

# BC-STV electoral system

## A made-in-BC electoral system

After months of studying alternative electoral systems, listening to British Columbians' views and reading formal submissions, members of the Citizens' Assembly have recommended our province adopt a new voting system—a system that is fair, easy to use and gives more power to voters.

This system, which members custom-designed to meet British Columbia's specific needs, is a variation of the Proportional Representation by the Single Transferable Vote system – abbreviated PR-STV or STV. This made-in-BC electoral system was selected over all competitors because it best addresses three over-riding values: proportionality, local representation and voter choice.

STV is used in several countries to elect various levels of government. In Ireland, where it has been used since 1922, government attempts to change the system have been steadfastly rejected by voters.

## How BC-STV works

BC-STV retains some important features of our current system:

- The number of MLAs is unchanged province-wide and for each region. All are elected by local ridings.
- The ratio of voters to MLA is the same.

However, BC-STV differs from our current, first-past-the-post system in several crucial ways:

- Fewer ridings will each elect several MLAs – between two and seven, depending on riding population.
- The voter ranks candidates on the ballot paper in the order of the voter's preference.

BC-STV is designed to make every vote count and to reflect voters' support for candidates and parties as closely as possible. It achieves this by ensuring that the share of votes for candidates and parties is reflected in the share of seats won in the Legislature. And it allows voters' second and third (and subsequent) preferences to come into play, if their first choice isn't elected.

## Designed to make votes count

BC-STV is **fair** because it is proportional. Each party's share of seats in the legislature reflects its share of voter support. This proportionality means voters' views are fairly represented.

BC-STV is **easy to use** and gives voters more choice. Voters rank candidates in the order of their preference (1, 2, 3, etc.) – picking and choosing among candidates from the same party or from several different parties, including independents. Candidates are elected based on voters' choices.

BC-STV gives more **power to voters**. Voters can select and rank candidates from any or all parties – including independents. Since voters choose which candidates from any one party are elected, no party or candidate can count on a "safe seat". So, all candidates must work hard to earn voter support. This ensures effective local representation.

### Example – STV ballot

(5 MLAs are to be elected from the riding)

**Ballot - Instructions:** Rank candidates in the order of your preference by placing a number in the box to the right of each candidate's name. "1" shows your first choice, "2" your second choice, "3" your third choice, and so on. You may rank as many candidates as you wish, from as many parties as you wish, but you must rank at least one.

<b>Independent</b>	Rempel, Anna	2
<b>Apple Party</b>	Smith, Chris	6
	Gill, Sarah	1
	Lepage, Pierre	3
<b>Pear party</b>	Wong, Arthur	5
	Lewis, Cheryl	
<b>Peach Party</b>	Chernoff, Sara	
	Jang, Paul	
	Roberts, Jean	
	Brown, Brooke	
<b>Independent</b>	Sidhu, Stan	4

## **At the polling booth**

Because voters are electing more than one MLA in a riding, the ballot could list several candidates for each party, as well as independent candidates. Voters can rank as many or as few candidates as they wish. If a voter's first-choice candidate is not elected, that voter's second or third choice candidate could be.

MLAs are elected based on voter support. After the polls close, ballots are counted according to the voters' preferences, thus ensuring the most preferred candidates are elected. Elections BC – a non-partisan office of the Legislature – would continue to supervise elections, and scrutineers would continue to ensure ballots are counted accurately.

The Assembly carefully designed BC-STV to use paper ballots which could be counted by hand or by computer. If a recount were required, election results could be accurately checked.

## **Ridings**

Under BC-STV, ridings are larger and each riding elects more than one MLA. This allows for proportional representation and gives independent candidates and those from smaller parties more chance of being elected.

The Assembly's BC-STV system would allow the size of ridings and the number of MLAs elected per riding to vary across the province to reflect local and regional conditions. In sparsely populated areas, districts could comprise as few as 2 or 3 MLAs and, in denser urban districts, as many as seven. For example, if five current ridings were combined, the new riding would elect five MLAs. In order to achieve proportionality, the Assembly favours larger ridings of 5-7 MLAs, where appropriate.

Ridings with two MLAs, such as those anticipated in sparsely populated regions of northern BC, likely would be about the same size as current federal ridings which have only one MP.

