

KiwiRail 

kaitiakitanga



Charting rail's course towards a zero-emission future



Alan Hill, Future State Lead Rolling Stock
5th December 2019

Global context



Targets

New Zealand Context

Paris Agreement commitment to 30% below 2005 levels by 2030

Climate Change Response (Zero Carbon) Amendment Act

Legislated target of net zero carbon by 2050

KiwiRail Targets

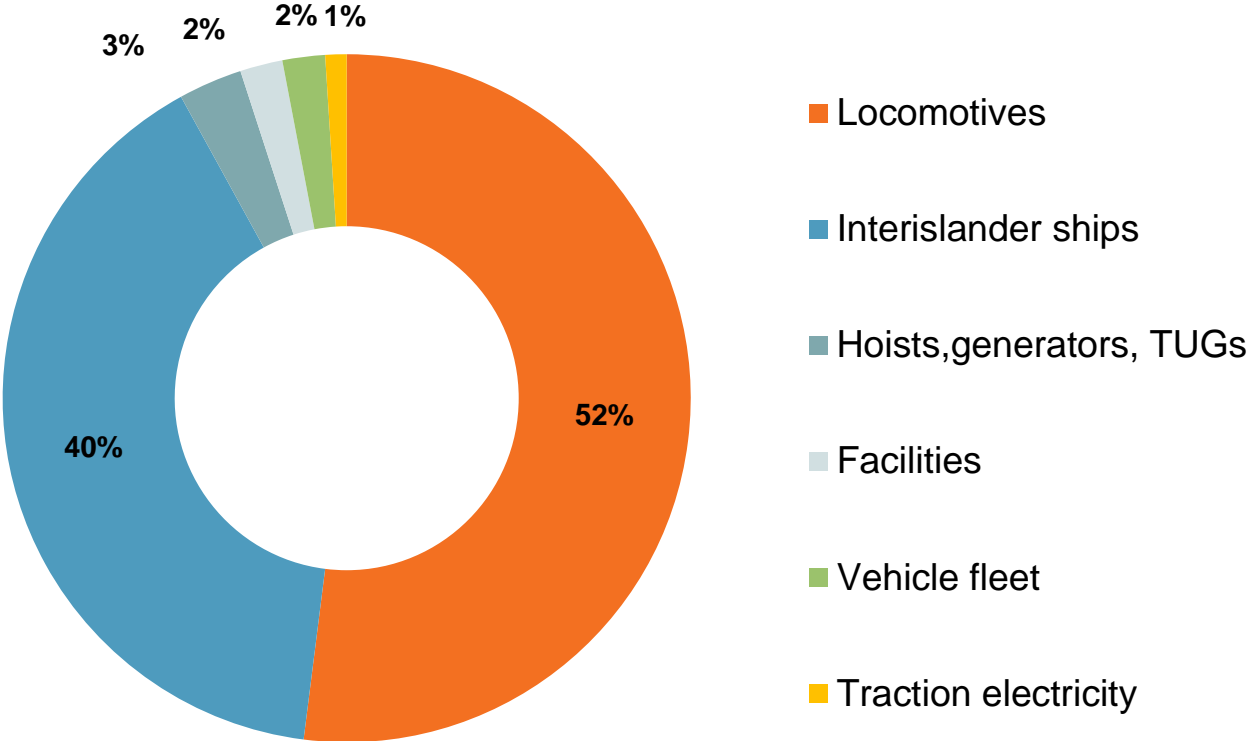
