



DETA Consulting - Sustainable Action for a Better Tomorrow





Energy Transition Accelerator / Decarbonisation Roadmaps

- ▶ Coordinated and strategic plan to take us to 2050.
- ▶ What does 2050 look like? – WHAT are we aiming for?
- ▶ Step by step path to achieve this? – HOW we do it.





WHAT ARE WE FINDING – Stats so far...

- ▶ 8 ETAs delivered so far (8 in progress)
- ▶ Average cost effective CO₂ reduction of 81%
- ▶ Project LCOE ranging from \$19 - \$126 TCO₂
- ▶ Total capital required \$237M



WHAT'S WORKED...

- ▶ **WHY - Strategy and Leadership**



Sustainability Strategy development...

- ▶ Phase 1 – Wow we spend a lot on energy!
- ▶ Phase 2 – Sustainability is about more than energy isn't it?
- ▶ Phase 3 – This is really important, we need to do better!
- ▶ Phase 4 – This is just how we do things around here...





WHAT'S WORKED...

- ▶ WHY - Strategy and Leadership
- ▶ WHAT -
 1. Improving our process
 2. Reducing our energy demand
 3. Changing our energy source



CASE STUDY – J S Ewers





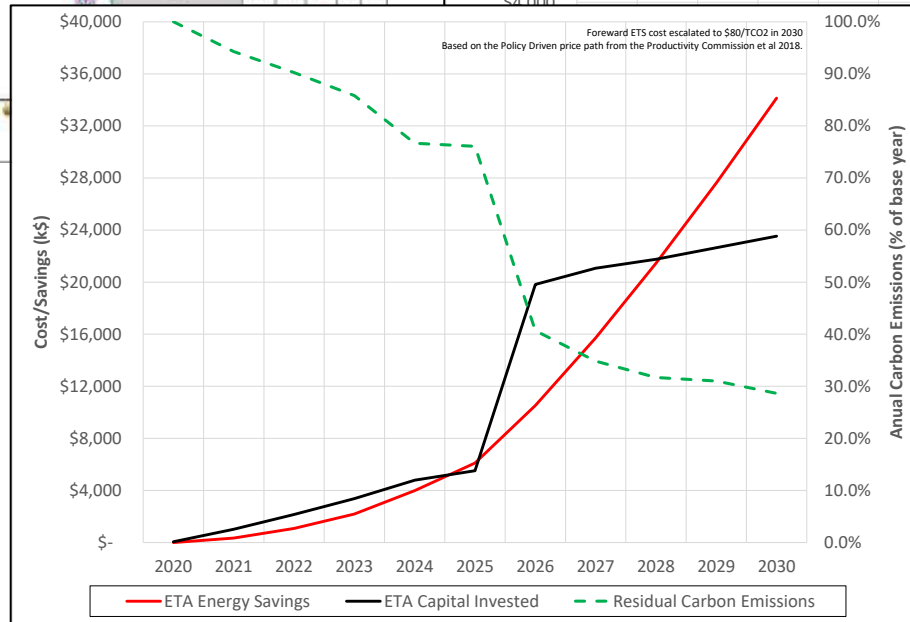
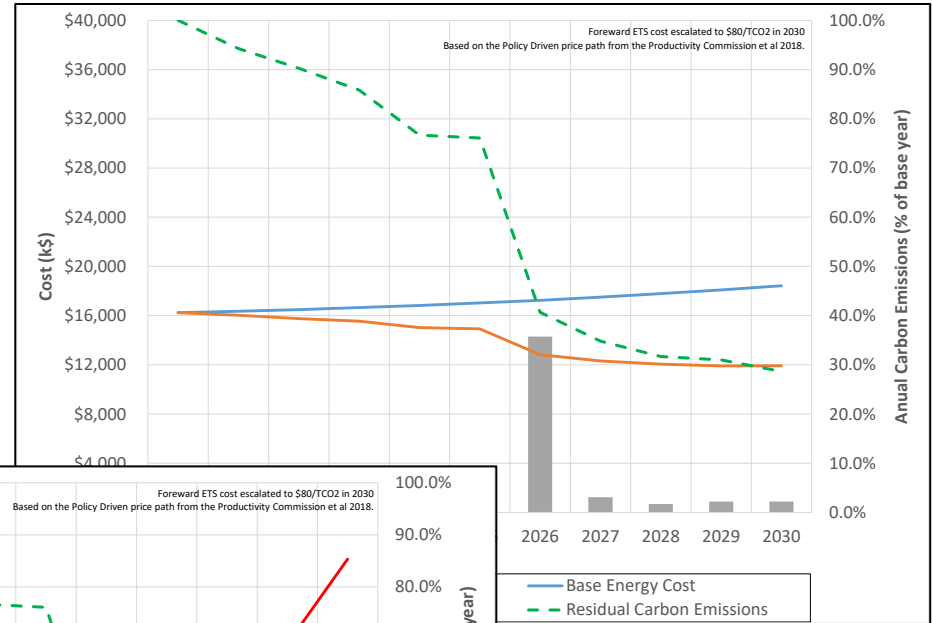
CASE STUDY – J S Ewers

