

Hydro Stations Around New Zealand

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What is the optimal location for a hydrowater plant? Is there a pattern?



My analysis



Chose a selection of Power Stations from the Northern Island

Kept in Northern Island to prevent mixing variables



Search for data and create a chart comparing details of each station



Create map for locations



Determine which areas have highest rates of success

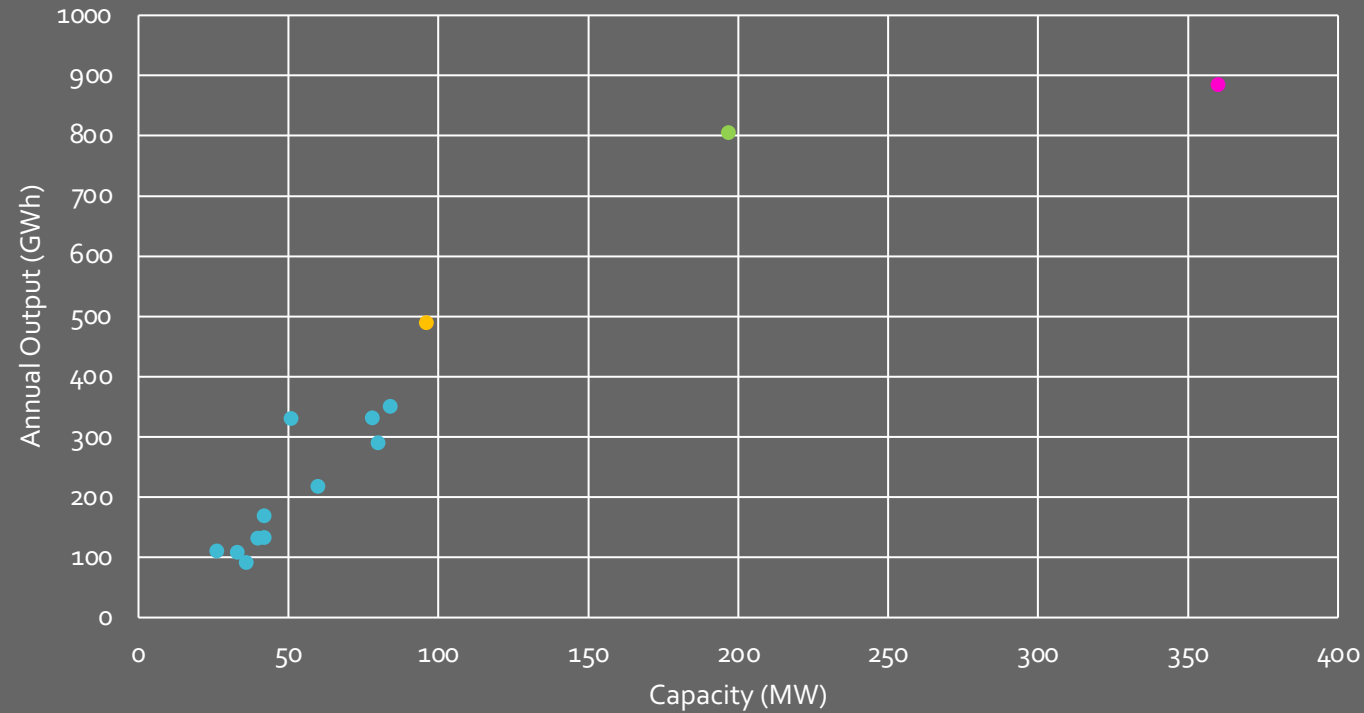


Research hypothesis

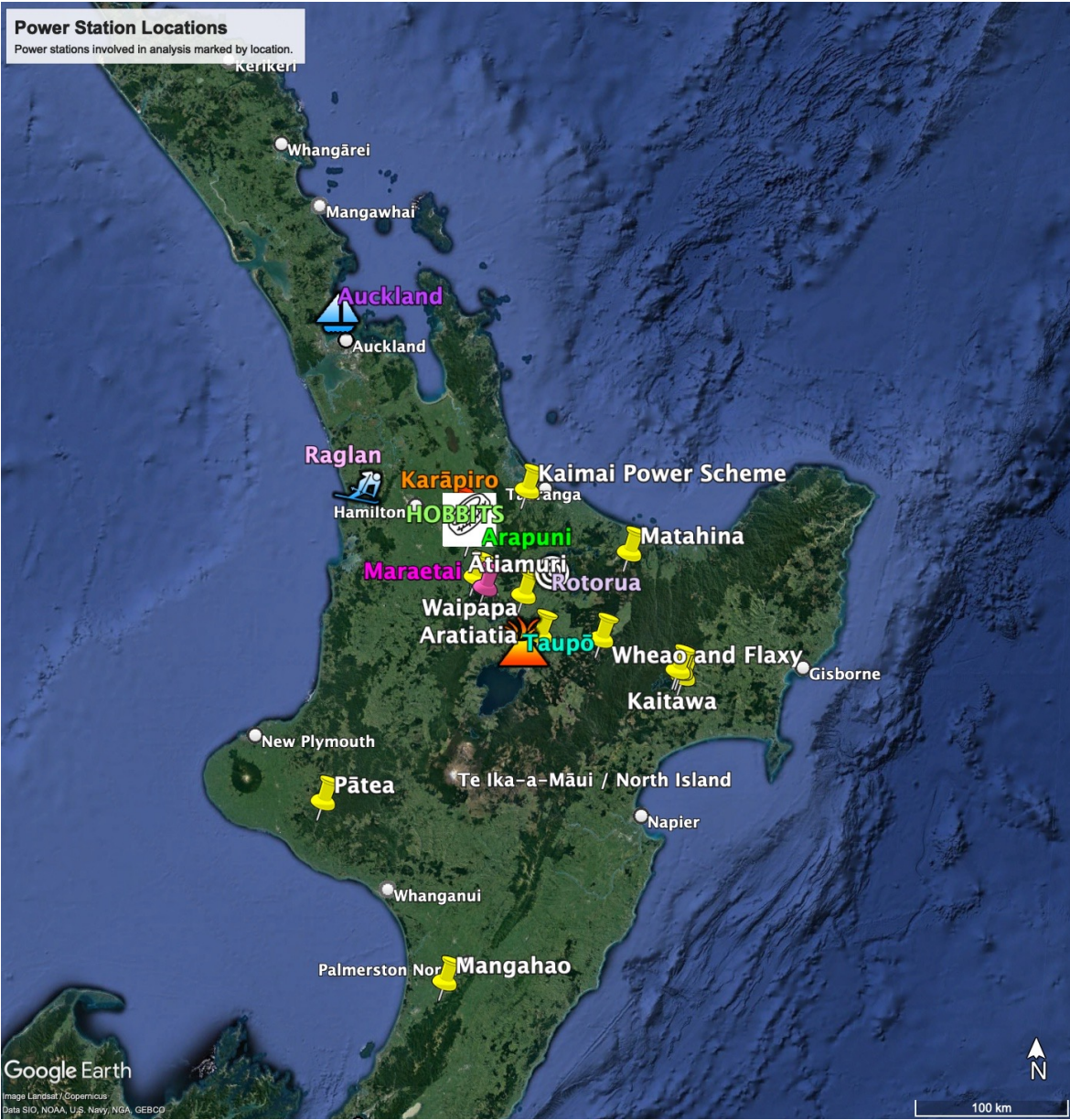
Power Station	Catchment	Megawatts/Capacity	Annual Output (GWh)	Date of Commission
Karāpiro	Waikato	96	490	1947
Arapuni	Waikato	196.7	805	1929
Matahina	Rangatāik River	80	290	1967
Waipapa	Waikato	51	330	1961
Maraetai	Waikato	360	885	1970
Ātiamuri	Waikato	84	350	1958
Wheao and Flaxy	Rangatāik River	26.1	110	1982
Aratiatia	Waikato	78	331	1964
Kaitawa	Lake Waikaremoana	36	91	1948
Tuai	Lake Waikaremoana	60	218	1929
Piripaua	Lake Waikaremoana	42	133	1943
Pātea	Pātea River	33	108	1984
Mangahao	Mangahao and Tokomaru Rivers	39.9	131	1924
Kaimai Power Scheme	Wairoa	42.1	169	1972

