Electoral Systems in Local Government in New Zealand

Prepared for Kawerau District Council

6 September 2023

www.electionservices.co.nz

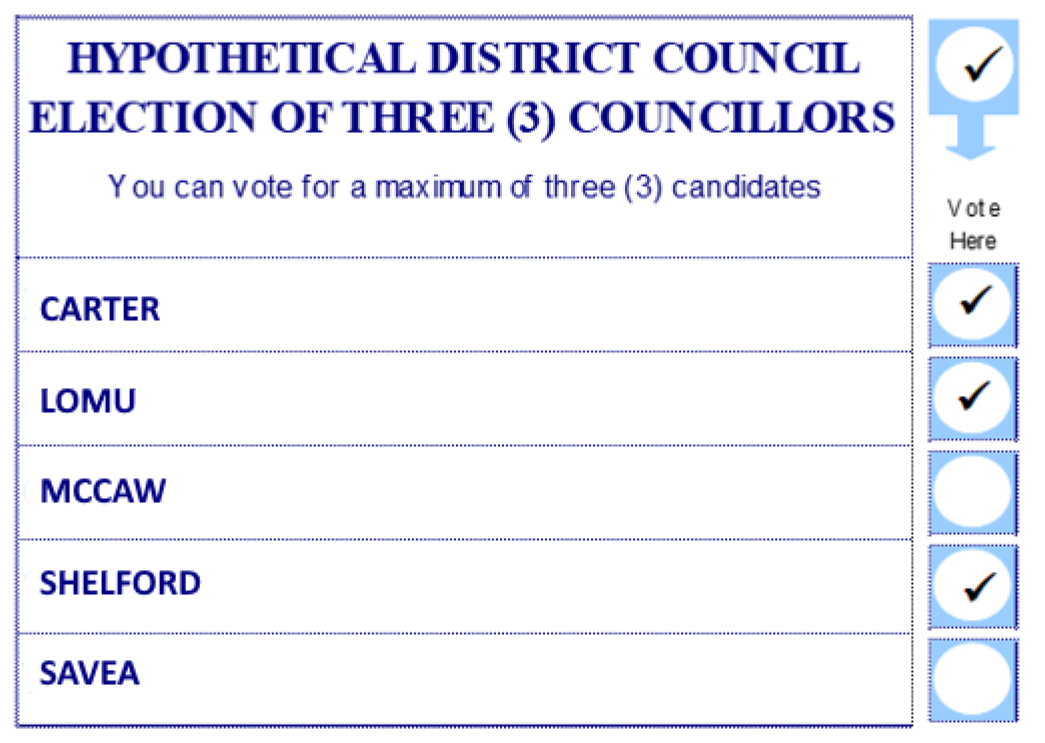
KAWERAU
DISTRICT COUNCIL
TAONGA O TE WHENUA
TREASURE OF THE LAND

Outline

- description of STV and FPP
- examples of STV
  - single-vacancy
  - multi-vacancy
- other considerations

Descriptions - FPP

- under FPP (first past the post), electors tick the candidate(s) they want to vote for
- electors can cast up to as many votes as there are vacancies
- in this example, there are three vacancies
- candidates with most votes are elected

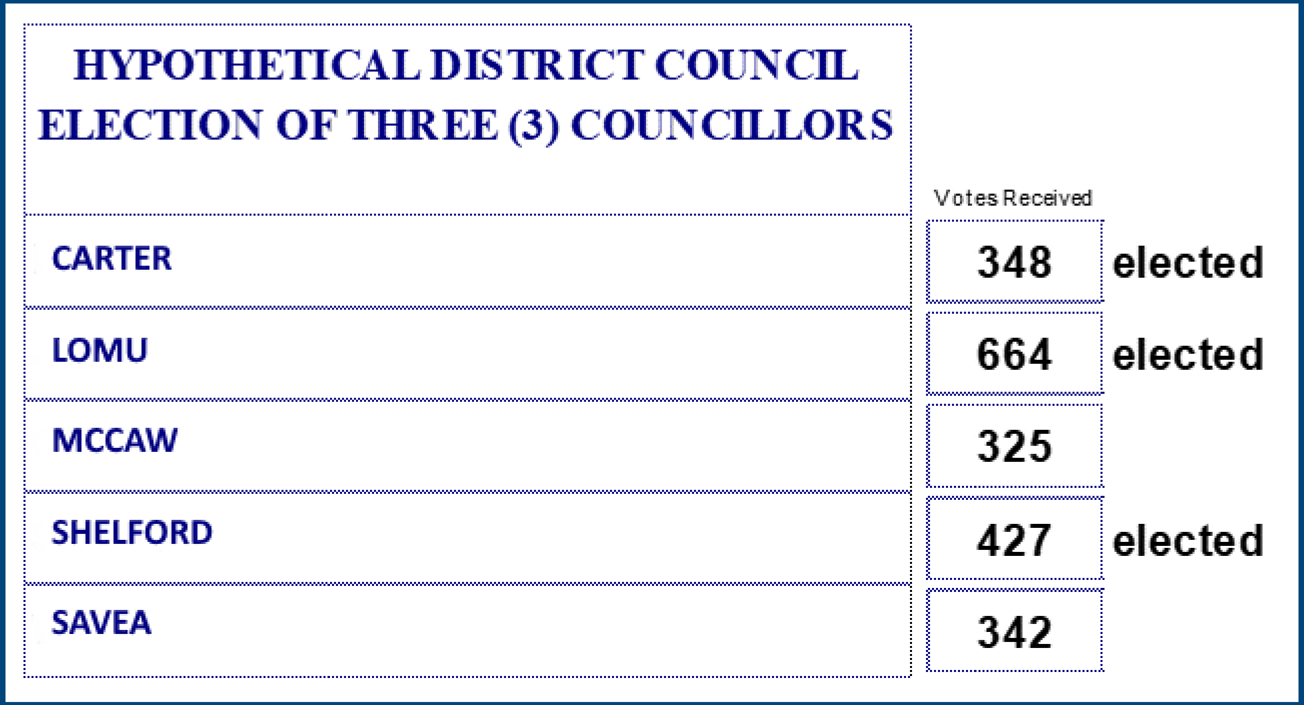


HYPOTHETICAL DISTRICT COUNCIL
ELECTION OF THREE (3) COUNCILLORS

You can vote for a maximum of three (3) candidates

	Vote Here
CARTER	✓
LOMU	✓
MCCAW	○
SHELFORD	✓
SAVEA	○

Descriptions - FPP



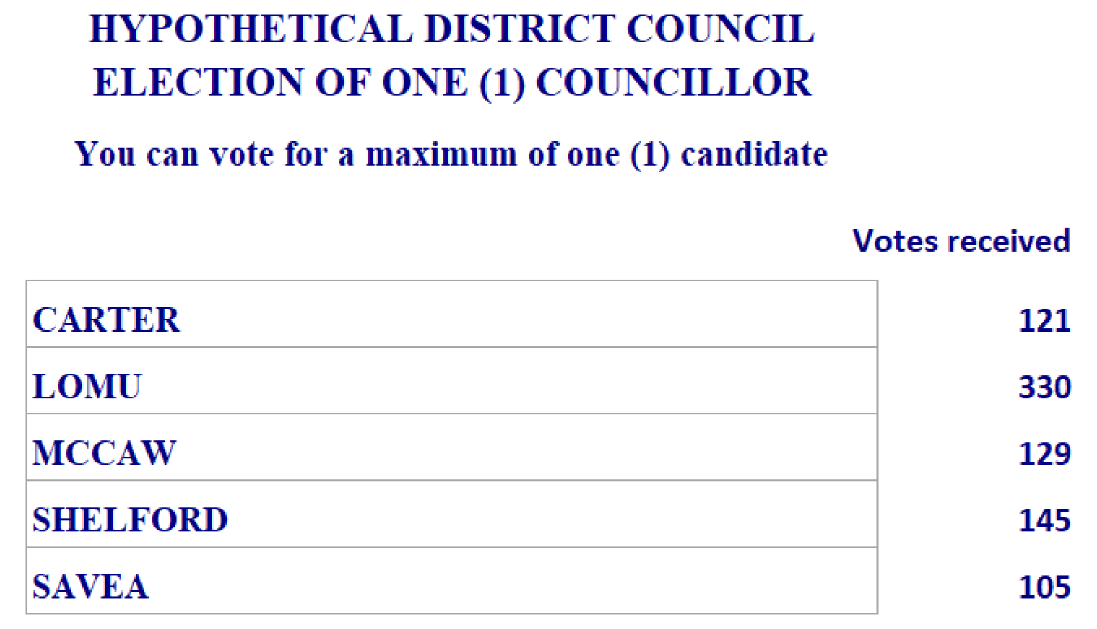
HYPOTHETICAL DISTRICT COUNCIL
ELECTION OF THREE (3) COUNCILLORS