2020
Reduction of 7% below 2016 levels

2030
Reduction of 30% below 2005 levels

2050
Net zero carbon emissions



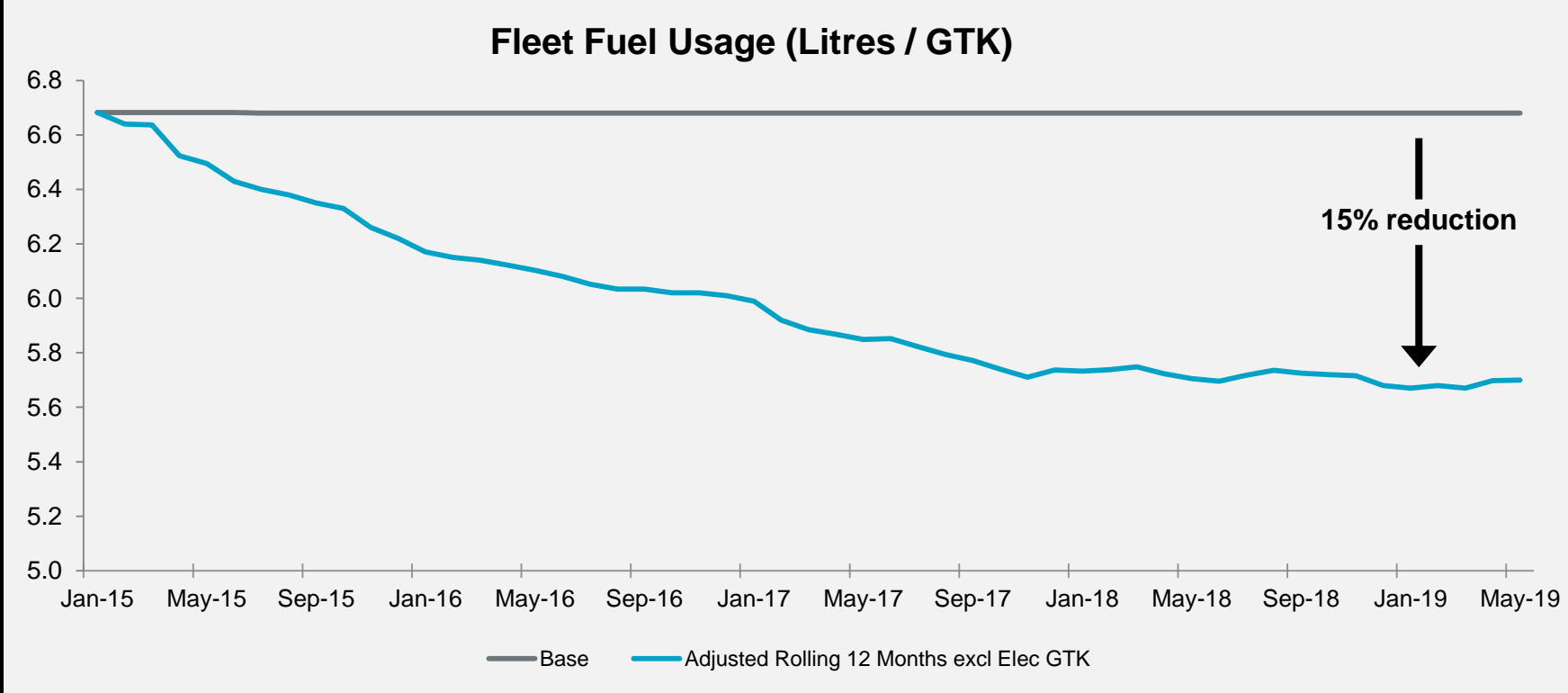
KiwiRail carbon emissions profile



FY18 Emissions Profile



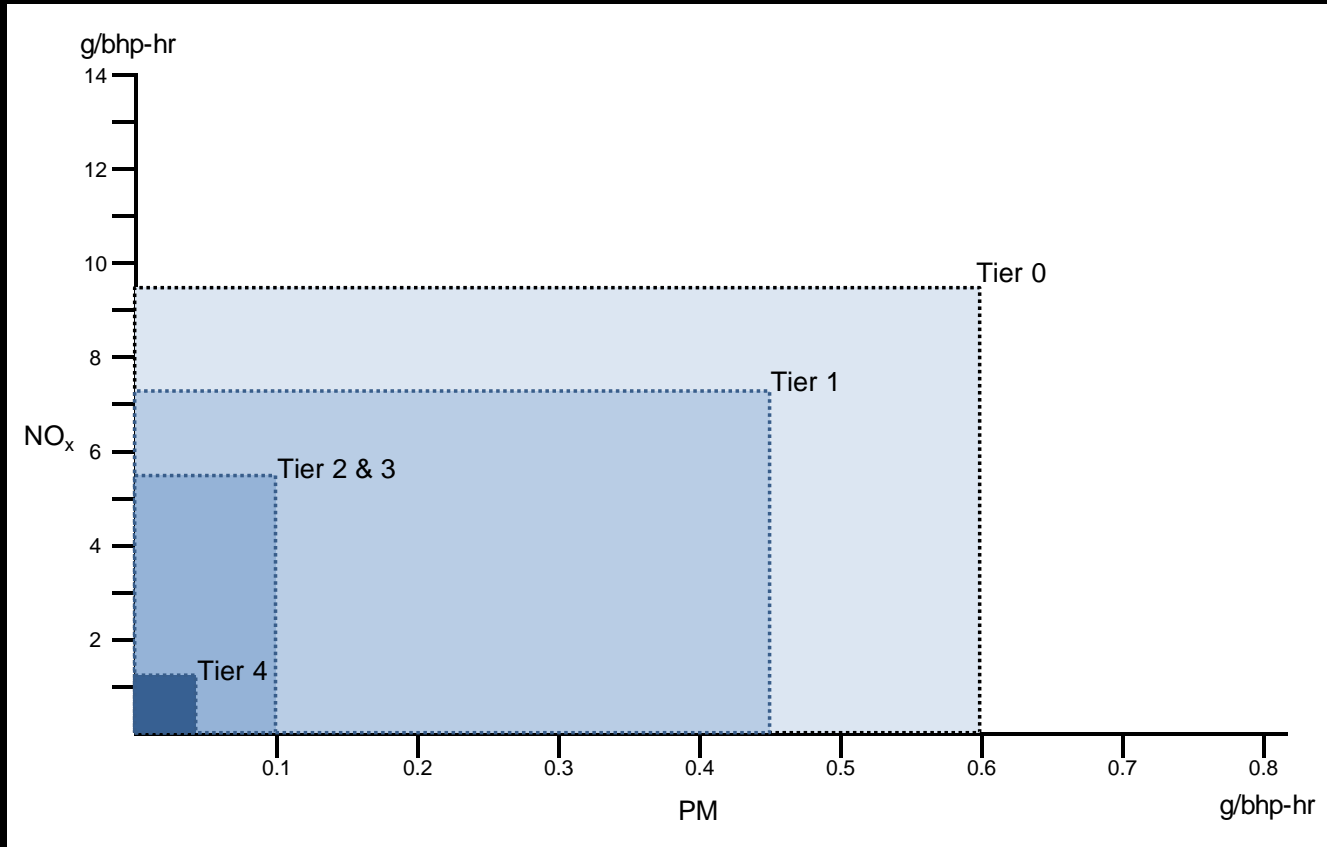
Progress to date



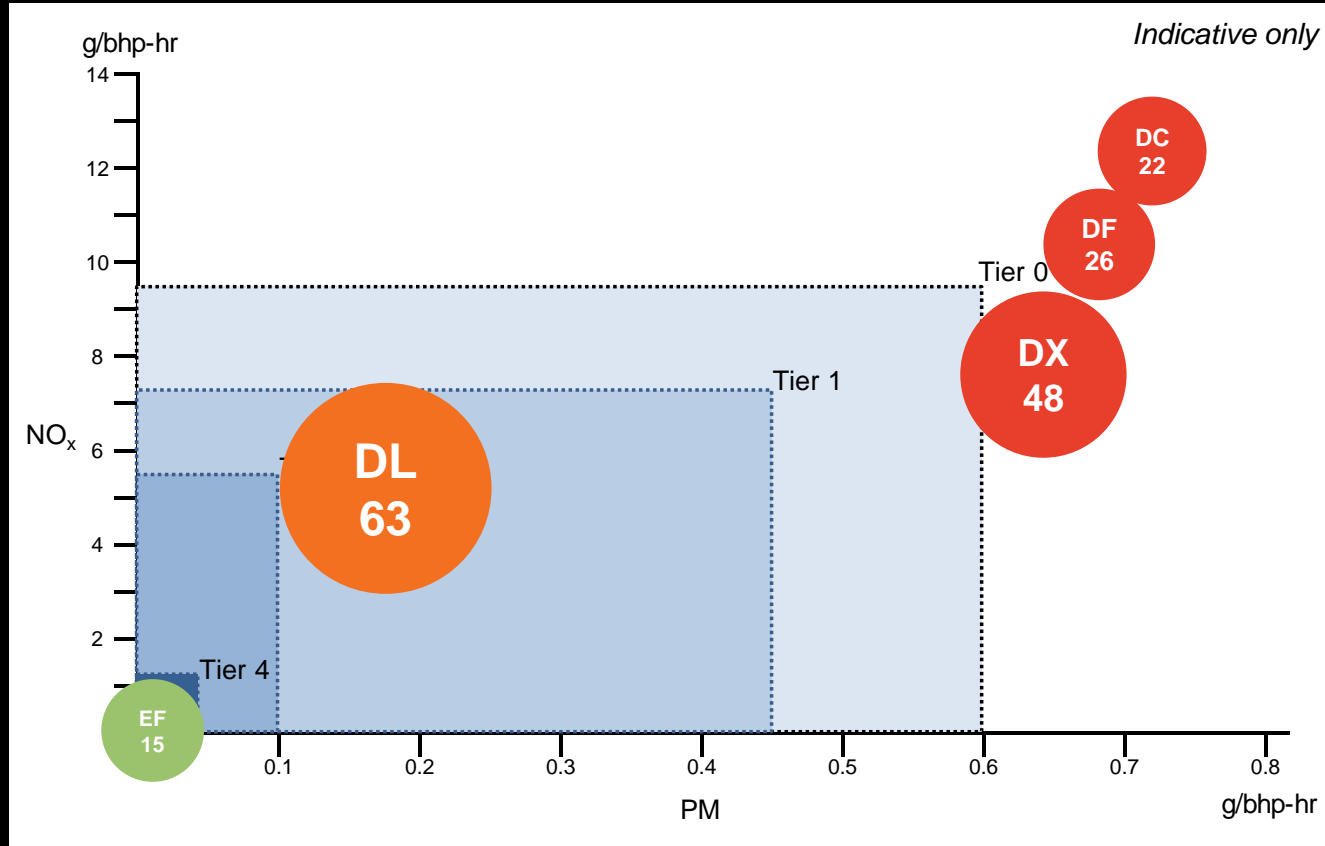
Carbon vs. other emissions



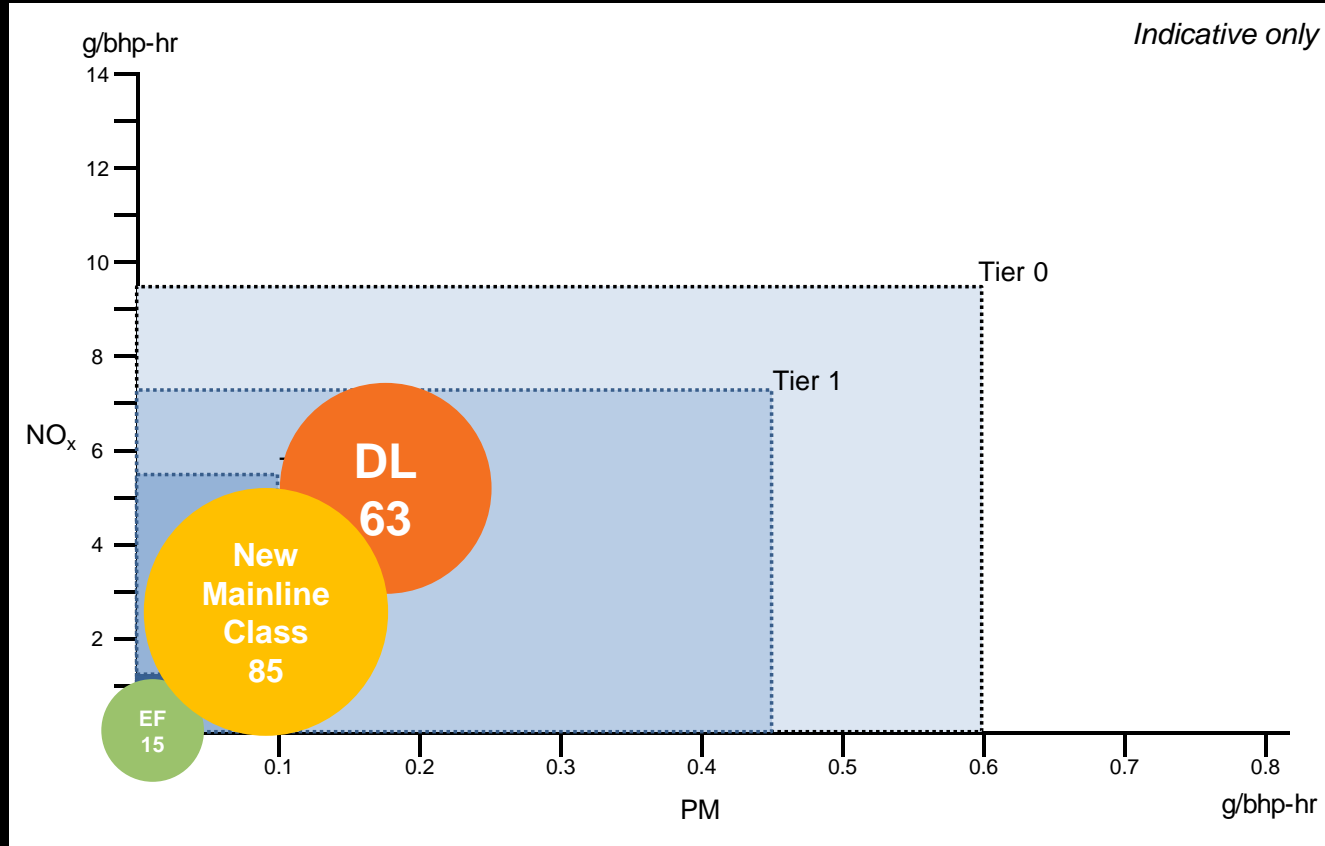