Power Station Data Table

Capacity vs. Output

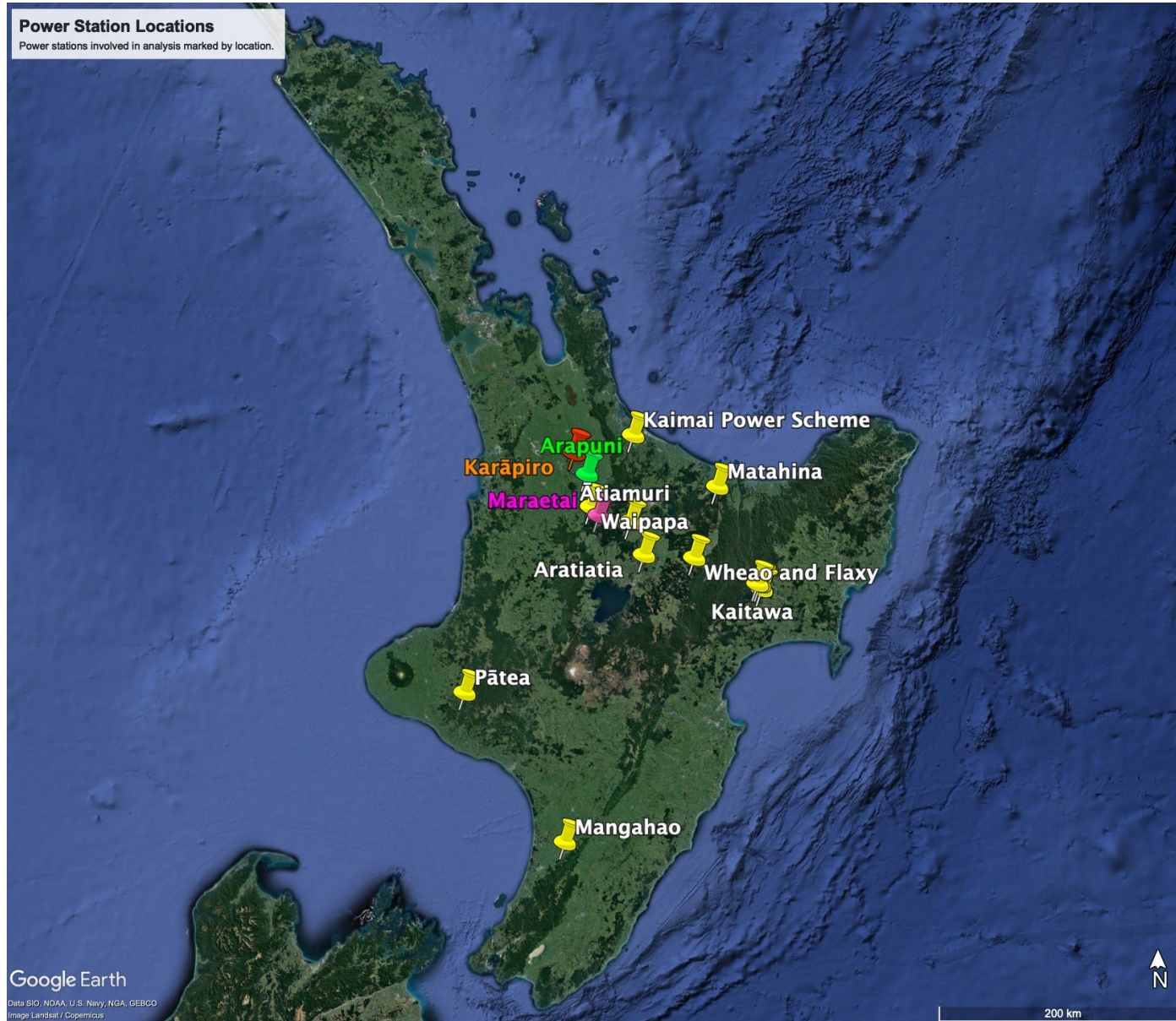


Capacity vs.
Output for
each Power