	Votes Received	
CARTER	348	elected
LOMU	664	elected
MCCAW	325	
SHELFORD	427	elected
SAVEA	342	

- Carter, Lomu and Shelford are the three highest polling candidates, and therefore are elected

Descriptions - FPP

- FPP is familiar to most people and easy to understand
- In single-vacancy elections, the winner does not need majority
- In this example, Lomu is elected with 40% of the vote



HYPOTHETICAL DISTRICT COUNCIL
ELECTION OF ONE (1) COUNCILLOR

You can vote for a maximum of one (1) candidate

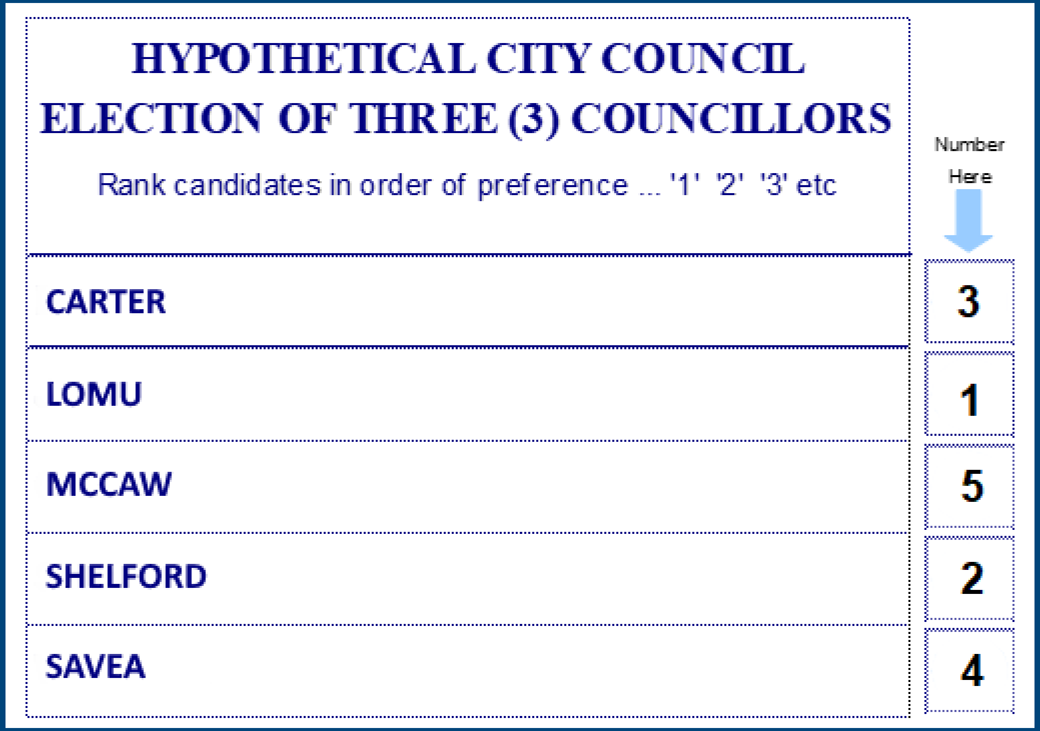
	Votes received
CARTER	121
LOMU	330
MCCAW	129
SHELFORD	145
SAVEA	105

Descriptions - STV

- single transferable voting
- form of preferential voting
- results are generally proportional
- encourages minority representation
- considered to work best with larger wards and 5-7 vacancies

Descriptions - STV

- under STV, electors rank candidates in the order of their preference
- in this example, there are three vacancies
- electors can rank just one candidate, or up to as many candidates as they want



HYPOTHETICAL CITY COUNCIL
ELECTION OF THREE (3) COUNCILLORS

Rank candidates in order of preference ... '1' '2' '3' etc

Number
Here

CARTER	3
LOMU	1
MCCAW	5
SHELFORD	2
SAVEA	4

Descriptions - STV

- candidates need a certain number of votes (quota) to be elected

$$Q = \frac{\text{No. of valid votes}}{\text{No. of vacancies to be filled} + 1} + 0.000000001$$

Example: single-vacancy STV

- if there were 752 votes cast for one position, the quota is:

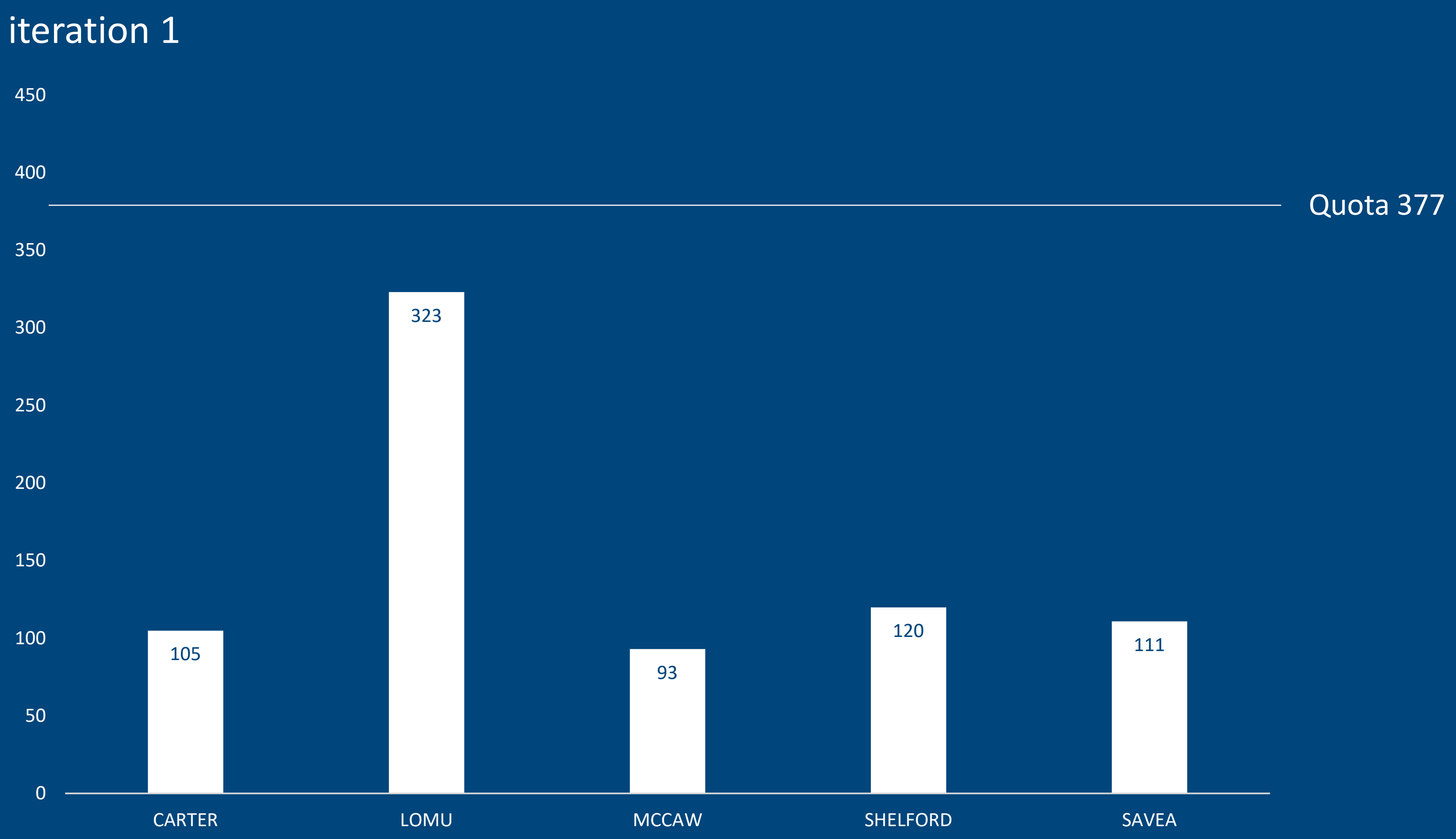
$$Q = \frac{752}{(1+1)} + 0.000000001$$

- 752 ÷ 2 = 376 + 0.000000001 = 376.000000001
- therefore, if one candidate has 377 first preferences (the 1’s), they are elected

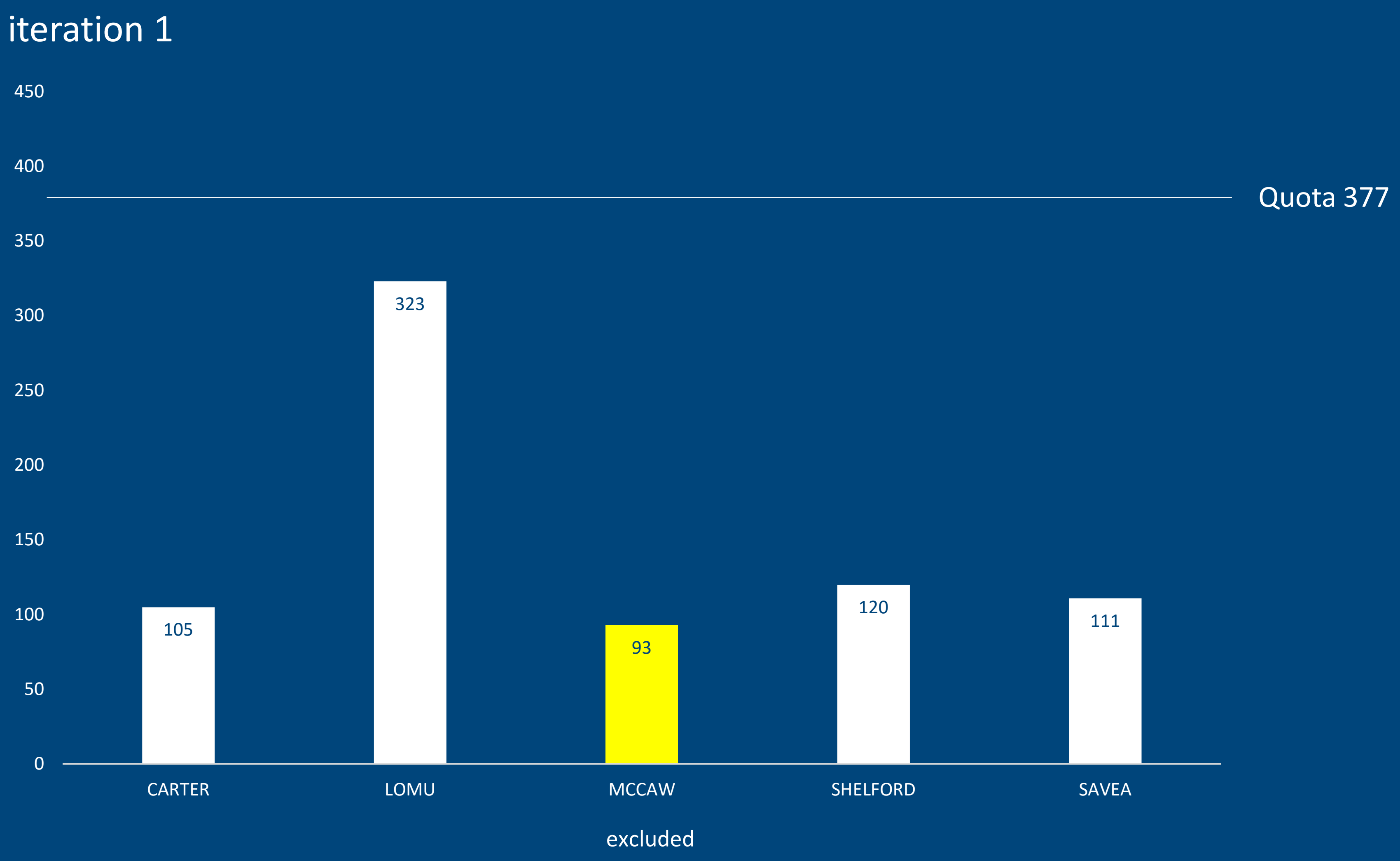
Example: single-vacancy STV

- if no candidate reaches the quota based on the first preferences (the 1’s), the lowest polling candidate is excluded
- votes for the excluded candidate are transferred to the next preference on those voting documents
- if still no candidate has reached the quota, again the lowest polling candidate is excluded
- the process continues until a candidate reaches the quota