Emissions profiles



Emissions profiles **today**



Emissions profiles 2030



Propulsion technologies

Task	Propulsion Technology				
	Diesel Electric	Electric Overhead	Hybrid Diesel-Battery	Battery	Hydrogen Fuel Cell
Mainline Locomotives					
Operational Shunt Locomotives					
Maintenance Yard Shunting					



Propulsion technologies **today**

Task	Propulsion Technology				
	Diesel Electric	Electric Overhead	Hybrid Diesel-Battery	Battery	Hydrogen Fuel Cell
Mainline Locomotives	●	●	●	●	●
Operational Shunt Locomotives	●	●	●	●	●
Maintenance Yard Shunting	●	●	●	●	●



Propulsion technologies 2030s

Task	Propulsion Technology				
	Diesel Electric	Electric Overhead	Hybrid Diesel-Battery	Battery	Hydrogen Fuel Cell
Mainline Locomotives	●	●	●	●	●
Operational Shunt Locomotives	●	●	●	●	●
Maintenance Yard Shunting	●	●	●	●	●

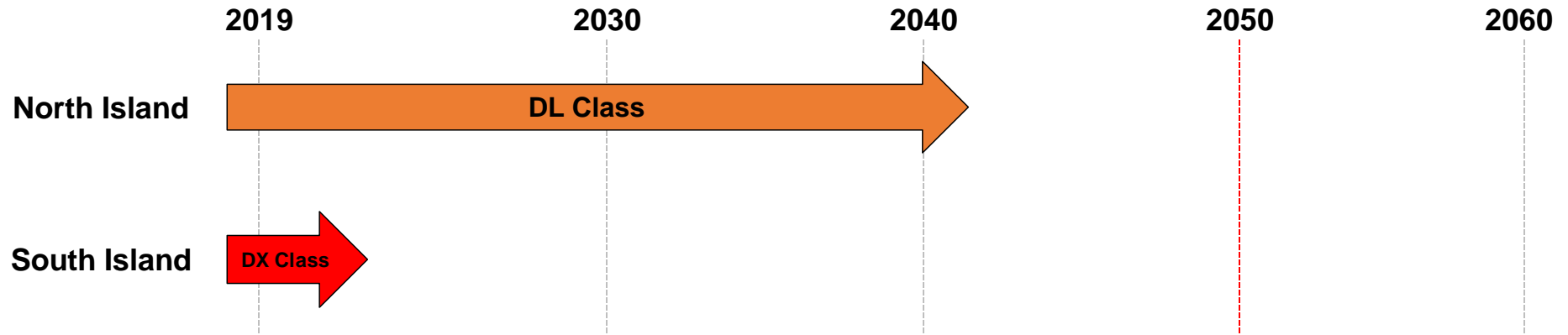


Propulsion technologies 2050s

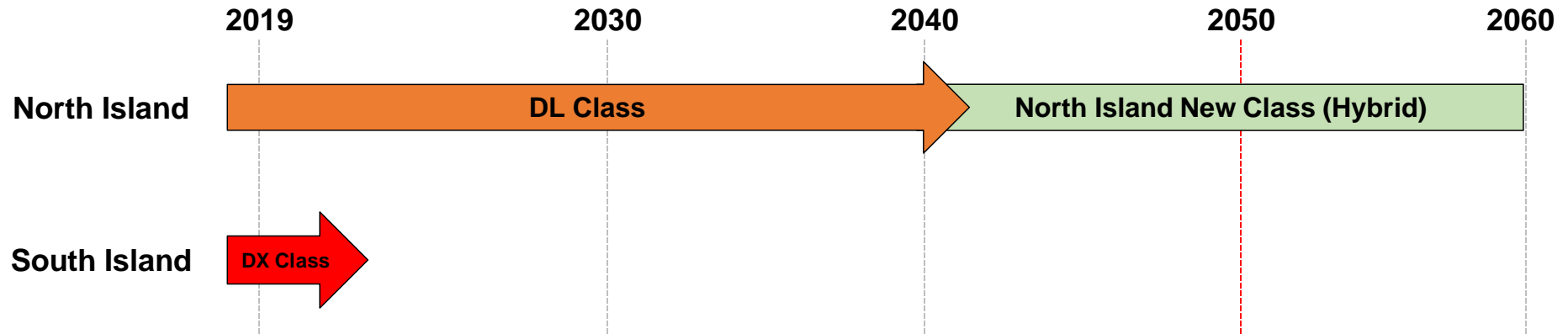
Task	Propulsion Technology				
	Diesel Electric	Electric Overhead	Hybrid Diesel-Battery	Battery	Hydrogen Fuel Cell
Mainline Locomotives	●	●	●	●	●
Operational Shunt Locomotives	●	●	●	●	●
Maintenance Yard Shunting	●	●	●	●	●



