



Infrastructure  
Sustainability  
Council of Australia



## ISCA Update

Antony Sprigg  
CEO

**21 June 2016**

Melbourne Networking Event

Improving the productivity & liveability of industry & communities through sustainability in infrastructure

Thank you



**LAING O'ROURKE**

# Welcome



Industry traction of the IS rating scheme in ANZ

# IS TRACTION



**Registrations**

**Projects / Assets**

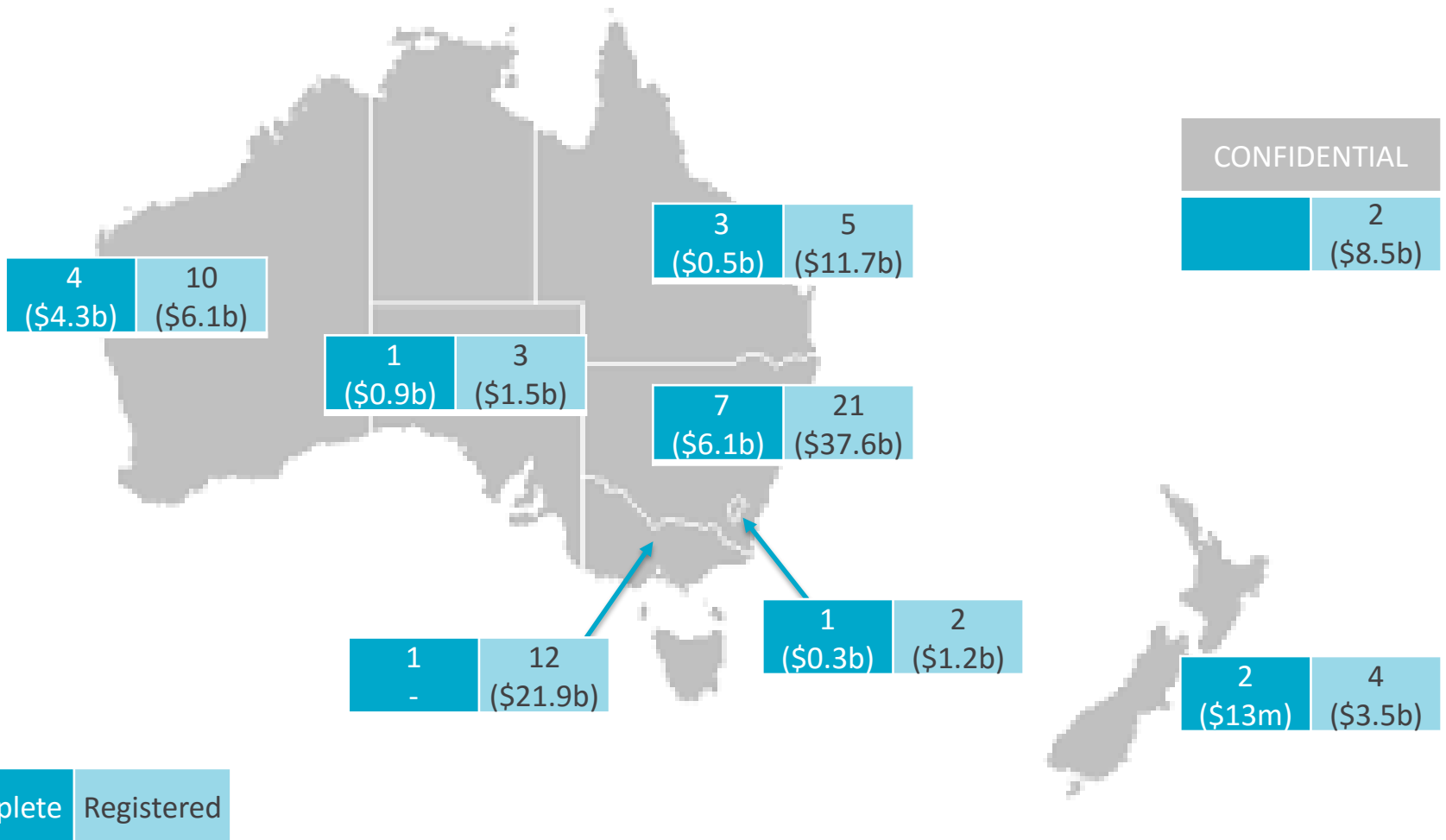
**Capital Value**



**\$79.2**  
billion



# IS registrations by location



About the IS rating scheme

# IS RATING SCHEME VERSION 1.2

# IS rating scheme



- IS rating scheme comprises
  - IS Scorecard
  - IS Materials Calculator v1.2
  - IS Technical Manual v1.2
- Assessment process involves
  - Registration
  - Assessment support
  - Independent verification
  - Certification and rating award



# IS Themes & Categories

Themes	Categories
Management and Governance	Management Systems
	Procurement and Purchasing
	Climate Change Adaptation
Using Resources	Energy and Carbon
	Water
	Materials
Emissions, Pollution and Waste	Discharges to Air, Land and Water
	Land
	Waste
Ecology	Ecology
People and Place	Community Health, Well-being and Safety
	Heritage
	Stakeholder Participation
	Urban and Landscape Design
Innovation	Innovation
Workforce*	
Economic*	

# Training

## Infrastructure Sustainability Training for Professionals

- 2 day course
- +600 IS Accredited Professionals

### Outline

- Refreshed Case studies and examples with material from the certified ratings.
- Guest speakers
- Case studies, exercises and group discussion time.
- Training workbook and IS Technical Manual (electronic and hard copy)
- For those seeking accreditation the exam will be delivered using an online delivery system outside of the two day course time.