An independent electoral boundaries commission would draw the new electoral districts after holding hearings in all parts of the province and taking into account community interests.

## **Implications of BC-STV for British Columbia**

- All MLAs are elected from local ridings. Since ridings each elect more than one MLA, constituents have a choice of MLAs to approach for assistance or information.
- Election results are proportional – a party's share of legislative seats mirrors its share of the vote.
- Independents and candidates from smaller parties are more likely to be elected, resulting in more diversity in the legislature.
- Voters are given considerable choice in selecting candidates.
- Party discipline may be weakened since voters control which candidates from each party are elected.
- Candidates tend to focus on local and regional issues, as well as province-wide issues.
- Elections reflect voters' choices, so may produce majority, minority or coalition governments.

## **The choice is yours**

At the next provincial election, on May 17, 2005, voters in BC will decide on this referendum question: *Should British Columbia change to the BC-STV electoral system as recommended by the Citizens' Assembly on Electoral Reform? Yes/No*

The choice is yours. Be sure to vote!

**NOTE: For an explanation of how votes are counted under STV, see the Assembly website. The website also offers information on the Assembly process and on electoral systems.**

***Citizens' Assembly on Electoral Reform***

**[www.citizensassembly.bc.ca](http://www.citizensassembly.bc.ca)**

# BC-STV counting votes

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## BC-STV

Members of the Citizens' Assembly on Electoral Reform have recommended BC adopt BC-STV for future elections because it is a system in tune with the values of a great many British Columbians.

BC-STV is fair because it produces **proportional** results, it provides voters with more **choice** and more control, and it strengthens **local representation**. BC-STV is designed to **make every vote count**.

## BC-STV basics

- There are fewer ridings, each electing between two and seven MLAs – depending on the population of the riding. Because each riding elects a number of MLAs, over-all results are more proportional – that is, each party's share of seats in the riding reflects its share of votes.
- Generally, parties will put forward more than one candidate in each riding – giving voters more options.
- BC-STV does not change the number of MLAs province-wide or the number of MLAs representing each region.
- BC-STV ballots allow you to vote by ranking candidates (1, 2, 3, etc).
- If your vote is not needed to elect your first choice candidate, it can be transferred to the candidate you marked on the ballot as your second preference – and so on.
- BC-STV is designed to ensure vote counting can be accurately checked and replicated.
- It is also designed to use ballot papers that can be counted by hand or by machine.

## Counting the ballots

### Calculating the quota

To win a seat in the legislature, a candidate must receive a minimum number of votes – called a *quota*. This quota is calculated using the number of valid ballots cast in the riding as well as the number of MLAs to be elected in that riding.

$$\text{Quota} = \frac{\text{Number of valid ballots in riding}}{\text{Number of MLAs in riding} + 1} + 1$$

### Counting first preferences

After the polls close, all valid ballots are sorted and counted according to the first-preference candidate marked on each.

### Eliminating candidates

If no candidate has the minimum number of votes (quota) needed to be elected, the candidate with the fewest votes is eliminated.

All of the eliminated candidate's votes are then redistributed to the second-preference candidates as marked on each ballot.

### Transferring surpluses

It is rare for an elected candidate to gain exactly the quota of votes required to be elected. Successful candidates usually receive more votes than needed to win a seat. Since these *surplus* votes are not needed to elect the candidate, they could be considered wasted.

But, because BC-STV is designed to make as many votes as possible count fully and fairly, these surplus votes are redistributed. But which votes should be selected to redistribute?

To be fair and to ensure vote counting can be precisely repeated, every ballot cast for the newly elected candidate is redistributed to the next-ranked candidate marked on each ballot. But, not at full value, because a portion of each vote has already been used to elect a candidate.

The portion of each vote used to give the elected candidate a quota, stays with that candidate. The unused portion is transferred. To determine what fraction of the vote should move on to the next preference, the *transfer value* is calculated.

$$\text{Transfer Value} = \frac{\text{Candidate's surplus votes}}{\text{Candidates' total votes}}$$

So, if a winning candidate has twice as many votes as needed to be elected, instead of transferring half those votes at full value, all of the votes are transferred at half value to the candidates ranked next on each ballot. The *transfer value* in this case is .5 – or ½.