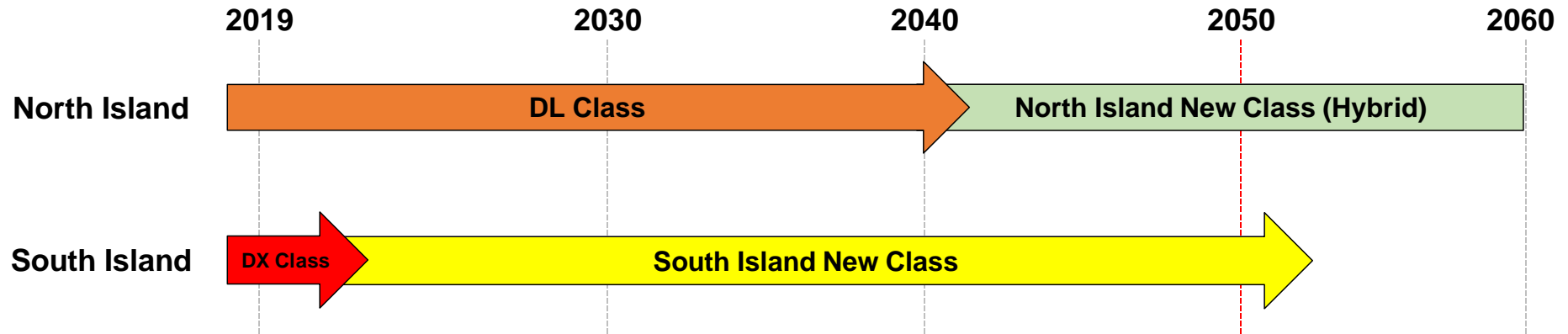
Locomotive asset planning – KiwiRail context



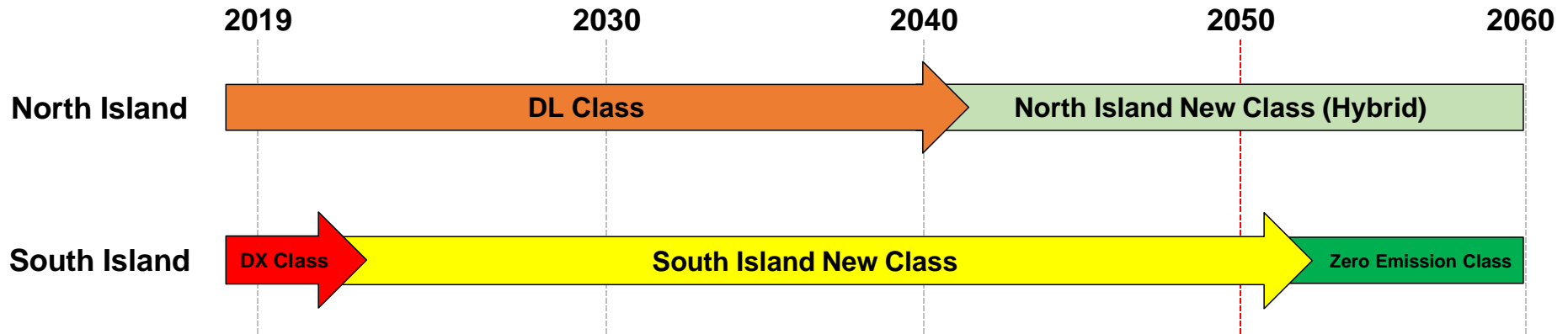
Locomotive asset planning – KiwiRail context



Locomotive asset planning – KiwiRail context



Locomotive asset planning – KiwiRail context



Where to from here?



| Questions



KiwiRail 