## Infrastructure Sustainability Seminar for Managers

### Bespoke Outline

- What is Infrastructure Sustainability
- Global trends and traction in infrastructure sustainability
- Industry cost benefit and challenges of infrastructure sustainability
- IS rating scheme introduction

## Infrastructure Sustainability Workshop for Owners

### Bespoke Outline

- Understand trends and benefits in infrastructure sustainability and how these impact businesses.
- Explore risks and opportunities associated with applying sustainability to specific infrastructure projects/assets.
- Develop a roadmap towards Infrastructure Sustainability.

# Version 1.2 outcomes

- **Greater industry alignment** across ANZ
- **Adds rigorous flexibility** with a risk-based approach to direct sustainability focus on the areas of greatest importance
- **Reduced complexity** of the IS rating process through consolidating and eliminating credits
- **Reduced evidence collation** through streamlining credits to focus on outcomes
- **Recognition and reward of incremental improvements** through scaled credits
- **Improved accessibility** of the IS tool for projects less than \$20 million in capital value
- **Ease of access** with free downloads of support tools for ISAPs

# Improvements for small projects

- Small project customisations in 25 of 44 credits
- Specific guidance for small projects (<\$20m)
- Benchmarking operations
- Program approach for operational assets and capital works programs
- **Benefits – Greater accessibility , reduced evidence burden, enhanced value add,**

# Weightings Assessment

- Addresses concerns about whether the default weightings are suitable for all infrastructure
- Supports identification of the most material sustainability issues
- Results in adjustments to weightings within the tool to tailor and focus the tool to the project/assets stakeholders and context
- Weightings transfer to the scorecard
- **Benefits – tailored approach, enhanced value add**

# Scaled credits

- V1.1 had (up to) three fixed Levels for credits
- V1.2 scaled credits allow for fractions of Levels to be achieved on a sliding scale
- Provides encouragement to pursue every improvement opportunity possible
- Optimising innovation with up to 10 points “*to reward pioneering initiatives in sustainable design, process or advocacy*”.
- **Benefit - enhanced value add**

# Program Approach

## Program Types

Program of works

**Package based  
projects delivery**

Capital works  
program

## IS Registrations

- NorthLink WA (Main Roads WA)
- Great Northern Hwy Upgrade (Main Roads WA)
- Sydney Metro Northwest, Operations Trains and Systems (TfNSW)
- CityRail Link (Auckland Transport)
- Level Crossing Removal project
- Melbourne Metro Rail project

# Operation

- Pilot Process
- Scoping whole-of-life sustainability **risks** for projects and assets, enabling **smarter solutions** that reduce risks and costs
- Benchmark current performance
- Guides the development of action plans and maps for addressing sustainability in asset management
- Tool to communicate best practice achievements and industry status
- IS for Operations release in 2016



IS rating tool update

# VERSION 2

# IS is being updated

- ISCA is updating its IS rating scheme to develop IS version 2
- The update includes:
  - **Coverage:** The way in which IS version 2 will adapt and consider each phase of the infrastructure life cycle from strategic planning to deconstruction
  - **Systems and processes:** A review of the current systems, rating processes and feedback loops to create an effective and efficient scheme
  - **Engagement:** The development of an engagement plan which reviews and identifies how ISCA engages with our stakeholders, customer interactions and opportunities for value add
  - **Content:** Updating the current categories and the development two new themes- Economic and Social.

# Scheme intent and design principles

## Design Principles

1. Beyond compliance
2. Does not reward minimum standards
3. Measures outcomes first then processes and inputs
4. Globally applicable with local adaptations
5. Quantitative where possible
6. Material to achieving intent
7. Evidence-based
8. Scalable
9. Considers each phase in the infrastructure life cycle

## Scheme Intent

“To advance infrastructure sustainability by providing guidance for designers, builders, owners, operators and investors to make decisions that optimise the environmental, social and economic outcomes of infrastructure.

To achieve this through an evidence-based assessment and verification scheme and the sharing of leading practices.”

# The Economic Theme

The Economic Theme development is guided by the Economic Advisory Group and will include the following topic areas:

- Options assessment
  - Valuing externalities
  - Equity and distribution
  - Risk and uncertainty
  - Financial sustainability
  - Transparency
- Benefits realisation

# The Social Theme

There will be three categories within the Social Theme:

- Ethical supply chains
  - Environmental sustainability, human rights and business ethics within the supply chain
- Social procurement
  - Engaging social enterprises, indigenous-owned businesses, local employment, long-term unemployed etc.
- Workforce sustainability
  - Wellbeing, training and education, indigenous employment, diversity etc.

# Version 2 development timeframes and funding

- Version 2 will be ready for release mid 2017, however this timeframe is dependant on funding.
- To date, the following organisations have provided financial support for the development of IS version 2.



**Australian Government**  
**Department of Infrastructure  
and Regional Development**



**Australian Government**  
**Department of Employment**



**Office of  
Environment  
& Heritage**



**Queensland  
Government**



# What's On



**What  next?**

**Infrastructure Sustainability Conference | Sydney**

Tuesday 25 October 2016 | 9am-5pm



**Sustainability  
In Infrastructure  
Awards**

**20  
16**

ISCA Tuesday 25 October 2016 | 7-11pm | Doltone House Darling Island, Sydney | Black tie