### Counting continues until all seats are filled

Counting continues as follows:

- The surpluses of elected candidates are redistributed at the appropriate transfer value;
- If there are still unfilled seats and no surpluses from elected candidates to redistribute, the least popular candidate is eliminated and those votes are redistributed at full value;
- This continues until all seats have been filled.

### Exhausted ballots

If, in the course of counting, a ballot should be transferred, but there are no more preferences indicated on the ballot, it is considered *exhausted* and is put aside.

This can happen when:

- The voter marks very few preferences, or
- All the preferred candidates have already been elected and/or excluded.

### By-elections

If a seat becomes vacant between elections, a

by-election is held in that riding to elect a new MLA. BC-STV specifies that by-elections will use the same type of ballot used in regular BC-STV elections – called a *preferential ballot*.

If only one MLA is to be elected, candidates require a majority of votes (50% + 1) to be elected. If more than one vacancy is to be filled in a district, the normal BC-STV vote counting procedures and quota calculation are used.

### Elections BC

As today, Elections BC will supervise elections and scrutineers will ensure accurate ballot counts.

### Further information

For a wealth of information on the Citizens' Assembly, BC-STV or other electoral systems, see [www.citizensassembly.bc.ca](http://www.citizensassembly.bc.ca). In particular, for more detail on BC-STV ballot counting, see:

- the technical volume of the Final Report
- an animation of BC-STV ballot counting

#### Step 1

All the votes are counted and sorted by the voters' first preferences.

#### Step 2

The minimum number of votes required to win a seat is determined. This number depends on how many valid votes are cast and how many MLA seats are available to be filled.

#### Step 3

Does any candidate have enough votes to win a seat? If no, go to Step 4. If yes, go to Step 5.

#### Step 4

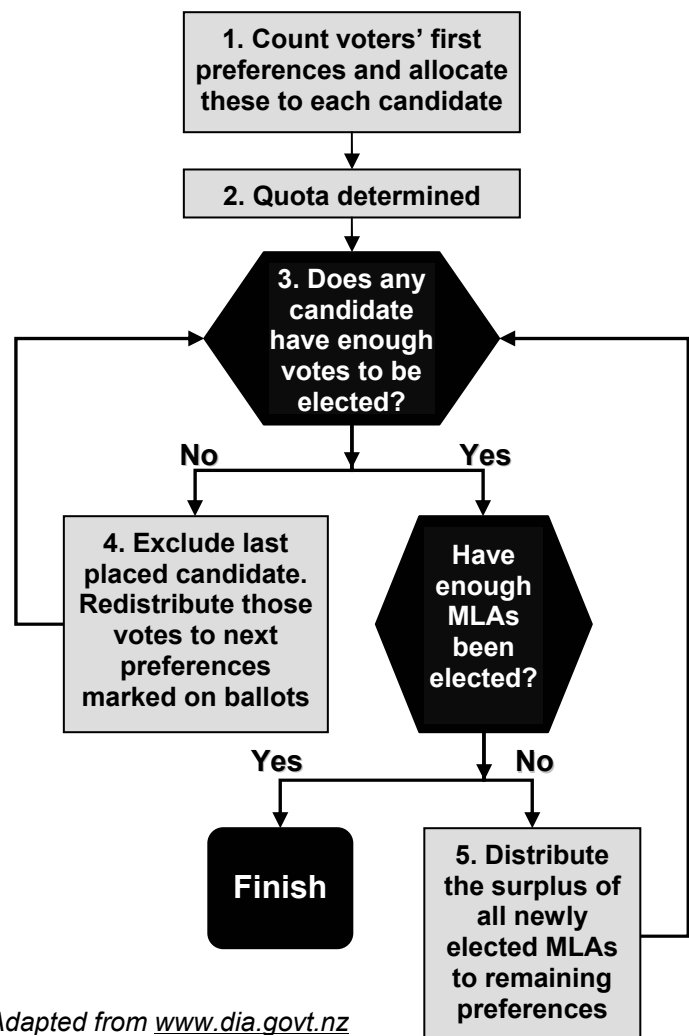
Exclude the candidate with the fewest votes. Redistribute these votes – at full value – to the next preference shown on each ballot. Add up new vote totals and return to Step 3.

#### Step 5

If the successful candidate has more votes than needed to win a seat, these *surplus* votes are redistributed to the remaining candidates – at a calculated transfer value – based on the next preference listed on each ballot. Add up new vote totals and return to Step 3.