Station



Power Station Locations

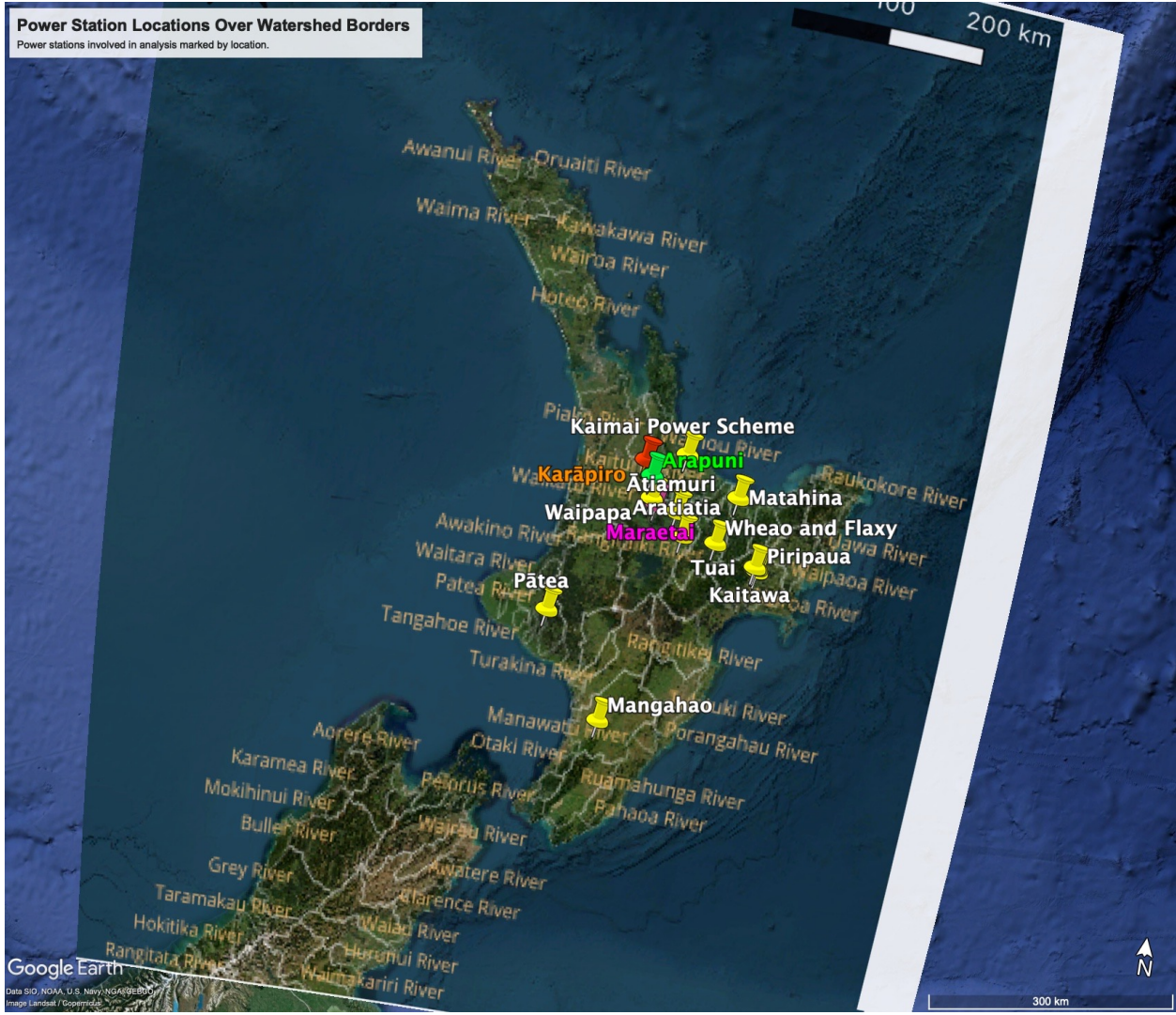
Power stations involved in analysis marked by location.