Nominations close Friday 26 August 2016 5pm AEST



Sam Donaldson  
Sustainability Manager & IS Assessor

# BAYSWATER LEVEL CROSSING REMOVAL PROJECT



# Bayswater

## Level Crossings Removal Project

**A Sustainable Journey &  
Solutions for Sustainable  
Integration**

Sam Donaldson  
Sustainability Lead



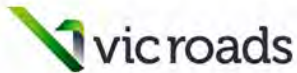




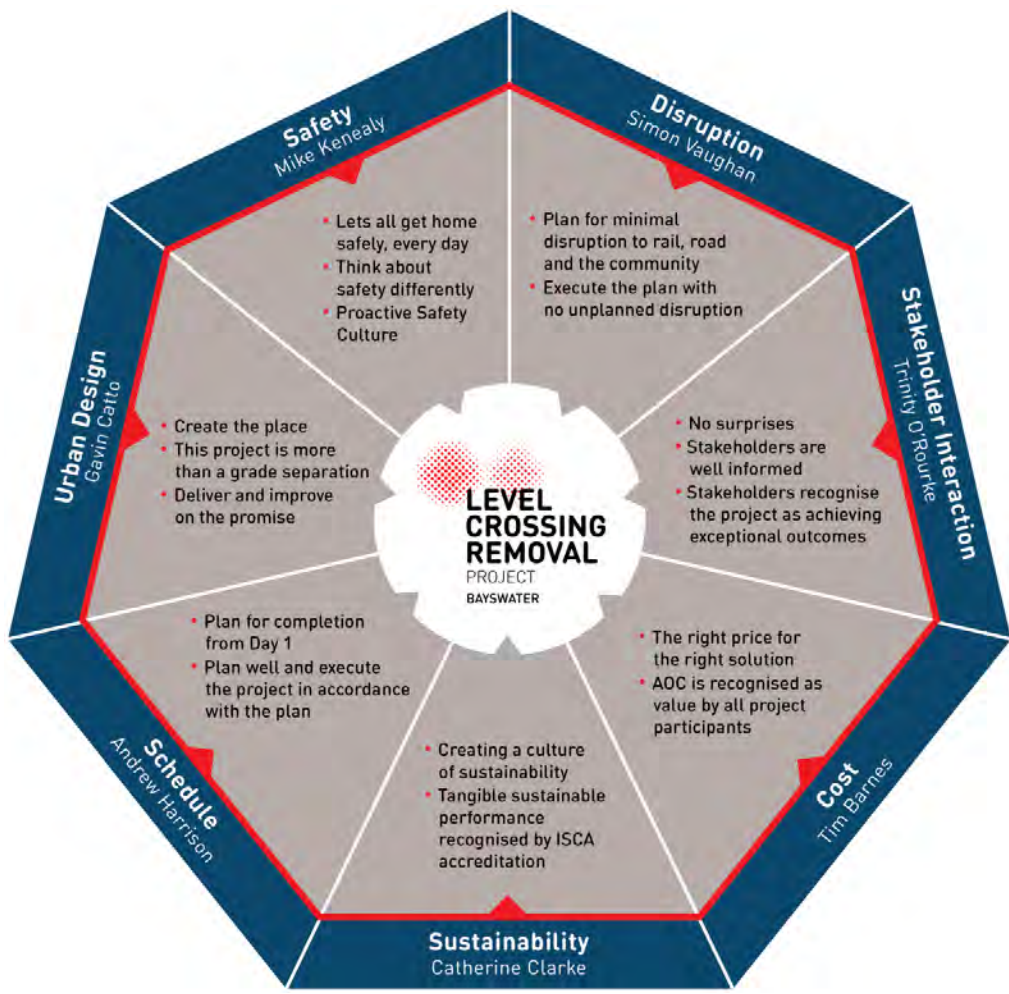
# Project Overview



# Alliance Team







# Key Result Area

# Sustainability targets

- 50 to 65 'Excellent' IS Design and As-built Rating
- 4 Green Star Rating



# Challenges

- Culture and knowledge within the workforce
- Late addition of the rating tools
- Complex rating tools
- No system to support delivery of sustainability ratings
- Aiming for targets without delivery experience
- Poor marketing for sustainability
- Short programme to deliver the job

# Objectives

- Shift the tools into ‘plain English’
- Re-design the tool for the project team
- Invest in the right numbers
- Explore every last opportunity to achieve the full sustainability performance potential
- Integrate sustainability within the business management system
- Create a brand for sustainability
- Educate, promote and drive sustainability



# Invest in the right numbers

- Initial benchmark based on BAU of parent organisations
- Workshops held with each discipline manager to determine commitment targets
- Results: provides suitable, achievable targets, establishes buy-in, commitment and ownership from the team

# Explore every last opportunity

- Review and re-review the tool to determine further opportunities to achieve additional credits or strengthen credit points.

# Changing this

Management Mat-1 Procurement Man-1 Climate Lan-3 Water Ene-3 Materials Pro-2  
 Discharges Dis-4 Land Was-2 Waste Wat-2 Ecology Eco-1 Heath Hea-2 Stakeholders Her-1  
 Emissions Ene-3 Categories Mat-1 Credits Man-1 Levels Lan-3 Scores Eco-1 Rating Hea-2  
 Scorecard Dis-4 Benchmark Pro-2 Evidence Was-2 Calculator Wat-2 Guidelines Her-1  
 Assessment Ene-3 Verification Lan-3 Base case Eco-1 Scope out Mat-1 Adaptation Man-1  
 Lifecycle Hea-2 Biodiversity Dis-4 Resilience Was-2 Risk Pro-2 Weighting Wat-2 Metering Her-1  
 Scorecard Dis-4 Benchmark Pro-2 Evidence Was-2 Calculator Wat-2 Guidelines Her-1  
 Assessment Ene-3 Verification Lan-3 Base case Eco-1 Scope out Mat-1 Adaptation Man-1  
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# To this

