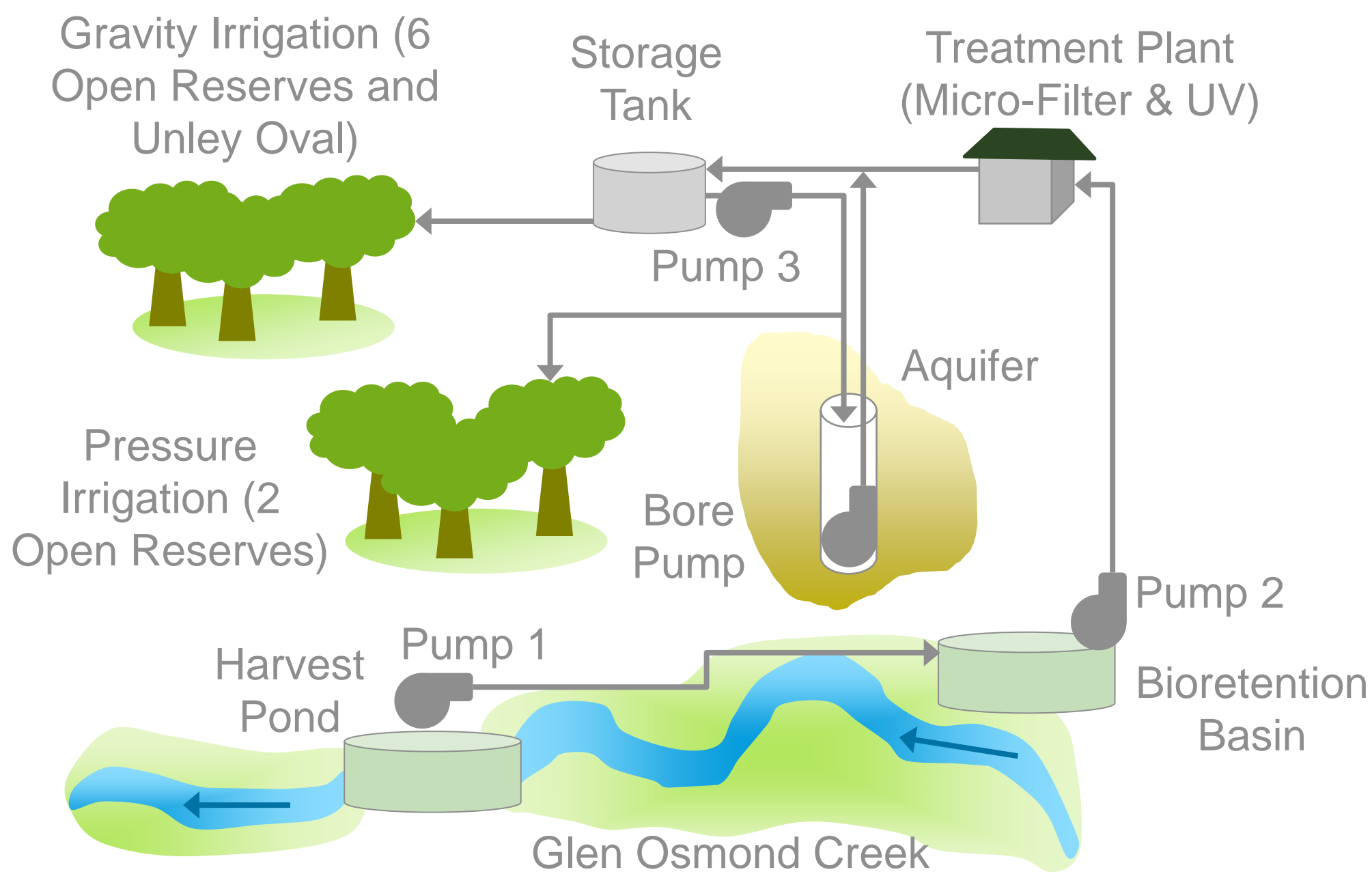




# Optimising Pump Operations in a Harvested Stormwater System

## Case Study: Ridge Park Managed Aquifer Recharge, Unley, SA



### Winter Operation

- Harvest water from Glen Osmond Creek
- Treat through Bioretention Basin and Treatment Plant
- Intermediate storage in tank
- Inject into aquifer
- Pumps 1, 2 and 3 operational