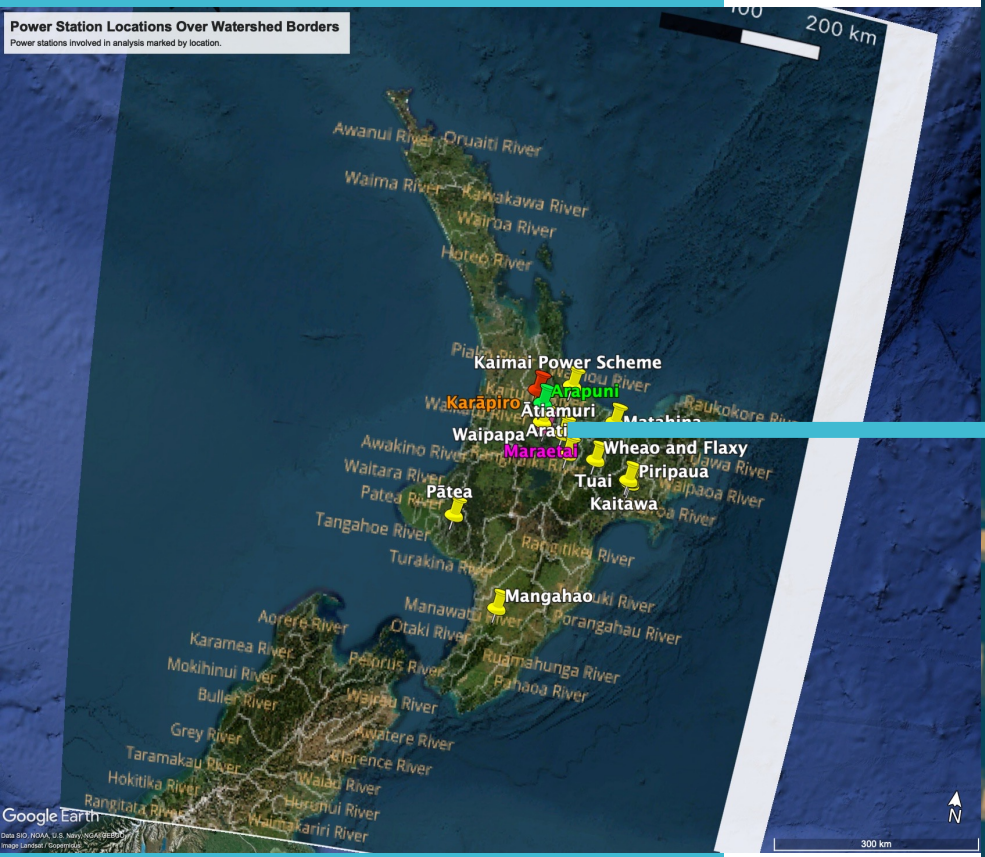
Catchments of New Zealand

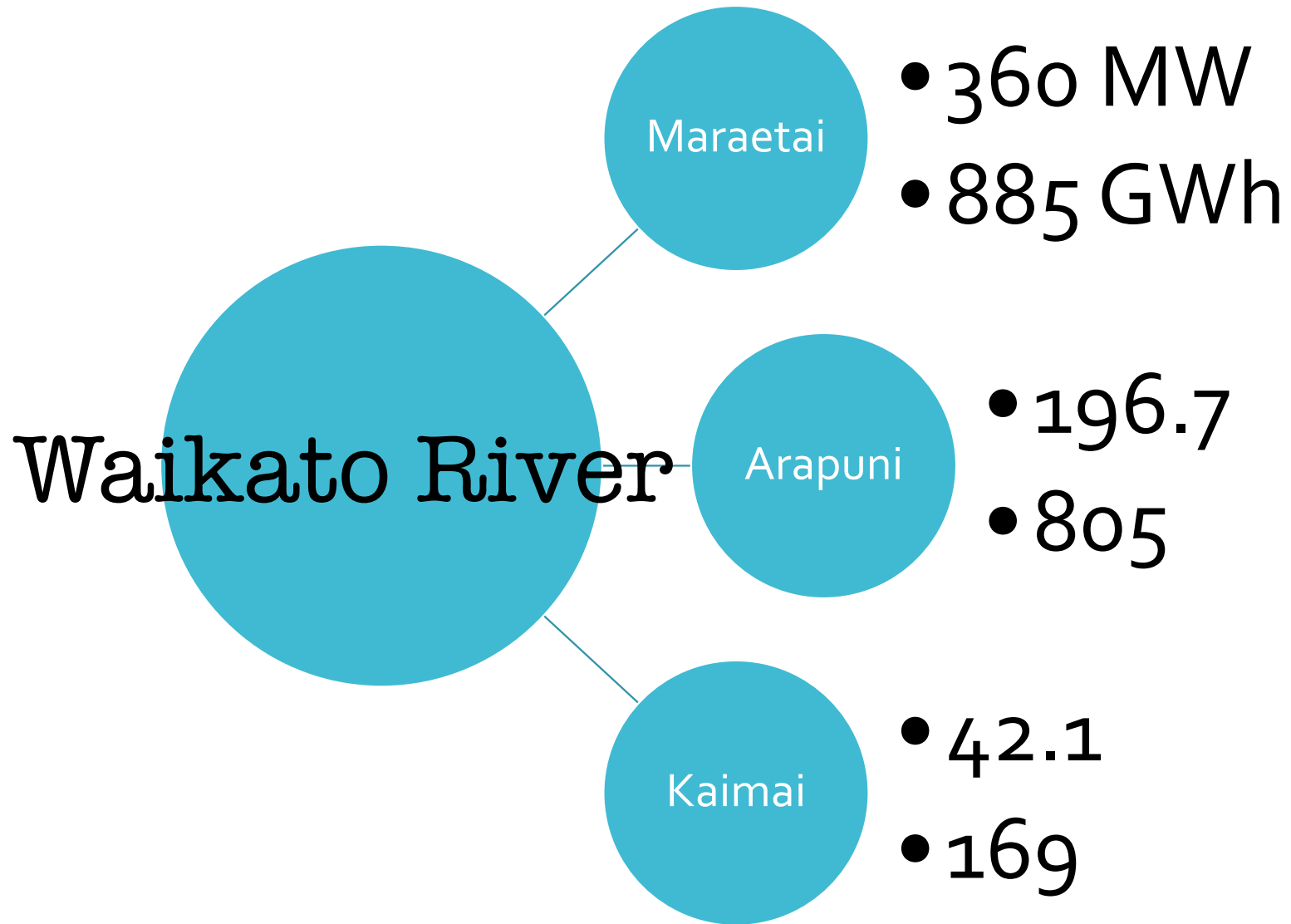


Catchments and Hydroplants Overlap



Power Station Locations Over Watershed Borders
Power stations involved in analysis marked by location.







My thoughts...

Lots of input from other rivers/lakes

17,000 km of tributary streams

Catchment area of 11,013 km²

Steep gradient

Between Taupō and Karāpiro

Many dams located here

In Conclusion...

Waikato's conditions and features make it a perfect fit for maximum hydroelectric power to be generated!



Thank you!



Sources

W&F info	https://www.manawaenergy.co.nz/wheo-and-flaxy-power-scheme
Matahina info:	https://www.manawaenergy.co.nz/matahina-power-scheme
Pātea info:	https://www.manawaenergy.co.nz/patea-power-scheme
Mangahai	https://www.manawaenergy.co.nz/mangahao-power-station
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