50 to 65

# Translating the tools into ‘plain English’ – make it easy



	Category	ISCA Mandatory Requirements	Bayswater Implementation	Owner
Mat-1	Materials lifecycle impact measurement and reduction	Monitoring and modelling demonstrates a significant reduction in materials lifecycle impacts compared to a reference footprint, as determined by the Materials Calculator.	Estimate of reference to be completed	NT
			Estimate of detailed design to be completed	NT
			Set up distance analysis in tender analysis for materials	SD
			Set up material lifecycle workshops to explore opportunities to introduce sustainable performing materials	SD
			Set up scope of works documents in major material procurement packages to specify outcomes and identify additional opportunities	SD
			Complete IS Materials Calculator	SD

# The Tools

Focus:

**Document Details**

Doc No.	Substation Management Plan
Doc Rev.	1.0
Doc Date	15/05/2016
Doc Author	EP
Doc Checker	EP
Doc Approver	EP

**Revision History**

Rev.	Rev. No.	Rev. Description	Rev. Date
1	1.0	Initial Issue	15/05/2016
2	2.0	Final Issue	15/05/2016

The approved copy of this plan and the other Project Management System will be held in the Project Collaboration System and electronically distributed to the project team and other relevant personnel.

Printed copies are considered obsolete documents and will not be accepted as a copy number in court proceedings.

Logos: vicroads, PTP, EP, AZCOM

**LEVEL CROSSING REMOVAL PROJECT BAYSWATER**

**Energy and Carbon Reduction Strategy**

15/05/2016 - 15/05/2016 - Rev 1.0

Logos: vicroads, PTP, EP, AZCOM

**Document Details**

Doc No.	Pre Construction Sustainability Strategy
Doc Rev.	1.0
Doc Date	15/05/2016
Doc Author	EP
Doc Checker	EP
Doc Approver	EP

**Revision History**

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Continued focus:

Implementation of project objectives

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Logos: vicroads, PTP, EP, AZCOM

**LEVEL CROSSING REMOVAL PROJECT BAYSWATER**

**AL Monthly Report | May 2016**

Logos: vicroads, PTP, EP, AZCOM

**Think Sustainable**

Our new sustainability strategy is a key element of our commitment to a world that is more sustainable. We have a long way to go to reach our goal of being a world leader in sustainable infrastructure.

**Sustainability**

Our sustainability strategy is a key element of our commitment to a world that is more sustainable. We have a long way to go to reach our goal of being a world leader in sustainable infrastructure.

**I have an idea!**

Let's build it with us. Help us get the job done.

Logos: vicroads, PTP, EP, AZCOM

# The Brand



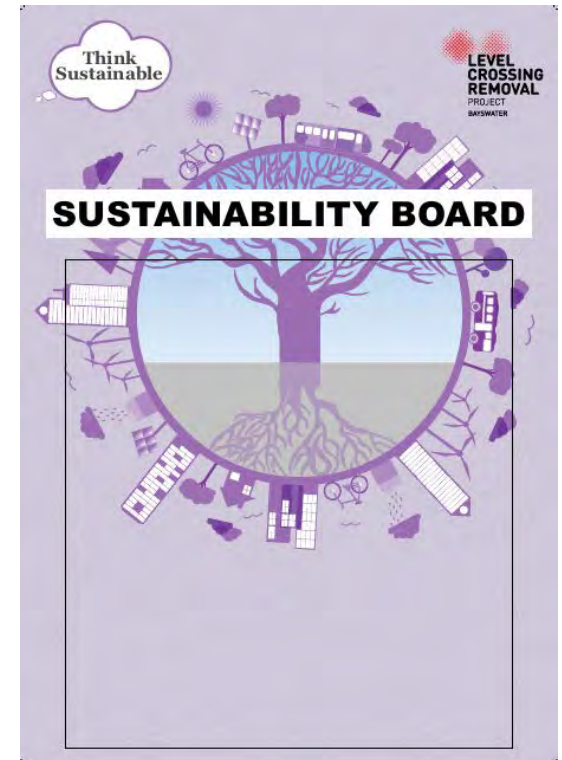
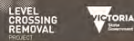
## Community Information Board - Sustainability

Projects Sustainability Mission and Objectives

- Design and construct sustainable infrastructure
- Successfully achieve an 'Excellent' IS rating for Design and As-built with the Infrastructure Sustainability Council of Australia (ISCA)
- Successfully achieve a 4 Green Star rating with the Green Building Council of Australia (GBCA)



Think Sustainable



# Performance Outcome Successes



# Sustainability in Design

- Sustainability in design section in all design packages
- Smart Design Initiatives: track realignment, removal of underground tank slab, lighting, rainwater tank, universal design etc



Figure 1: Reference track alignment cross-section

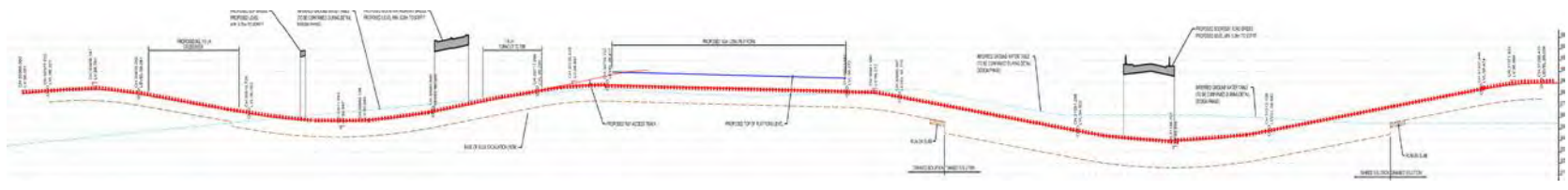


Figure 2: Proposed track alignment cross-section

# Sustainability in Procurement

## Smart Sustainability in Procurement Model

- Site Wide Material Packages
- Sustainable Clause in Scope of Works Documents
- Inclusion of Forward Commitments
- Sustainability review in Tender Analysis



## Dewatering Centrifuge Unit



# Modelling Sustainability

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Model, Measure and Assess sustainable performance outcome areas

- Determines suitable designs and construction initiatives
- Calculates improvements made against the reference case
- Calculates economic impacts to the Alliance or Asset owner for each sustainability initiative

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Energy and carbon, water, material lifecycle impacts, acoustic performance modelling, daylight modelling, noise and vibration modelling, climate change impacts modelling, water quality modelling, light spill modelling....