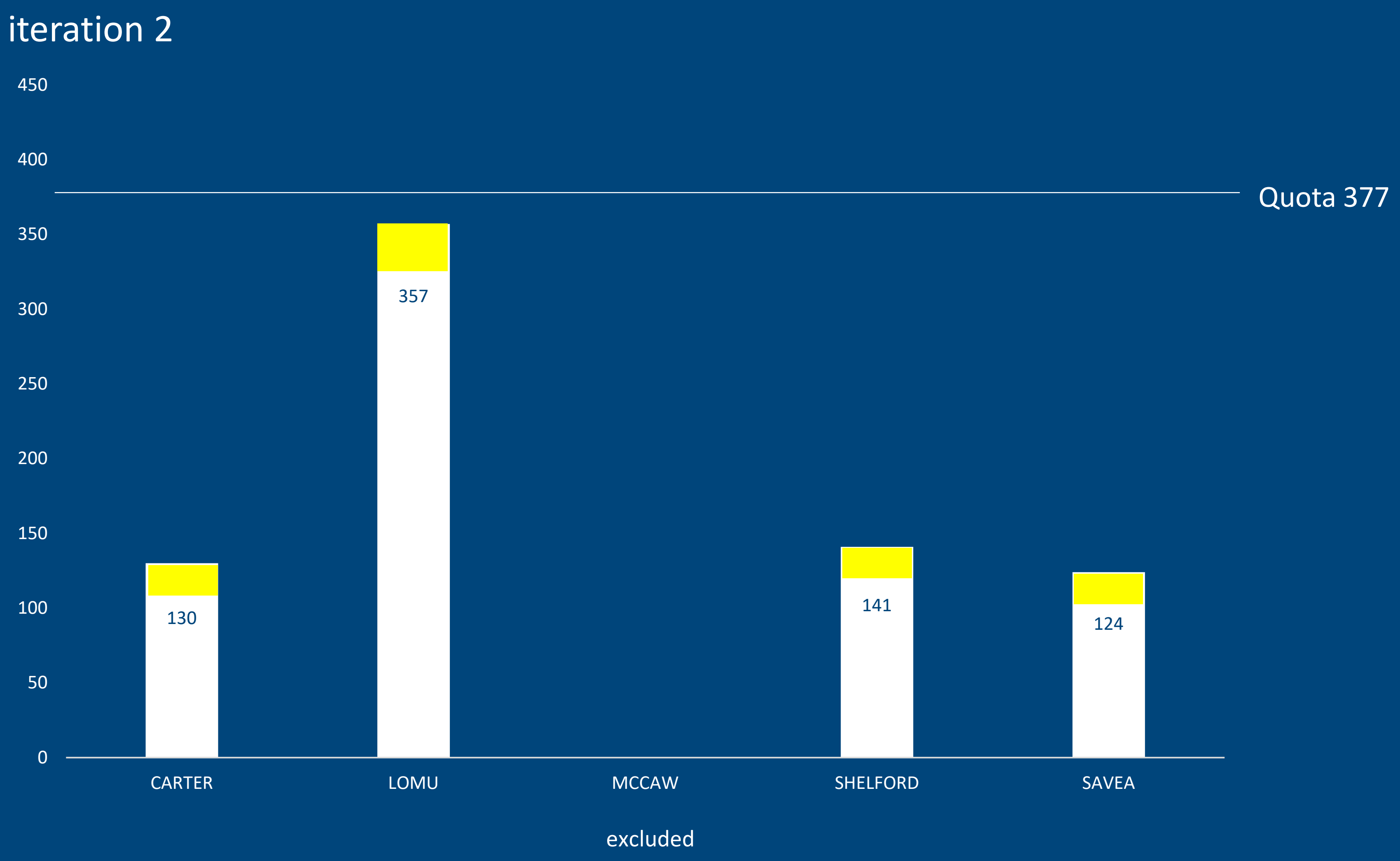
Example: single-vacancy STV



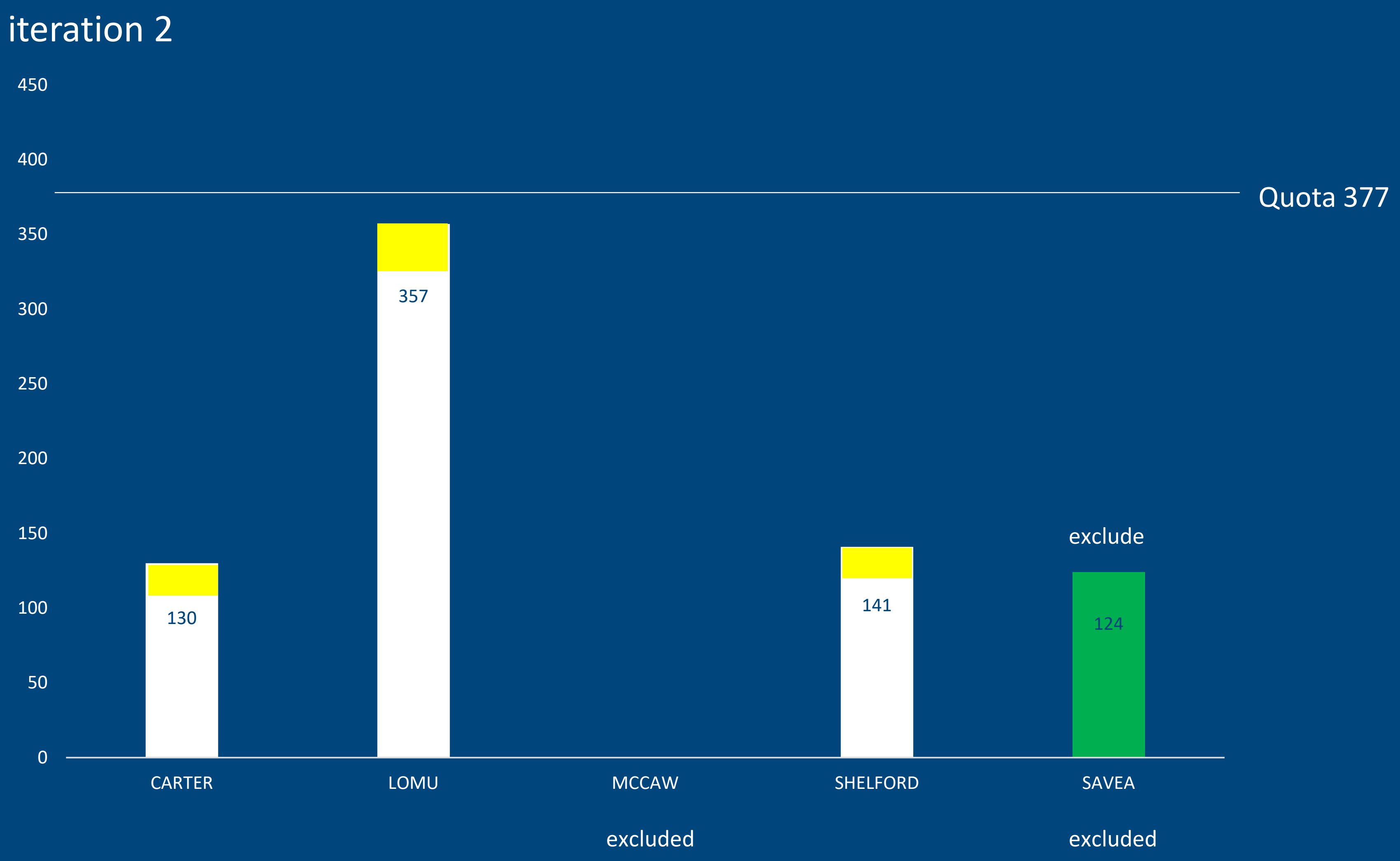
Example: single-vacancy STV



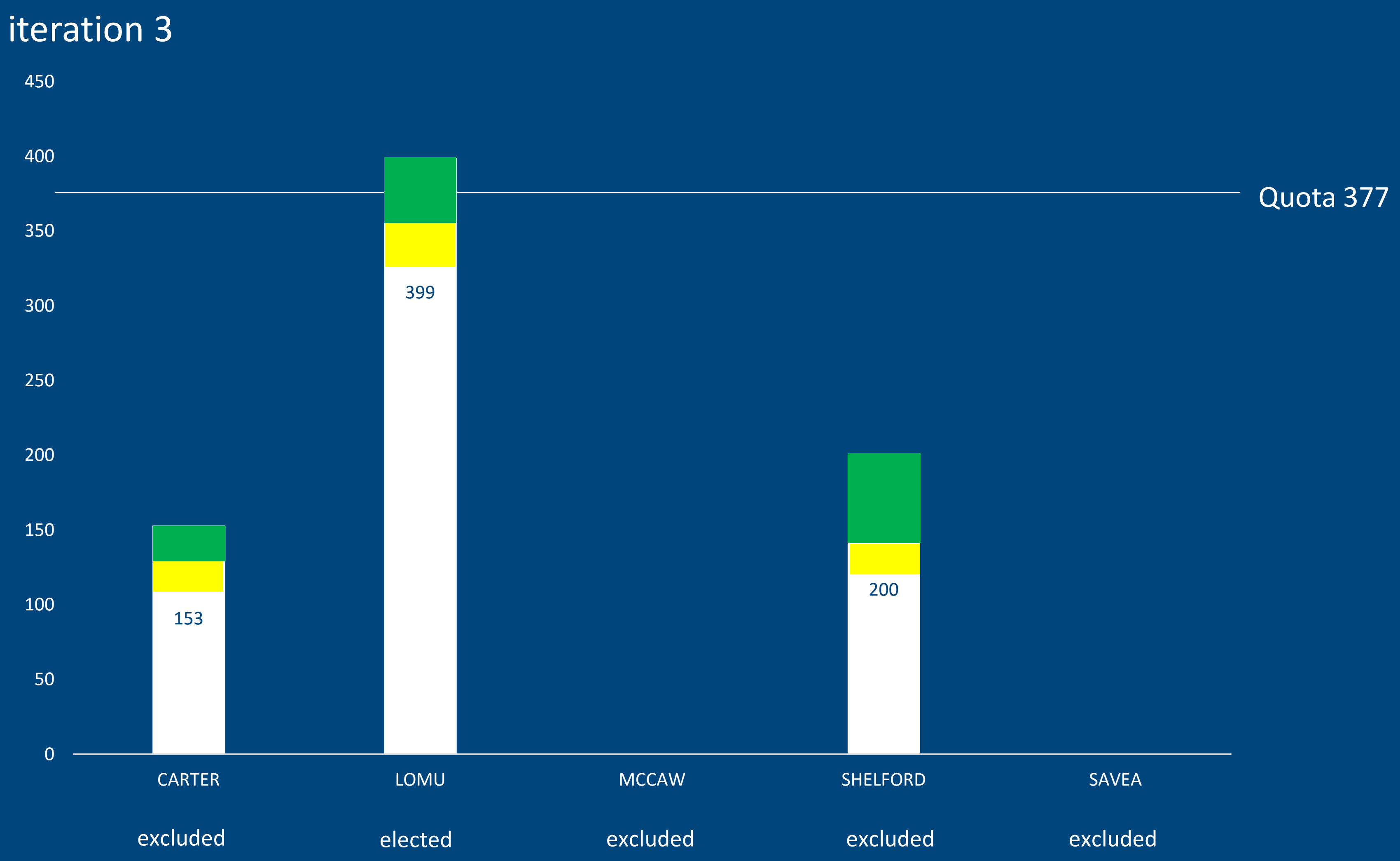
Example: single-vacancy STV



Example: single-vacancy STV



Example: single-vacancy STV



Example: multi-vacancy STV

