

B2G: LARGER VEHICLES AS GRID STORAGE

SUPPORTING CLIMATE CHANGE IN THE
COMMUNITIES OF AOTEAROA

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CENTRE FOR SMART ENERGY SYSTEMS



AGENDA

- + Provisioning Local and Grid-based renewable energy
- + Utilise existing infrastructure
- + B2G and the local electricity network

Community Energy Questions

- + Local users of generation – significant predicted future increase
- + Distributed generation potential - solar
- + How energy loads in local areas are changing with the addition of distributed generation
- + Increase in demand in the grid during peak usage times
- + Aotearoa is predicted to need 50% more electricity than we currently generate
- + Load problems



Existing Infrastructure

- + New community trends, investment and uptakes
- + Residential Solar
- + Large electric vehicles
 - + Milk-e
 - + 5x battery swap trucks
- + Personal EV's

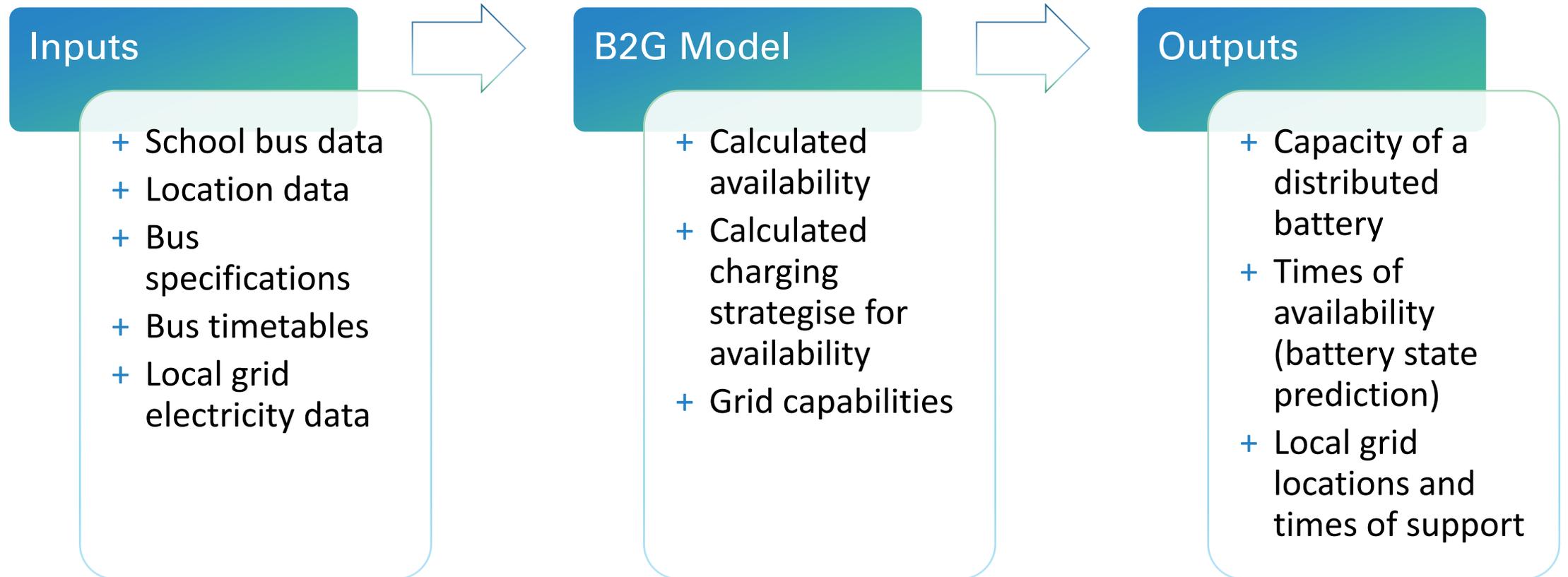
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Model Development



Bus Specifications

Bus Type	Capacity (kWh)	Time to Charge	Km/kWh	Hours of Travel
eT12-max	350	5.5 hours	0.56	17kW/h
UT200RHDF	508	5.5 hours + 2x 10 min fast charges	-	-

