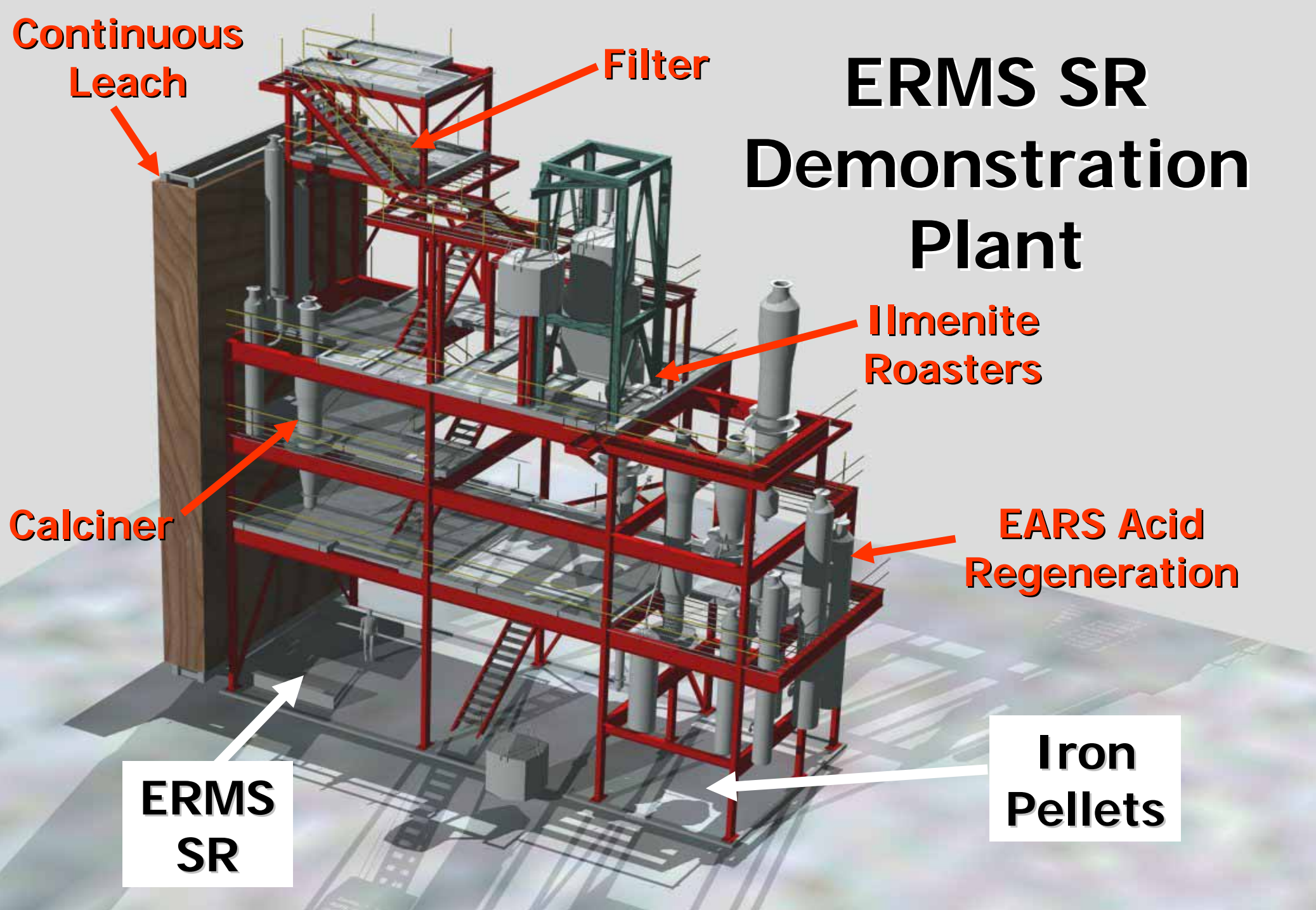
Ilmenite  
Roasters

EARS Acid  
Regeneration

Calciner

Iron  
Pellets

ERMS  
SR



# Dem Plant Nov 2005

Raw  
Materials  
Feed Bins  
and  
Enclosure

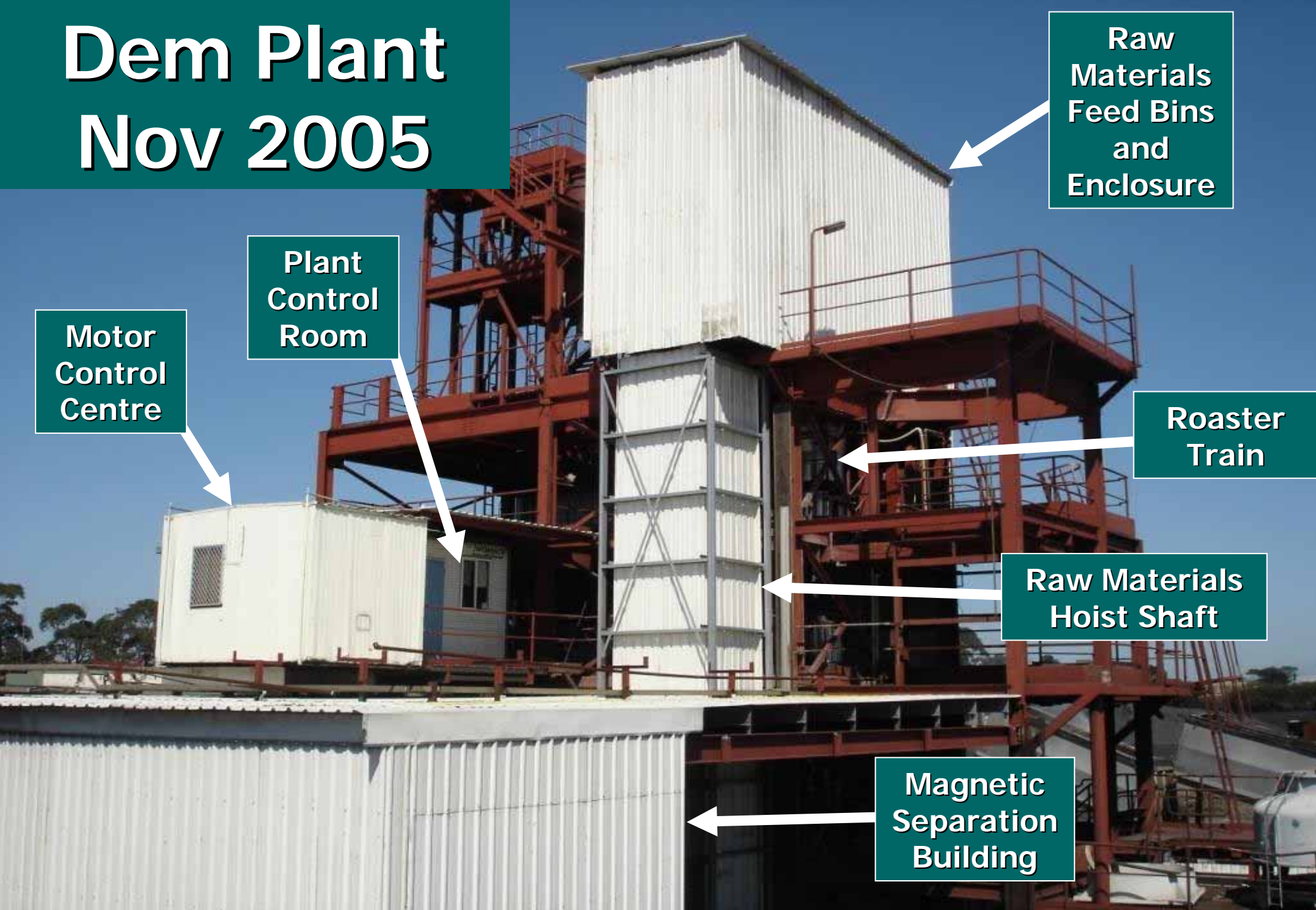
Plant  
Control  
Room

Motor  
Control  
Centre

Roaster  
Train

Raw Materials  
Hoist Shaft

Magnetic  
Separation  
Building



# ERMS SR - Stage One

■ <b>Demonstration Plant</b>	
■ Expenditure on the DP to date	<u>\$2.0 M</u>
■ Additional capital for the DP	\$2.7 M
■ Commission/operate the DP	\$1.5 M
■ Ongoing engineering	<u>\$0.6 M</u>
Sub-total current requirement	\$4.8 M
■ <b>Feasibility Study</b>	
■ Eng. design/cost, site, FS report	<u>\$1.0 M</u>
<b>TOTAL</b>	<u><b>\$5.8 M</b></u>

# ERMS SR - Stage Two: 60,000 tpa Commercial Plant

## ■ Raw material inputs:

- Ilmenite (55% TiO<sub>2</sub>) 112,000 tpa
- Brown coal (21 GJ/t) 45,000 tpa
- Total energy requirement 17.1 GJ/t SR
- Make-up acid 2,200 tpa
- Water 264,000 tpa

## ■ Production outputs:

- ERMS SR 60,000 tpa
- Iron co-product (DRI pellets) 29,000 tpa

# ERMS SR - Stage Two: 60,000 tpa Commercial Plant Project Analysis

■ Capital Cost	\$ 77.4 M
■ Annual Revenue (SR & iron)	\$ 43.4 M
■ Annual Operating Cost	\$ 12.0 M
■ EBITDA	\$ 31.4 M
■ IRR (project)	31%
■ NPV (10%)	\$126 M
■ Payback	< 3 years

# Status of ERMS SR Project

- **Funding for Stage One:**
  - **Discussions well advanced with international group**
  - **Additional Australian funding sources**
  - **Confident of finalising DP funding by Q1 2006**

# Status of ERMS SR Project

- Stage One activities:
  - Construction of Demonstration Plant
  - Ilmenite supply agreements – Murray Basin
  - SR off-take agreements for pigment [and metal]
  - Energy and other raw material sources
  - Evaluation of potential plant sites
  - Discussions with State Governments

# Timetable – Stages 1 & 2

	2006				2007				2008			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Demonstration Plant	→											
Feas Study/Finance		- - - →										
Construct 60k SR Plant				→								
Commission/Ramp up							-	→				
Full Production										→		

★ Project milestones

# The Future for Austpac and ERMS SR

- Finalise DP and Feasibility Study based on Murray Basin ilmenite – 2006
- Use DP to generate income/licences
- Fund, construct and commission first commercial ERMS SR plant – 2007
- World Class synrutile facility based on Murray Basin ilmenite – 2010 onward
- International opportunities

**Austpac has a bright future  
as a premium feedstock  
producer for both  
TiO<sub>2</sub> pigments and Ti metal**