- if there were 752 votes cast for three positions, the quota is:

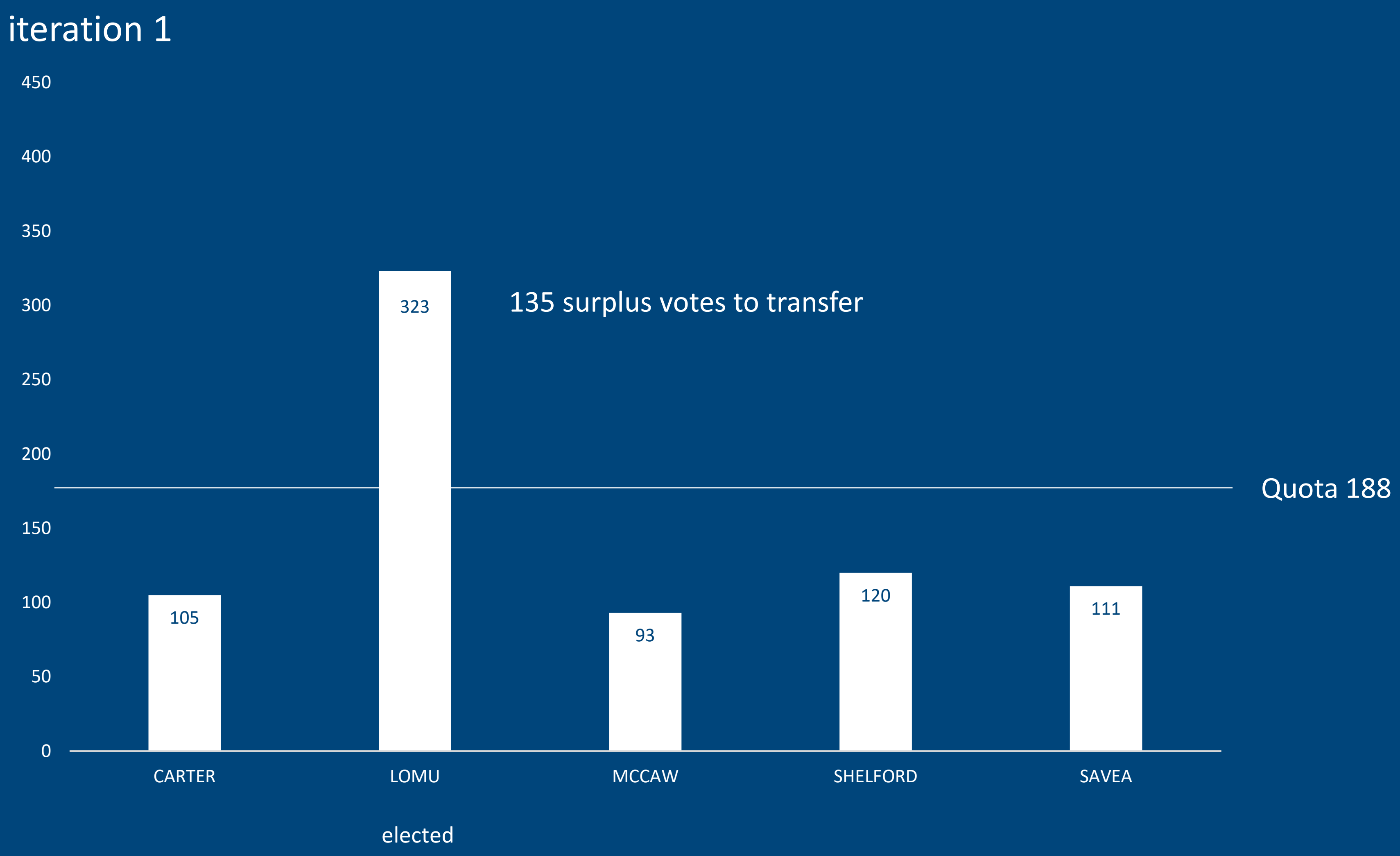
$$Q = \frac{752}{(3+1)} + 0.000000001$$

- 752 ÷ 4 = 188 + 0.000000001 = 188.000000001
- therefore, any candidate who has 189 first preferences (the 1’s), they are elected