# Passionate Team

- Site compound biodiesel generator with option for solar feed
- Digital engineering to manage community concerns
- LED lighting for public lighting
- Water sensitive road designs i.e. bio-retention swale
- Design of underground rainwater tank
- Solar bus shelters
- 30 to 40% RAP content in purchased Asphalt
- An average of 30% SCM content in purchased Concrete
- Existing ballast to be reused as drainage blanket backfill
- Site identified to reuse excavated material
- Solar lighting for shared use path
- Biodiversity offset credits purchased
- Implemented opportunities to enhance Ecology in the local area

## What next?

- Further growing our Sustainability Culture
- Further exploring sustainable opportunities
- Learning and Sharing
- Achieving our '**Leading**' IS Design Rating
- Develop and Track As Built deliverables



**Think  
Sustainable**

Thank You 

Rob Rouwette - start2see

Rob Johnson - OneSteel

George Macovaz - General Manager Technology and Marketing, Vinidex  
and current Director and past Chairman, PIPA

## EXPERT PANEL DISCUSSION

# Vinidex

Systems & Solutions



an *Aliaxis* company

# Company Profile



Major supplier to Building, Infrastructure, Irrigation, and Mining sectors.

- 54,000 km of pipe per year
- 20 million of fittings per year

Eleven manufacturing plants across Australia





# Markets



## BUILDING

- Residential
- Commercial
- Plumbing
- Electrical
- Drainage

## INFRASTRUCTURE

- Water
- Sewerage
- Gas
- Drainage
- Power
- Communications
- Roads
- Rail
- Trenchless

## IRRIGATION

- Pipe
- Equipment
- Fittings
- Valves

## MINING

- Water
- Slurry transport
- Power
- Gas Gathering

# Products



- PVC Pipes and Fittings Systems
  - 15mm to 575mm
- PE Pipe and Fittings Systems
  - Pipe 15mm to 1000mm
  - Compression Fittings 15mm to 160mm
  - Electrofusion Fittings 20mm to 450mm
  - Fabricated fittings 100mm to 1000mm
- PP Pipe and Fittings Systems
  - 150mm to 900mm



# Environment



- Founding members of the Green Building Council of Australia
- Product Stewardship
- Material Efficient Products
- Recycling
- Best Environmental Practice (BEP) PVC
- EPDs



**Environmental Product Declaration**  
PVC Non-Pressure Pipes and Conduits  
used in Buildings



Environmental Product Declaration (EPD) in accordance with ISO 14025 and EN 15804  
Version: 1.00  
Date of Issue: 2 March 2016  
Registration Number: S-P-00716  
Validity: 2 March 2016 - 1 March 2021  
Geographical area of application of this EPD: Australia  
Year taken as a reference for the data: 2014

EPD of Vinidex PVC-U non-pressure pipes and conduits  
- in collaboration with the Plastics Industry Pipe Association  
of Australia (PIPA).



**Environmental Product Declaration**  
PVC Pressure Pipes



Environmental Product Declaration (EPD) in accordance with ISO 14025 and EN 15804  
Version: 1.00  
Date of Issue: 2 March 2016  
Registration Number: S-P-00718  
Validity: 2 March 2016 - 1 March 2021  
Geographical area of application of this EPD: Australia  
Year taken as a reference for the data: 2014

EPD of Vinidex PVC pressure pipe products - in  
collaboration with the Plastics Industry Pipe Association  
of Australia (PIPA).



**Environmental Product Declaration**  
StormPRO® and SewerPRO® Polypropylene Pipes



Environmental Product Declaration (EPD) in accordance with ISO 14025 and EN 15804  
Version: 1.00  
Date of Issue: 2 March 2016  
Registration Number: S-P-00717  
Validity: 2 March 2016 - 1 March 2021  
Geographical area of application of this EPD: Australia  
Year taken as a reference for the data: 2014

EPD of Vinidex Polypropylene pipe products - in  
collaboration with the Plastics Industry Pipe Association  
of Australia (PIPA).



# Infrastructure Sustainability Council of Australia (ISCA)

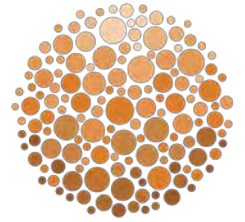
Energetics Presentation June 2016

energetics

In the  
business of  
climate change



# About Energetics



30 years in the energy and sustainability industry

We employ over 70 professionals in 4 offices across Australia: Sydney, Brisbane, Melbourne, Perth