#### Counting Continues...

Repeat Steps 3 to 5 until all seats are filled.



Adapted from [www.dia.govt.nz](http://www.dia.govt.nz)

## Counting votes under a PR-STV electoral system using a Weighted Inclusive Gregory system for transfers (3 members to be elected from the electoral district, 5 candidates, 5000 valid ballots)

<p>The quota for election is total valid votes divided by 1 + number of members to be elected, and then 1 is added to the result</p> <p>=1251 votes</p>	<p><b>1st count</b></p> <p><b>(1st preference votes)</b></p> <p><b>Freda is elected</b></p> <p><b>(surplus for transfer)</b></p>	<p>Freda has a surplus of 249 votes. All her 1500 ballots are recounted to assign an equivalent number of votes to the 2nd preferences shown on the ballots.</p> <p>800 ballots have 2nd preferences for Bill, and 700 for Saul. These ballots are turned into an appropriate number of votes (the 249 surplus) when multiplied by the transfer value (TV; see below)</p>	<p><b>2nd count</b></p> <p><b>no-one is elected</b></p> <p><b>(elimination required)</b></p>	<p>As the candidate with the fewest votes, Bill is eliminated. Bill's votes have come from 2 parcels of ballots: 750 1st preference ballots for Bill; and 800 2nd preference ballots from Freda's surplus</p> <p>All Bill's 750 1st preference ballots have a 2nd preference for Saul and are transferred at full value. The 800 ballots from Freda all show a 3rd preference for Saul and are transferred at the same transfer value as Bill received them.</p>	<p><b>3rd count</b></p> <p><b>Saul is elected</b></p> <p><b>(surplus for transfer)</b></p>	<p>Saul has a surplus of 548 votes. All his ballots are recounted and an equivalent number of votes is assigned to the next available preferences shown on the ballots.</p> <p>Saul's votes have come from four parcels of ballots: 800 first preference ballots for Saul 700 2nd preference ballots from Freda's surplus 750 from Bill's 2nd preferences 800 from Freda's 3rd preferences through Bill</p> <p>Each parcel is transferred at the same TV as they were received by Saul. Except for the 700 ballots from Freda (which favour Peter) all the other parcels of ballots give their next preference to Amy</p>	<p><b>Final count</b></p> <p><b>Amy is elected</b></p> <p><b>(Amy has the most votes of the remaining candidates)</b></p>											
	<i>votes</i>	<i>ballots</i>	<i>votes</i>	<i>votes</i>	<i>ballots</i>	<i>votes</i>	<i>ballots</i>	<i>votes</i>	<i>votes</i>	<i>ballots</i>	<i>votes</i>	<i>ballots</i>	<i>votes</i>	<i>ballots</i>	<i>votes</i>	<i>ballots</i>	<i>votes</i>	
<b>Apple Party</b>																		
Freda	<b>1,500</b>	-1,500	-249	<b>1,251</b>	-750	-750	-800	-133	<b>1,251</b>	800	244	700	35	750	228	800	40	<b>1,403</b>
Bill	750	800	133	883					890									1,095
<b>Pear Party</b>																		
Amy	890			890					1,060									<b>1,251</b>
Peter	1,060			1,060														
<b>Independent</b>																		
Saul	800	700	116	916	750	750	800	133	<b>1,799</b>	-800	-244	-700	-35	-750	-228	-800		<b>1,251</b>

Transfer value (TV) Freda's transfers = 249/1500 = 0.1660

Transfer value (TV) Bill's eliminated 1st preference votes = 1.0000

Transfer value (TV) Bill's eliminated 2nd preference votes from Freda (surplus) = 249/1500 = 0.1660

Transfer value (TV) Saul's transfers for 800 1st preference ballots = 548/1799 = 0.3046

Transfer value (TV) Saul's transfers for 700 2nd preference ballots from Freda (surplus) = (548/1799) x (249/1500) = 0.0505

Transfer value (TV) Saul's transfers for 750 2nd preference ballots from Bill (elimination) = (548/1799) = 0.3046

Transfer value (TV) Saul's transfers for 800 3rd preference ballots from Freda (surplus through Bill's elimination) = (548/1799) x (249/1500) = 0.0505