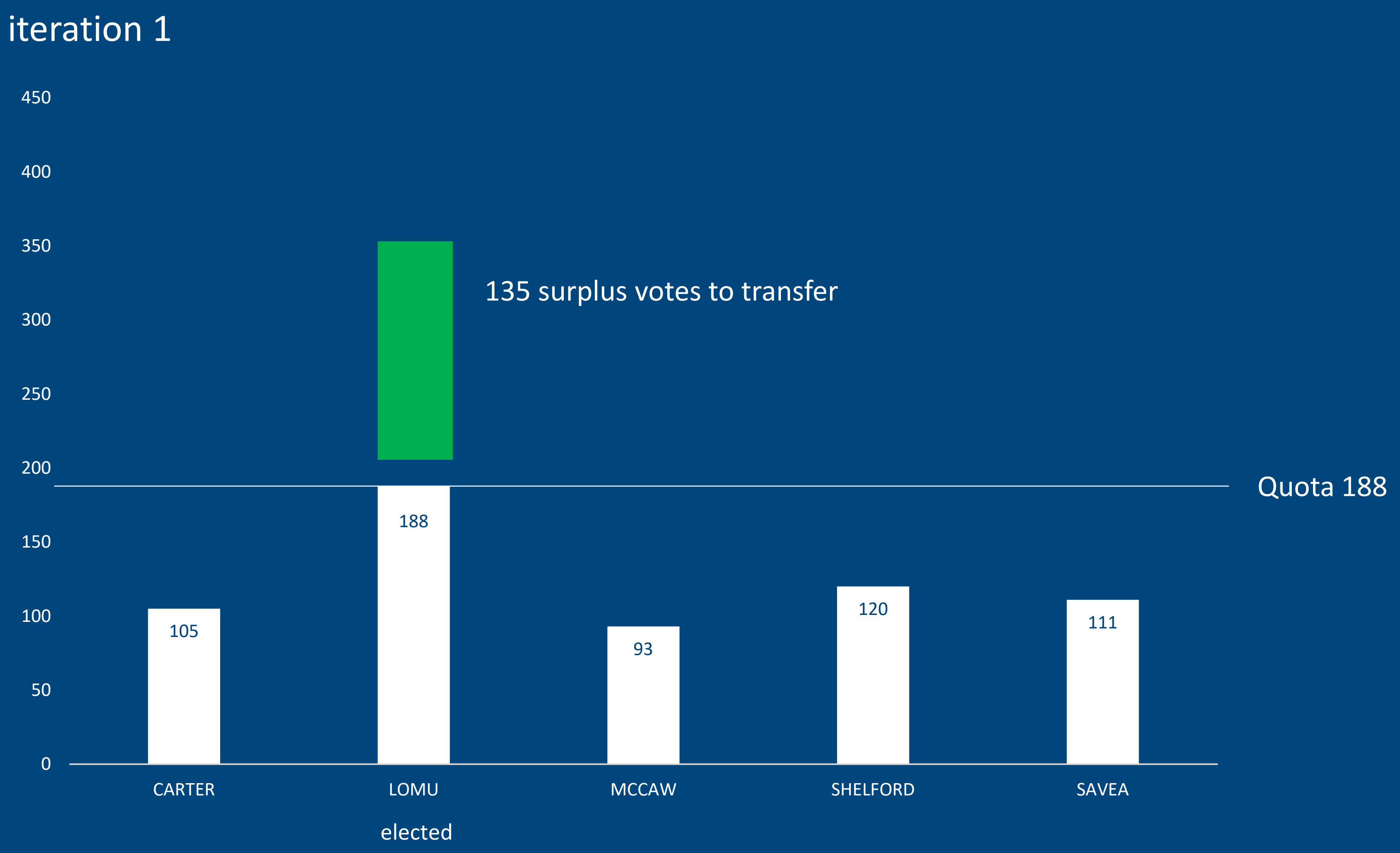
Example: multi-vacancy STV

- any candidate who reaches the quota is elected
- if there are still vacancies to be filled, surplus votes (votes above the quota) are transferred to the next candidate ranked on the voting document
- if there are no more surplus votes to transfer, and there are still vacancies to be filled, the lowest polling candidate is excluded and those votes are transferred to the next candidate ranked on the voting document
- the process continues until all vacancies are filled