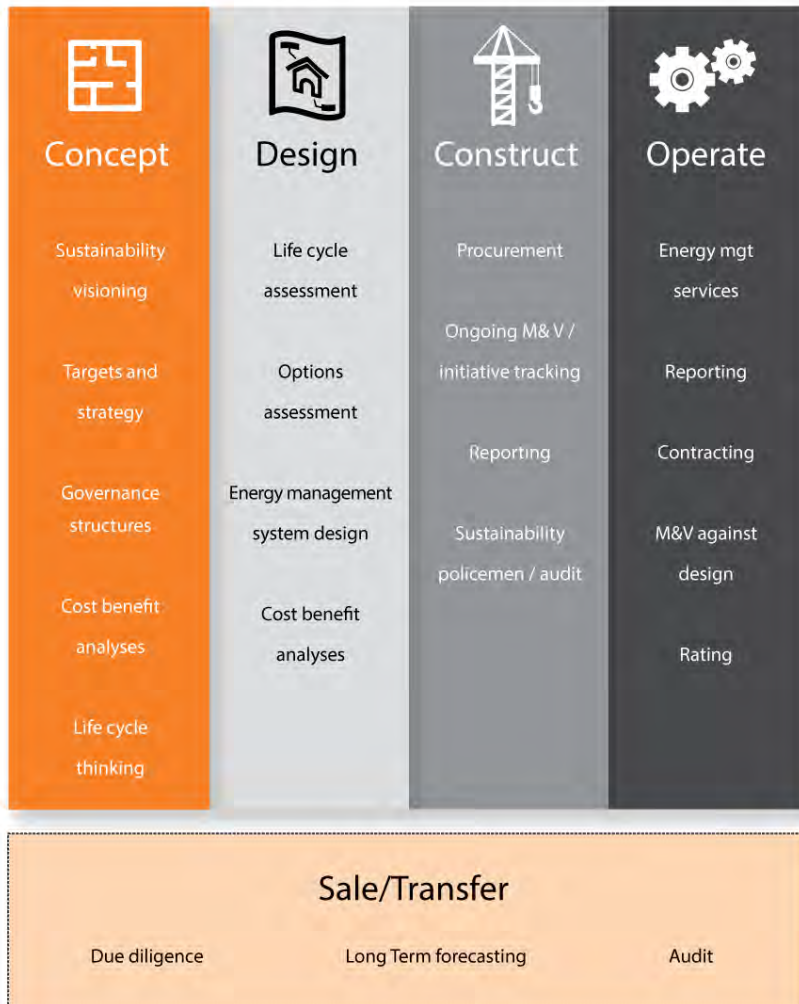
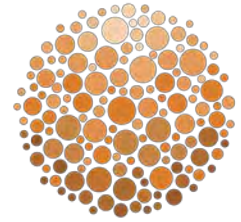
Independent advisor for energy, utilities, carbon, sustainability and climate change

Provide advice to all levels of Government and ASX200 companies

Joined ISCA in June 2016

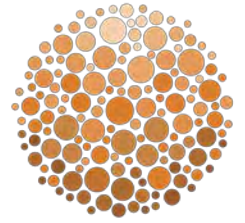


# Infrastructure services



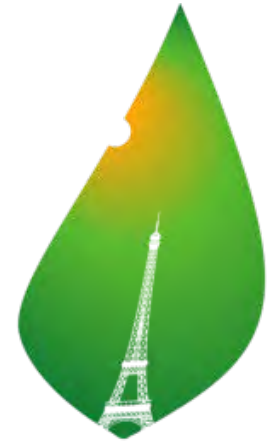
Energy and emissions modelling  
Renewable energy strategies  
Mitigation measures  
Climate change studies  
Procurement  
Sustainable materials assessment  
Life Cycle Assessment  
ISCA Ratings and support  
(MAN, ENE, PRO, CLI, WAT, MAT)

# Australia's 2030 climate change target and the measures we can pursue to achieve it



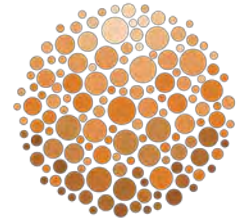
## Australia's commitments

- Signed the Paris Agreement on 22 April 2016
- Nationally Determined Contribution (NDC) is to reduce Australian domestic emissions by 26 to 28 percent below 2005 levels by 2030
- Cities and infrastructure make up a significant component of achieving our domestic and international targets



**PARIS2015**  
UN CLIMATE CHANGE CONFERENCE  
COP21·CMP11

# Risks and opportunities: the new climate action pathway

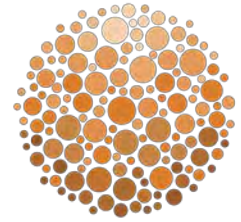


- Changing energy mix
  - Divestment from fossil fuel and emission intensive assets
  - Investment in renewable energy technologies
  - Electrification – particularly vehicles
- Nations moving at their own pace
- Innovation a focus for growth in a low carbon world
- Governance and supply chain
- Communication and positioning