- Total installed boiler capacity - 30MW
- Actual load needed 20MW (in 2017)
- Made efficiency improvements
 - Thermal screens on glasshouse
 - Installed a ring main and buffer tank:
 - Share load between boilers
 - Get boilers operating in their most efficient operating points
 - Transfer excess heat between glasshouses
- New load needed 9MW
- Now the next step (Biomass boiler) is much lower cost and easier to install!
- Lower overall programme capital cost (>40%)





Actions	Year	GHG Savings (tCO2e)	GHG Savings (\$/yr)	NPV	IRR	ROI (%)
Current Emissions	2020	100%				
Roam & Control Maintenance Group	2021	3%	\$240	\$81	38%	
Install Eye Sensors and Reduce Drive Time Returns KOB	2021	3%	\$81	\$14	\$40	68%
TV Monitors Group	2021	2%	\$157	\$39	\$140	170%
RETHP - MAN	2022	3%	\$600	\$146	\$231	29%
Medium Temperature HX Loop - CAN	2022	3%	\$600	\$138	\$221	28%
RETHP Effluent - CAN	2022	2%	\$1,131	\$111	\$1,100	28%
3 Stage Refrig - ELT	2022	7%	\$290	\$22	\$88	63%
Waste to Energy Boiler - KOB	2022	3%	\$600	-\$271	-\$1,270	\$18
New Multifuel Boiler Upgrade - CAN	2023	3%	\$1,130	\$1,130	\$1,961	12%
Boiler Upgrade - MAN	2023	12%	\$432	\$81	\$351	92%
RETHP - ELT	2023	17%	\$1,130	\$81	-\$161	3%
RETHP - MAN	2023	2%	\$600	\$236	\$1,100	66%
RETHP - MAN	2023	2%	\$600	\$221	\$121	23%
RETHP - KOB	2023	3%	\$600	\$221	\$241	31%
RETHP for HVA - MAI	2023	3%	\$600	\$221	\$241	31%
Electric Boiler - MAI	2023					
Electricity Grid Factor Improvement - Group	2023					





WHAT ARE WE FINDING – Key Takeaways

1. Senior leadership buy in is essential!
2. This is a programme of work, not a project
3. The challenge is economic, not technical



SOUTH ISLAND – THERMAL FUEL TRANSITION PROJECT



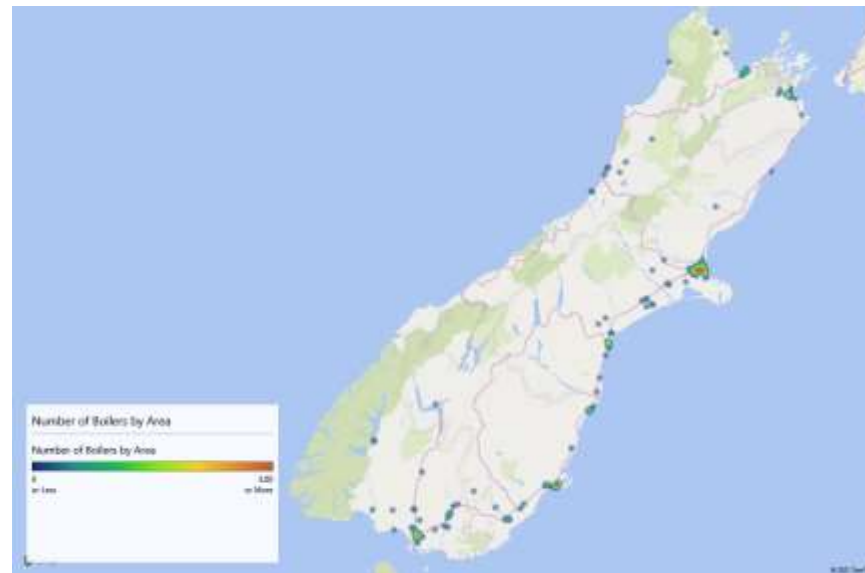
AIMS:

- ▶ Provide the 'bottom up' information to meet the ongoing 'top down' strategy development.
- ▶ Better understand where the thermal fuel (renewable and non-renewable) boilers are located in the South Island.
- ▶ Better understand the size and scale of the decarbonisation challenge at a South Island and Regional level!
- ▶ Undertake a high level assessment of decarbonisation impact on energy supply (mainly electricity generation/distribution and biomass supply – but also other options).