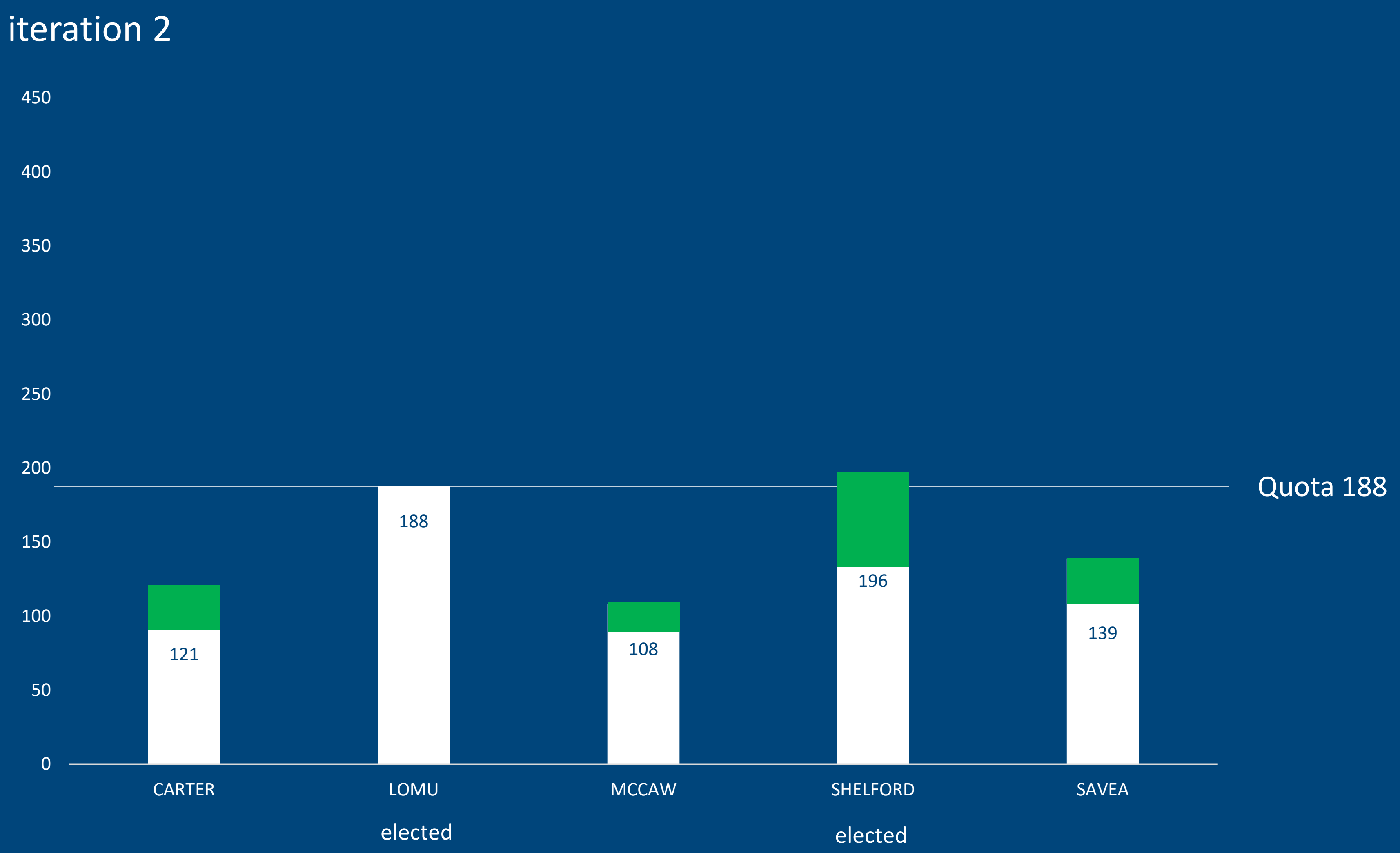
Example: multi-vacancy STV



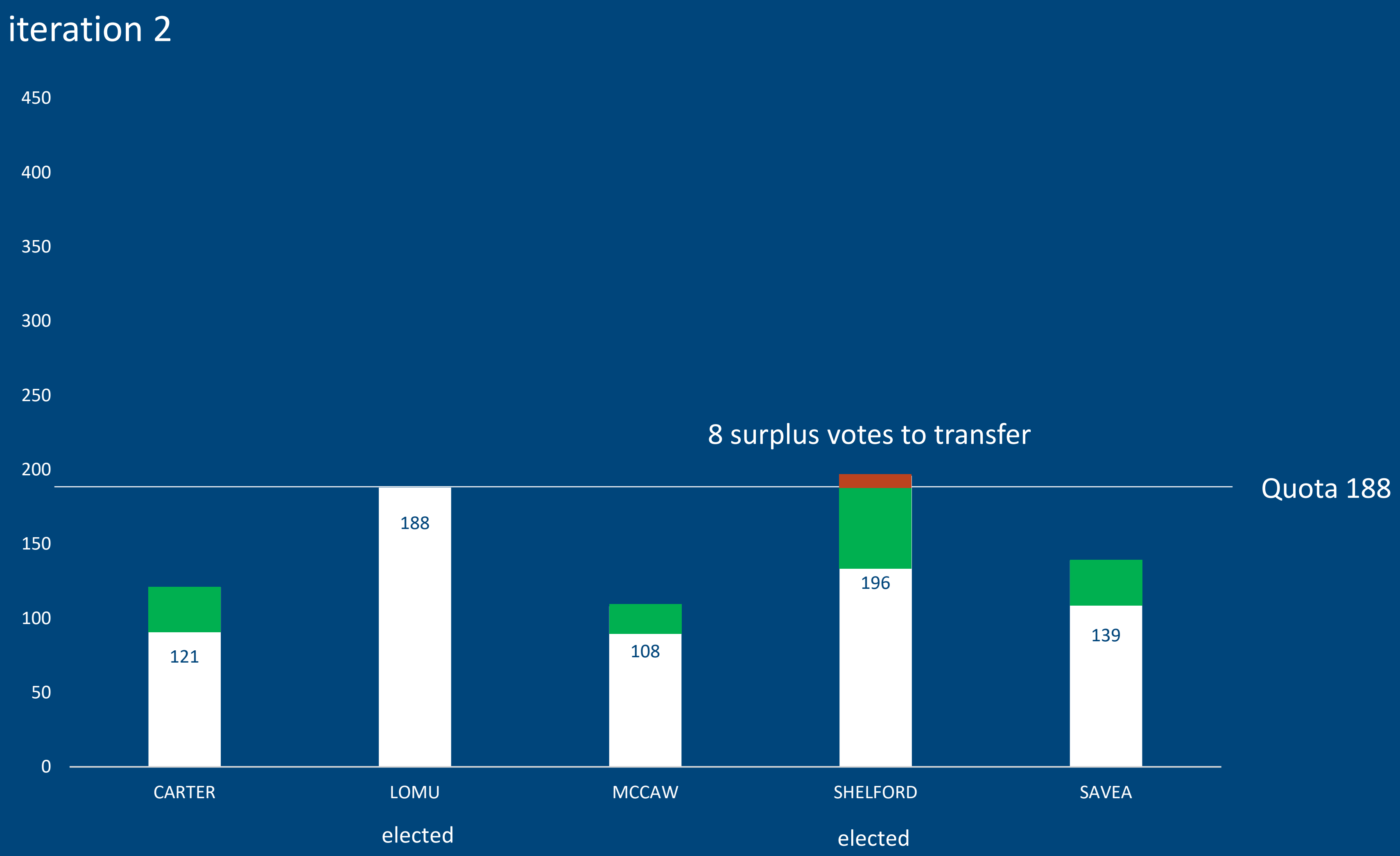
Example: multi-vacancy STV



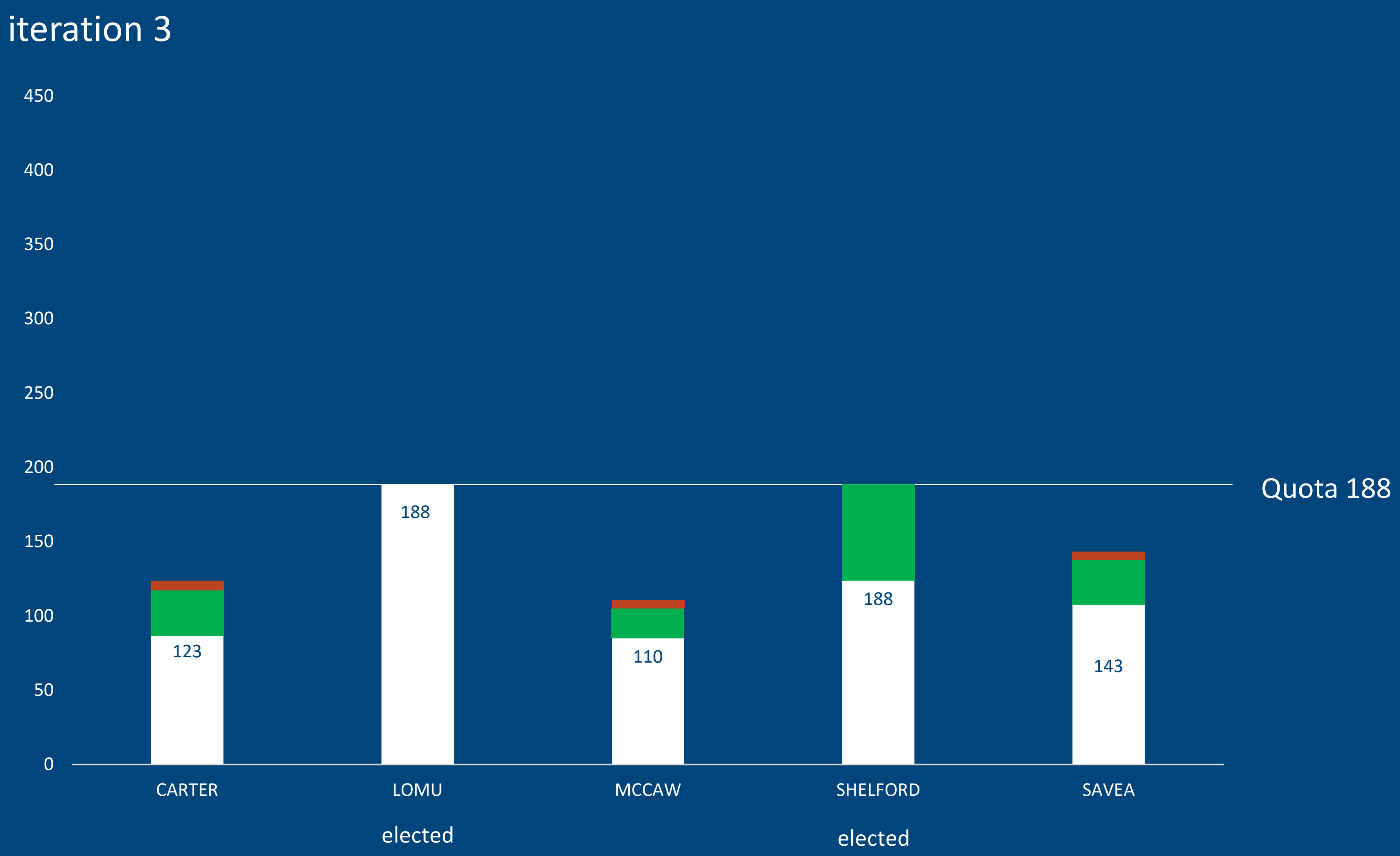
Example: multi-vacancy STV



Example: multi-vacancy STV

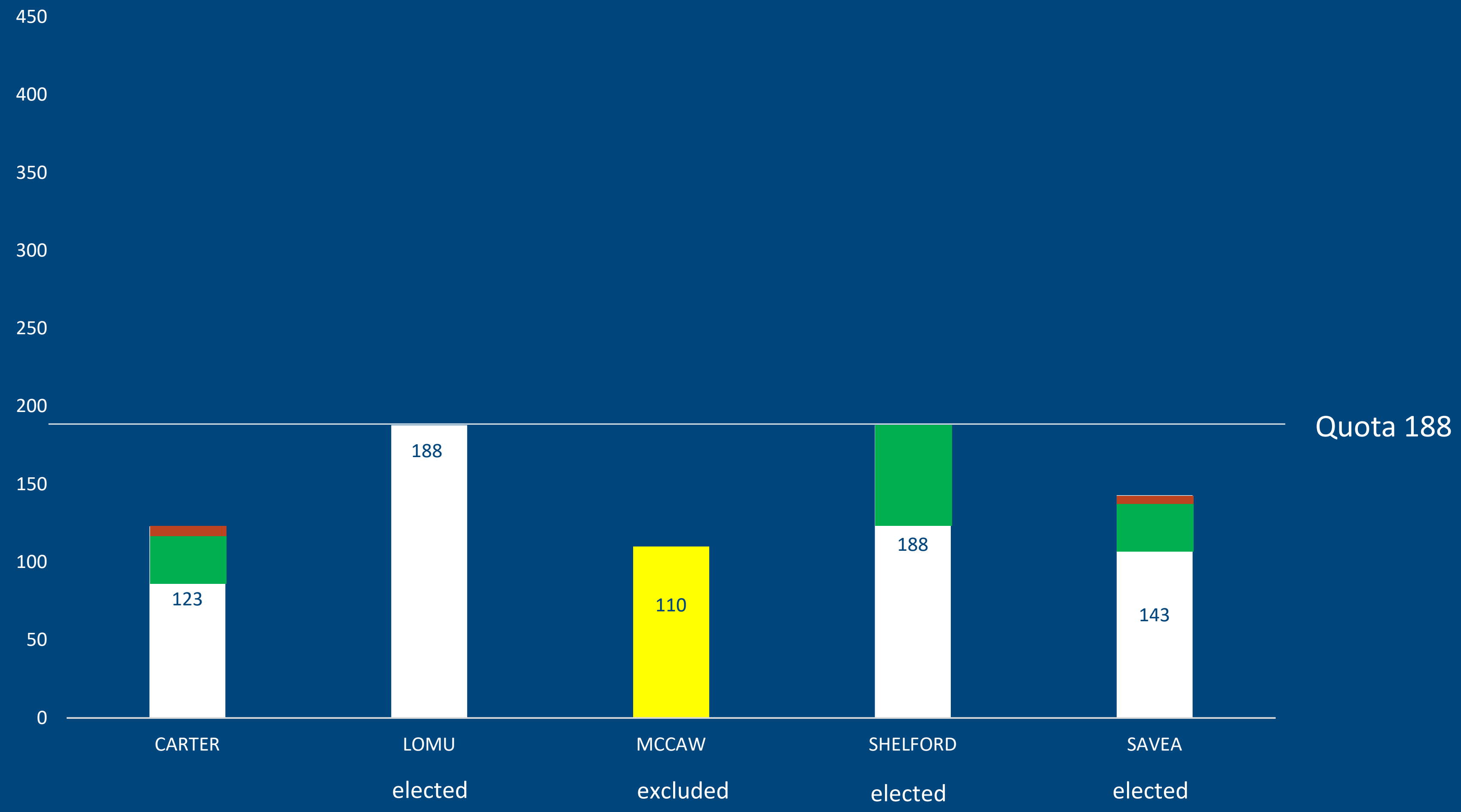


Example: multi-vacancy STV

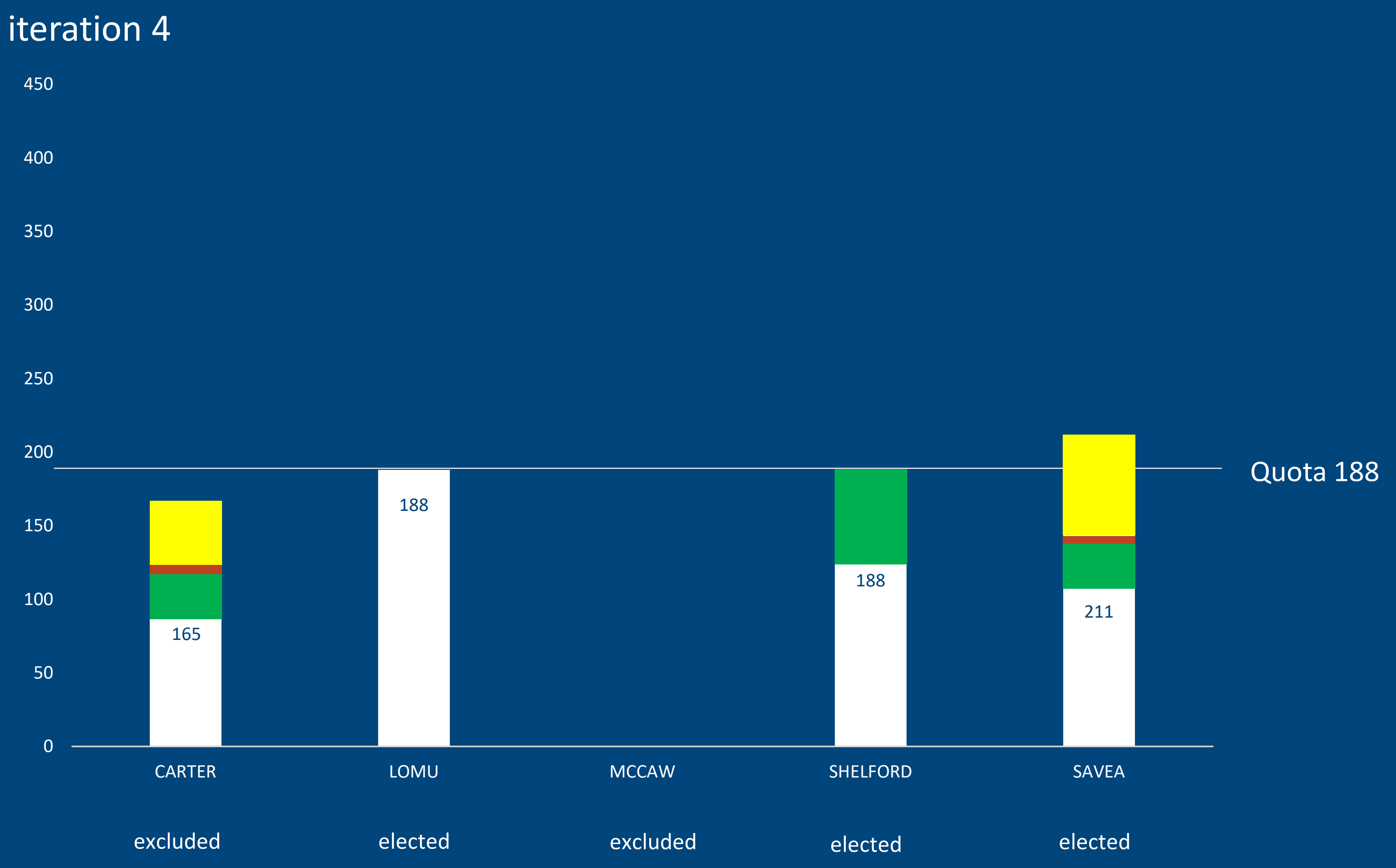


Example: multi-vacancy STV

iteration 3



Example: multi-vacancy STV



Other considerations

- NTV (non-transferable votes): votes which are to be transferred, but the voting document does not have a next-ranked candidate to transfer the vote to

$$Q = \frac{\text{No. of valid votes}}{\text{No. of vacancies to be filled} + 1} + 0.000000001$$

- valid votes = total votes minus blanks, informals and NTV
- quota is re-calculated at each iteration, and gets smaller

Other considerations

- what happens if a candidate stands for multiple positions, i.e. Mayor and Council?
  - mayor election is calculated first
  - If the successful candidate for mayor is also a candidate for Council, they are ‘withdrawn’ from the Council election
  - votes for that candidate are transferred at the first iteration

Other considerations

- STV progress results can be less likely to reflect final results than in FPP elections – as a small number of votes can have larger effects
- STV elections have a slightly higher informal rate than FPP elections

Electoral Systems in Local Government in New Zealand

Prepared for Kawerau District Council

6 September 2023

KAWERAU
DISTRICT COUNCIL
TAONGA O TE WHENUA
TREASURE OF THE LAND

www.electionservices.co.nz