# The surge in understanding investments

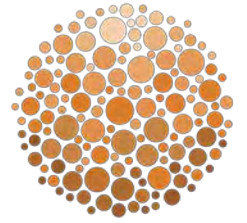


Disclose: US\$10 trillion in assets

Decarbonise: US\$100 billion\*

\*The Portfolio Decarbonisation Coalition, UNEP FI/CDP/UNEP





# How Australia is meeting their international targets?

# Emissions trajectory through to 2030

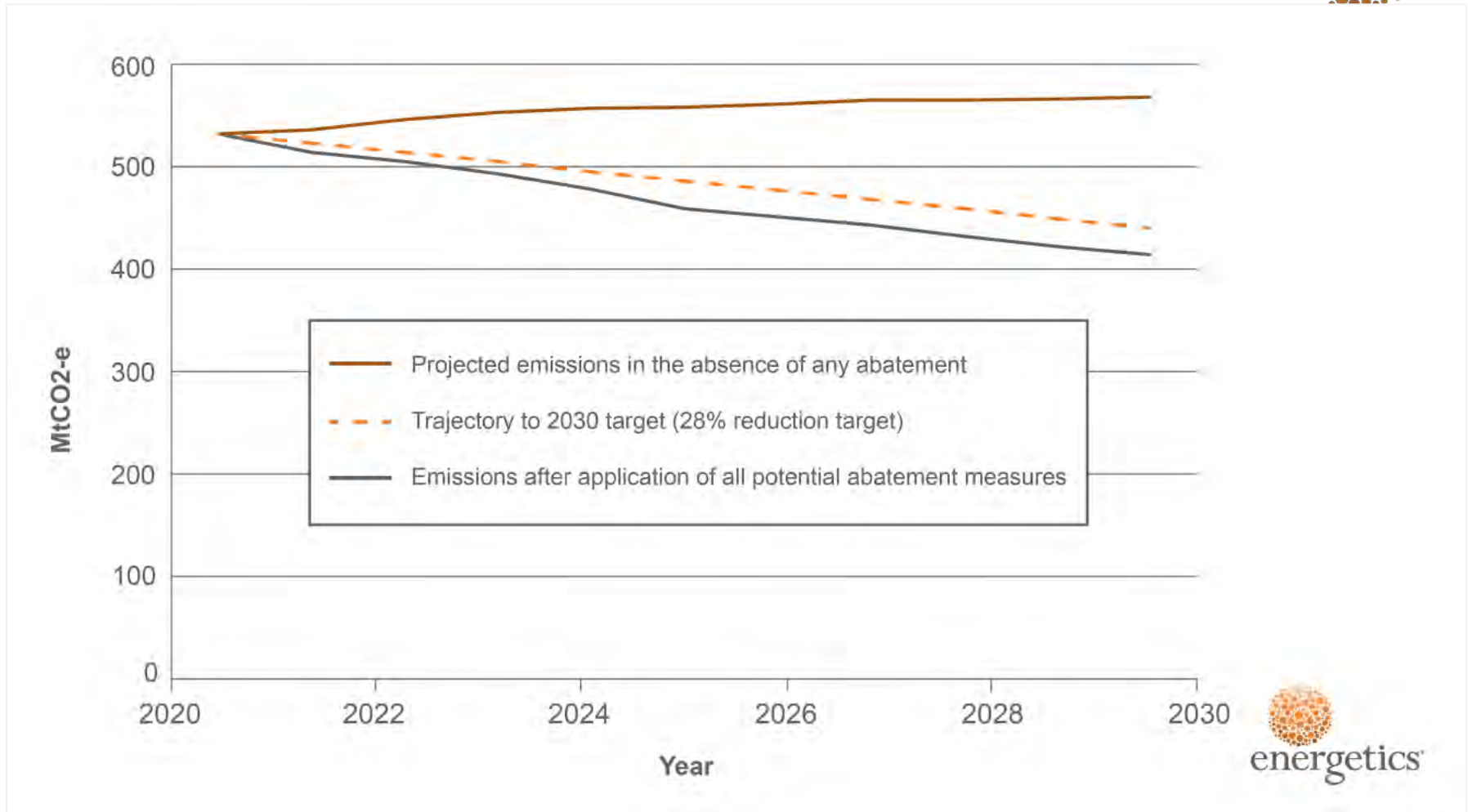


Figure 3: Australian emissions trajectory and impact of abatement

# Energetics' modelling of Australia's abatement opportunities

Built  
environment

Low Carbon  
Precincts

Digital  
infrastructure

Intelligent  
management  
systems

High  
performance  
energy  
generation and  
distribution

Energy efficient  
equipment  
(industrial)

Energy efficient  
equipment  
(commercial)

Low carbon  
transport

Land  
management

Fugitive  
emissions

Waste  
management

Management  
of gases

# Focusing on infrastructure

Built environment

Low Carbon Precincts

- Integrated urban transport system design
- Precinct scale designs for new developments.

High performance energy generation and distribution

- Mandatory fuel efficiency standards
- Optimising existing transport systems
- Electric vehicles
- Improvements in aircraft performance.

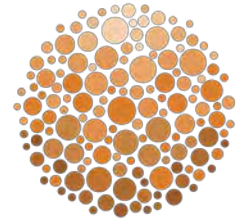
Low carbon transport

Land management

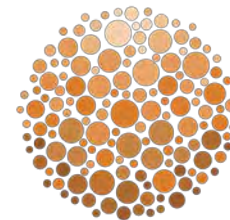
Fugitive emissions

Waste management

Management of gases



# Victorian action – driving change at a state and city level



# Victoria – state based action

Review of the *Climate Change Act 2010* has resulted in the Victorian Government accepting a number of proposed recommendations.

Long term emissions reduction target –net zero emissions by 2050

Measuring real economic costs and benefits of climate change

Victorian Climate Change Strategy - 2020

Low Carbon Growth Plans

- To be completed in 2020
- Framework completed 2016
- Five yearly reviews

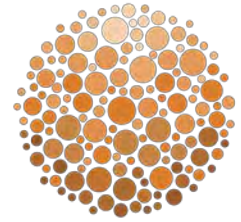
immediate action –  
delayed action  
= additional costs