### Summer Operation

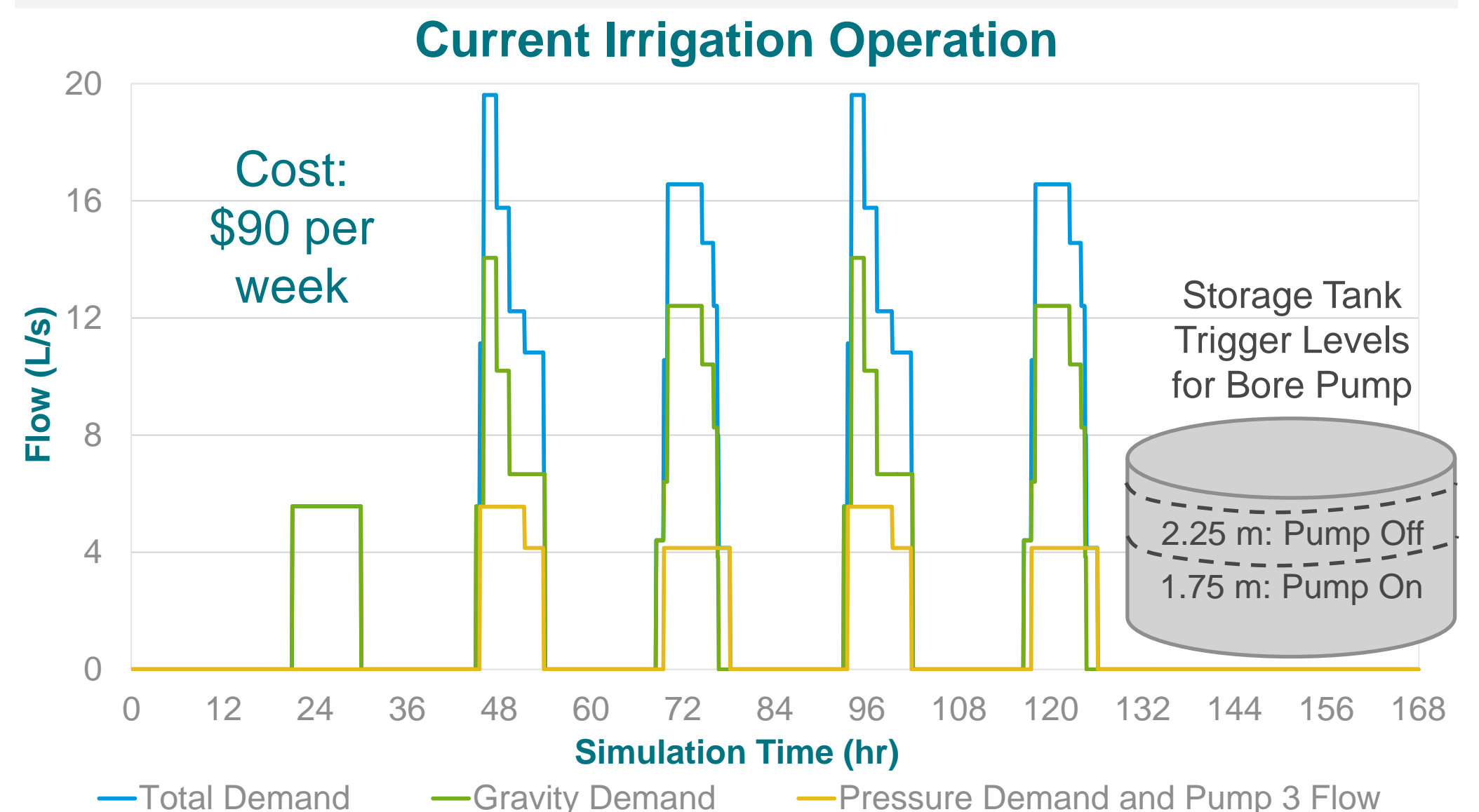
- Extract water from aquifer
- Intermediate storage in tank
- Irrigate reserves (some by Pump 3, some by gravity)
- Bore Pump and Pump 3 operational

**Note:** The case study was based on the best available information; the simulated system may have some differences to the real-life system.