SELECTION CRITERIA:

- ▶ Located in the South Island
- ▶ Boiler/heating system capacity of >500kW
- ▶ Includes renewable (wood and electricity) and non-renewable (coal, LPG, diesel, etc) fuels





HIGH LEVEL SUMMARY:

- ▶ 437 boilers identified with capacity >500kW:
 - ▶ TOTAL installed capacity of **1,800 MW!**

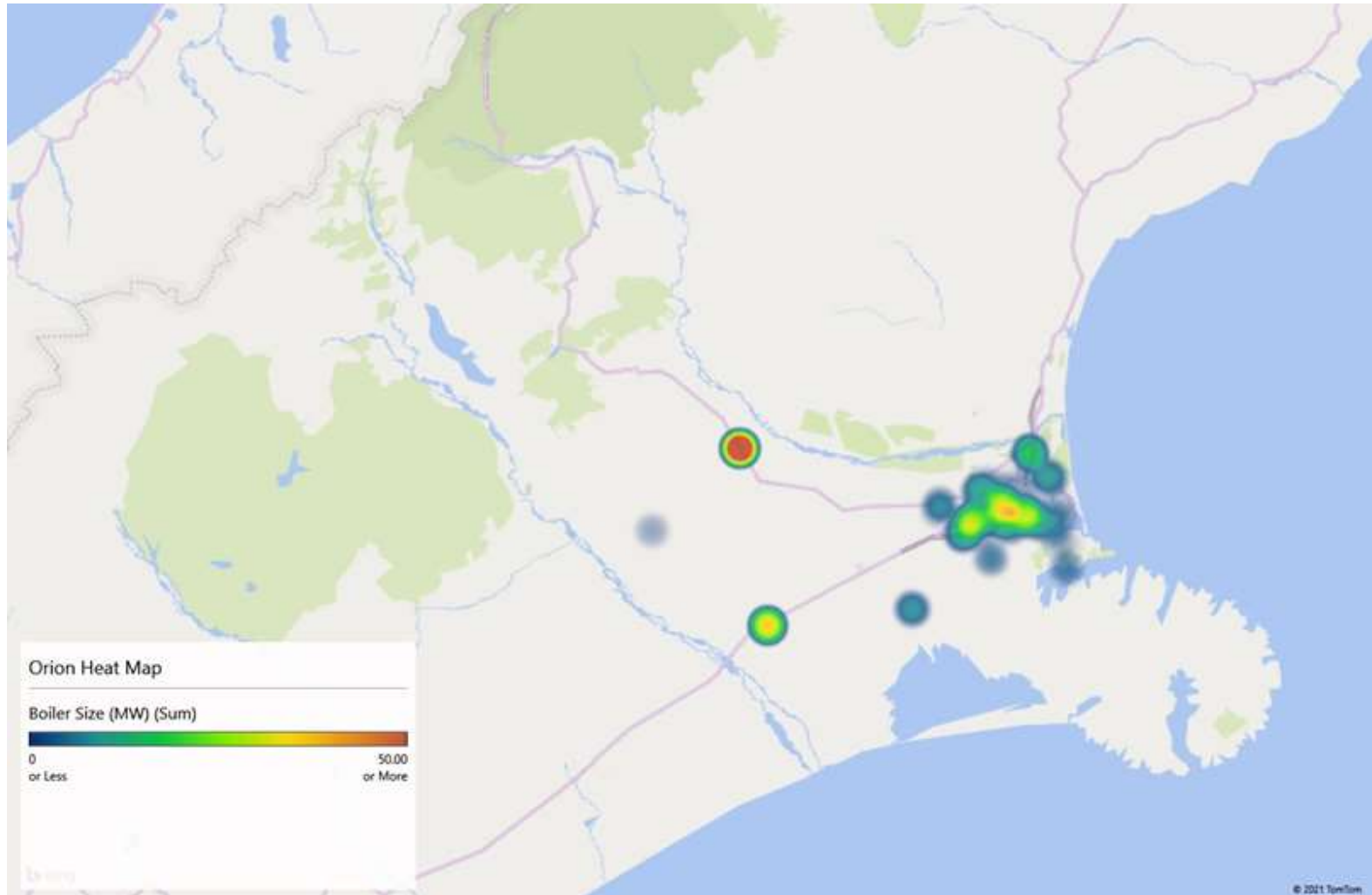
- ▶ 69 renewable (wood or electricity) boilers:
 - ▶ 343 MW total
 - ▶ Mainly wood boilers in the wood processing industry (Daiken, Nelson Pine, sawmills, etc)