Each Victorian Department / agency required to commit emissions reductions

er

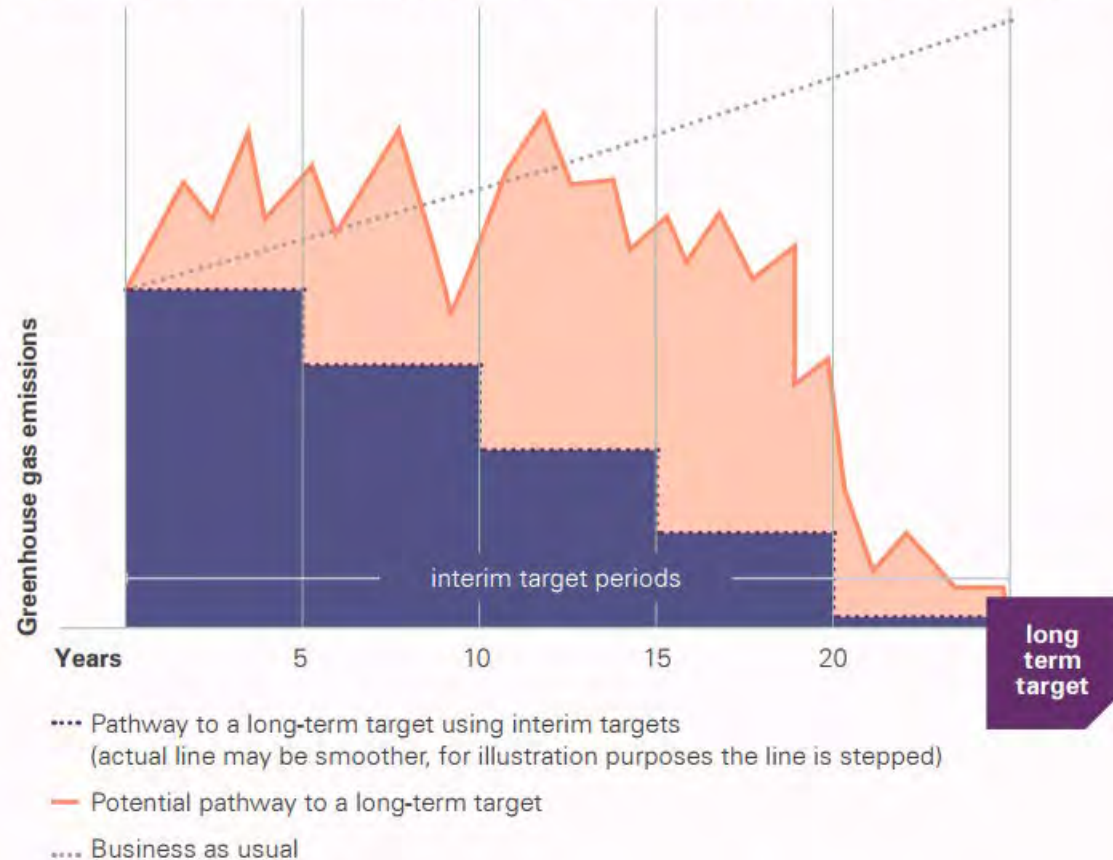


# Victoria – state based action (cont.)



- Long term emissions reduction target – yet to be legislated but agreement that it is to be in line with a commitment to limit warming to 1.5°C
- In principle this will result in legislating for net zero emissions by 2050
- Interim reviews on target – five yearly periods.

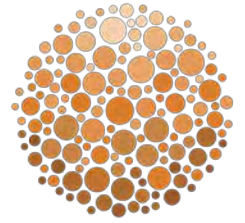
Figure 5.2: Possible emissions pathways under single-year and multi-year targets



Source: Independent Review of the Climate Change Act 2010

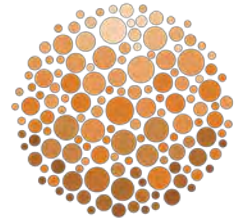


# Money will flow into cities: the built environment, transport



Cities 'spearheading' action:

- Responsible for up to 49% of global emissions
- 1000 city mayors and local leaders plan to use 100% renewable energy
- Melbourne: Carbon Neutral Cities Alliance member

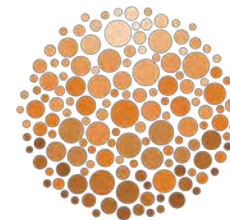


# Major Victorian infrastructure

All commenced and proposed major infrastructure projects may be impacted by changes in state based climate change action.

This includes the following major projects:

- Melbourne Metro Rail Project
- Port of Melbourne Port Capacity Project
- Mernda Rail Extension Project
- Murray Basin Rail Project
- Melbourne Park Redevelopment



# Impacts on infrastructure

## Cost impacts

- Increased raw commodities costs
- Increased energy prices – flow through supply chain

## Technology impacts

- Electric vehicles moving to autonomous
- Increased renewable energy and decarbonisation of grid
- Innovative material solutions

## Planning and regulation

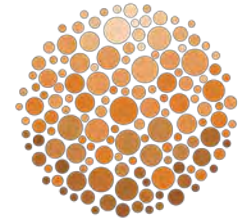
- Adaptive infrastructure
- Integrated planning for built environment
- Mandatory reporting and sustainability requirements
- Increasing importance of IS Ratings

*Investors are aware and acting on these issues. IS is already being used to benchmark investments and inform capital allocation decisions.*



energetics<sup>o</sup>

# IS ratings driving down emissions



## Transparency and reporting

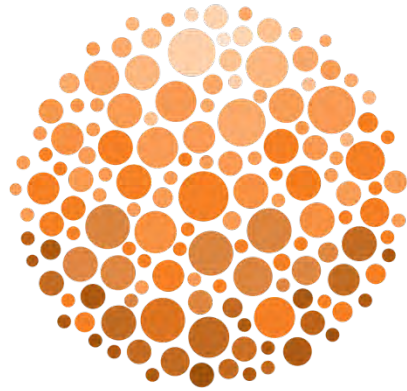
- Clear about impacts – using standard reporting frameworks - IS ratings
- Moving from voluntary to mandatory e.g. TfNSW

## Driving emissions reduction using IS ratings

- Increasing influence on materials selection, design and procurement
- Incentive to innovate
- Materiality assessment will increase energy and emissions focus where relevant
- Contractual requirements and targets likely to escalate

## Winning work

- Clients will demand robust information on the sustainability of proposed infrastructure projects - impact on asset value
- Policy and investor pressure pushing for sustainable projects



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climate change



# Energetics core services