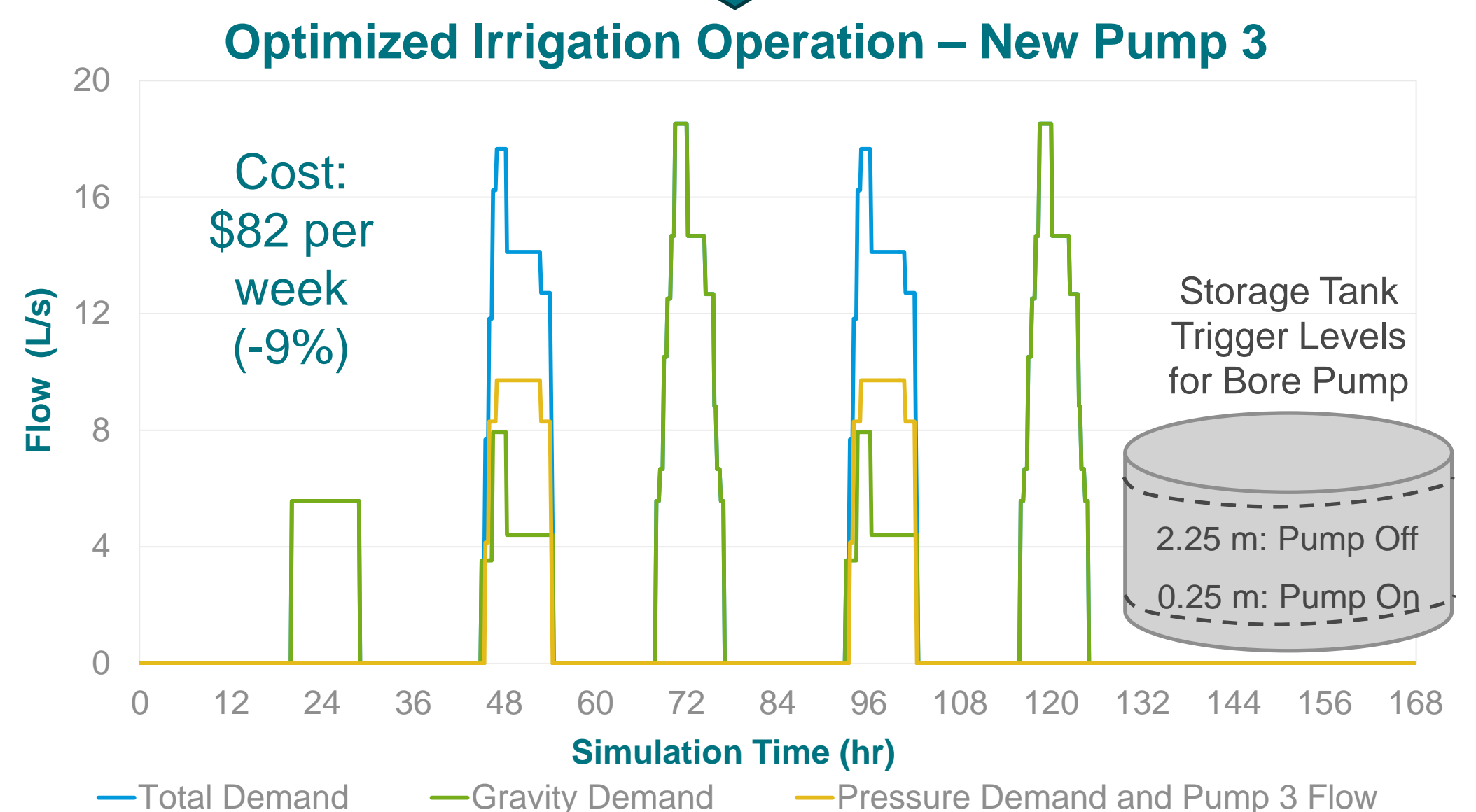
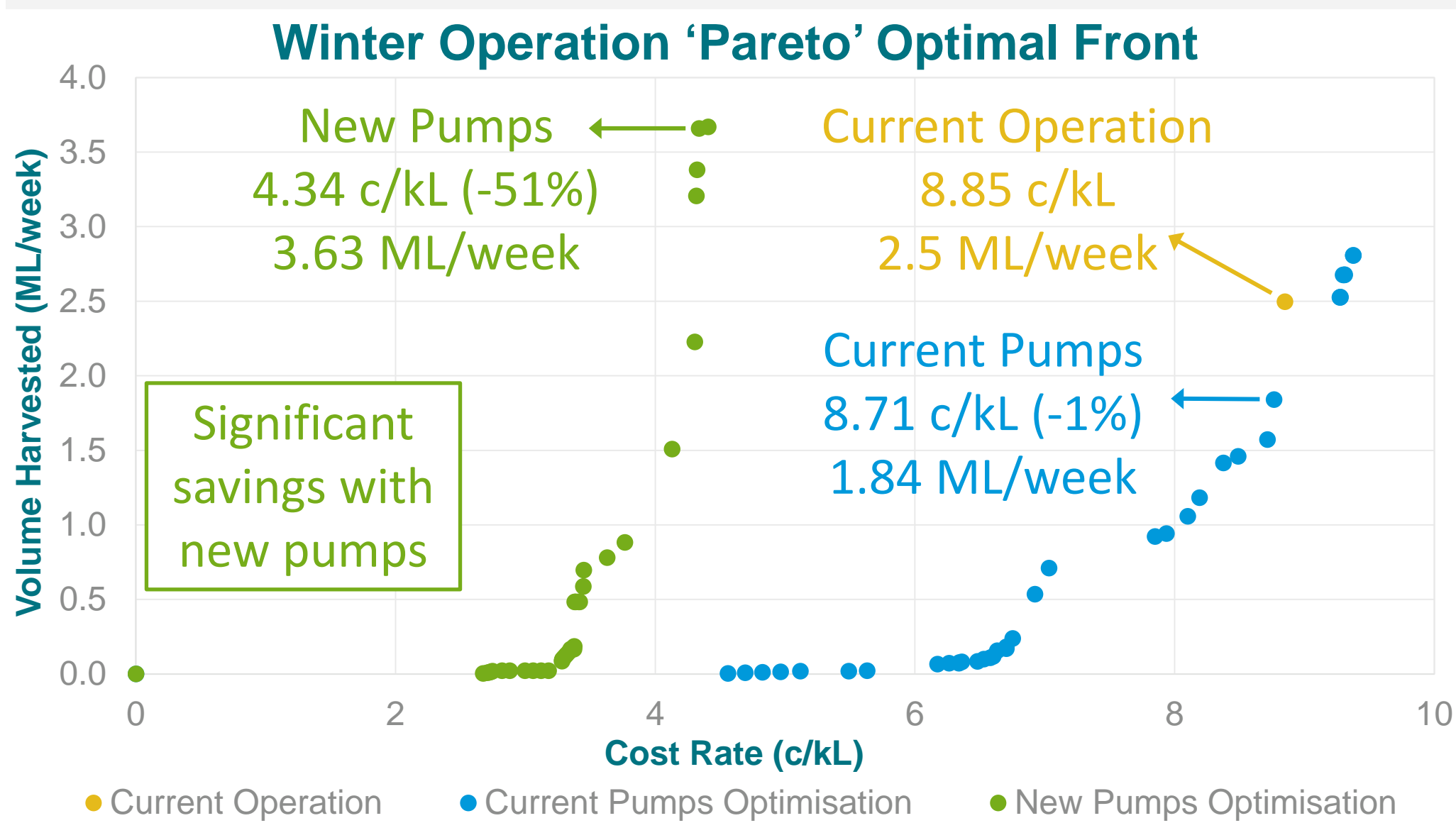
## Optimisation Formulation

	Winter	Summer
<b>Decisions</b>	Trigger levels for Pumps 1, 2 and 3	Trigger levels for Bore Pump, Irrigation schedule
<b>Objectives</b>	Minimise unit cost Maximise harvest	Minimise cost

## Summer Irrigation Results



## Winter Harvesting Results



## Recommendations

- Replace Pumps 1, 2 and 3
- Use wider trigger levels in all storages
- Irrigate reserves on pressure line at the same time