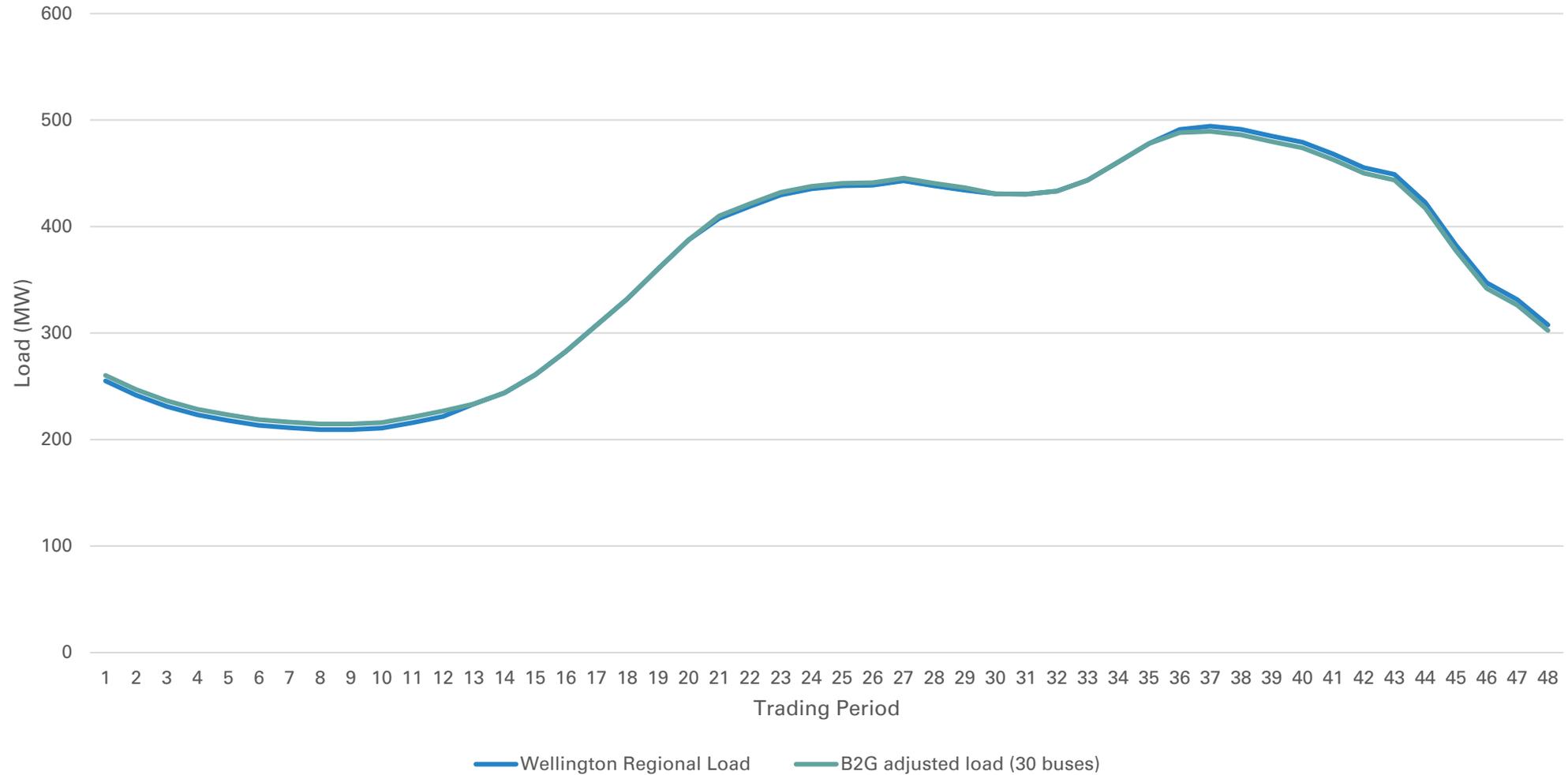
Chargers

- + 60kWh
- + 2x fast chargers
 - + 450kWh
 - + 1080 kWh

Wilton load (8/8/21) with Peak shaving support from B2G



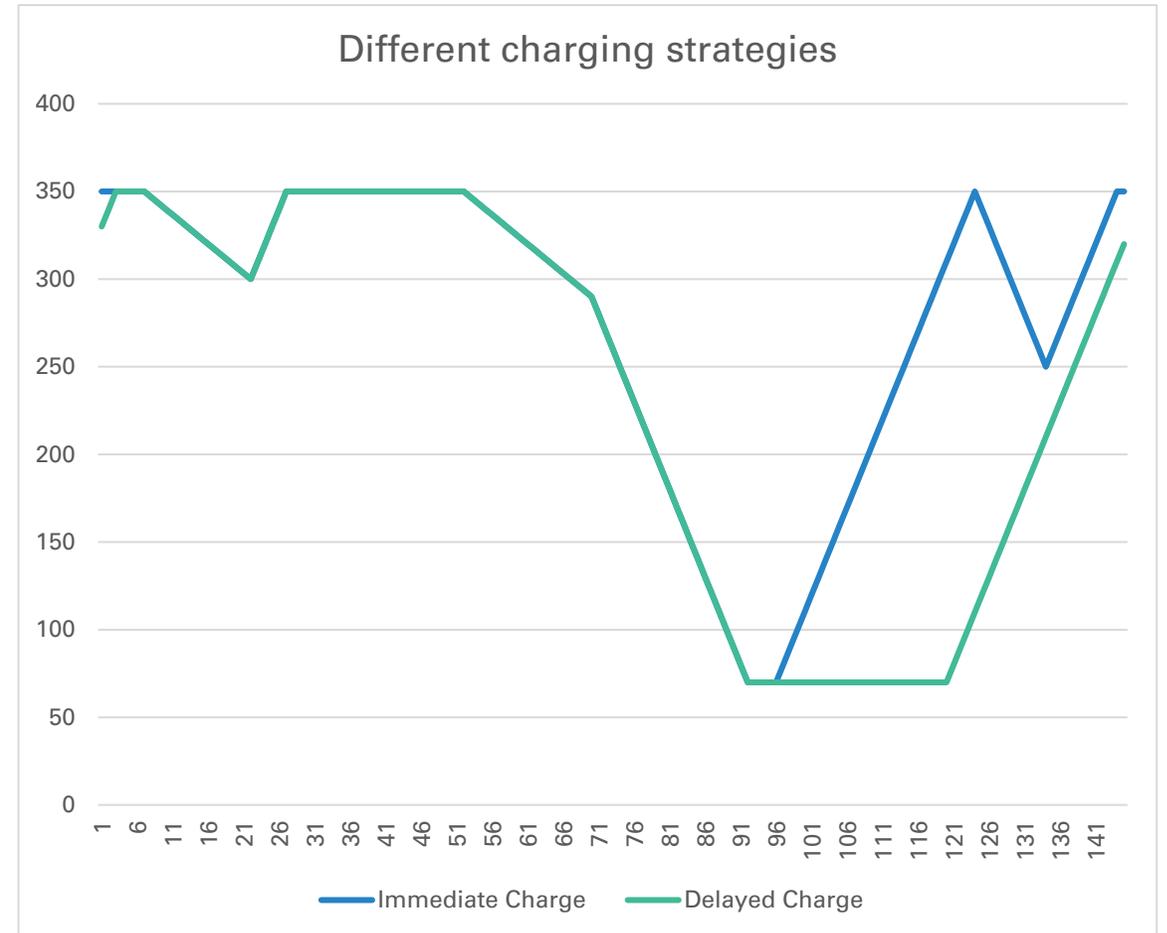
Wellington Load (8/8/21) with Peak shaving support from B2G



Analysis: 2022 Data

Model produces:

- + 30 buses gives 6.6 MW battery for use
- + Charging/discharging strategies
 - + Use 50% of this 'battery' at a slower time
 - + Manage peaks better (flatter for longer)
 - + Minimise new infrastructure for bus depots
 - + Support for communities



Discussion

- + Show how energy can be shifted (peak shaving)
- + Able to incorporate more non-dispatchable sources of generation into our everyday grid mix
- + Improve how we use energy
- + Support local communities



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THANK YOU

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