- ▶ 368 non-renewable boilers:
 - ▶ **1,458 MW total capacity!**



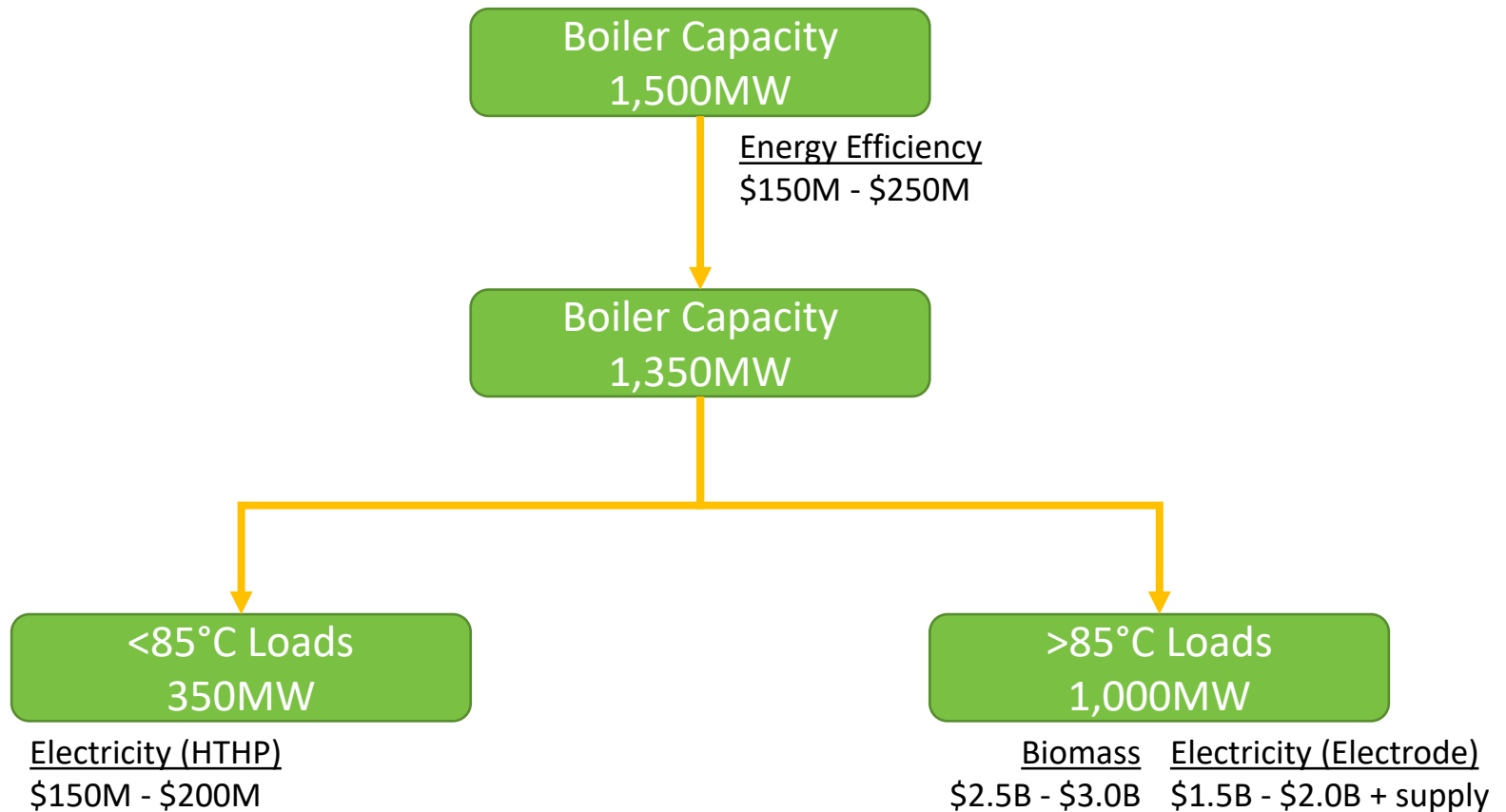


OUTPUT:





TRANSITION IMPLICATIONS...





NEXT STEPS...

- ▶ Testing the transition with clients – what are they really planning?
- ▶ Develop a regional decarbonisation Roadmap
- ▶ Develop an overall Renewable Energy Strategy for the South Island
- ▶ Roll out to the North Island?





WHAT ARE WE FINDING – Key Takeaways

- ▶ A coherent energy strategy is needed!
- ▶ Change is happening, but not quickly enough
- ▶ Renewable fuel is available at scale, but is it available at the right price...



THANK YOU

ANY QUESTIONS?

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