



Options for Implementing Instant Runoff Voting in Maine

Summary

- Implementing instant runoff voting in Maine is feasible. The best option may be to have voters use an optical scan ballot and tally it either at the precinct or at a central location. Among potential advantages for Maine, this option does not require hand-count towns to buy any new voting equipment.
- Instant runoff voting ensures winners of Maine's key offices have substantial support in the electorate. Experience of the system in practice in the United States and other nations suggests that voters will adapt well to the new system.

Introduction

Instant runoff voting (IRV) is a refinement of plurality and majority runoff voting methods that has received increasing attention in American cities and states in recent years. First conceived by an MIT professor in 1870, IRV (also called “preferential voting”, “the alternative vote” and “ranked choice voting”) provides every voter with one vote, but allows them to rank candidate in order of choice (first, second, third and so on, with that number potentially being limited to meet voting equipment requirements). Voters’ rankings allow election administrators to simulate a series of runoff elections to ensure that the winner has substantial voter support.

IRV comes in slightly different forms. In the version of IRV we suggest for Maine, voters' ballots count as a vote for whichever finalist candidate each voter ranked highest. The number of candidates is reduced to two through rounds of counting, initially crediting each ballot to the candidate ranked first on that ballot. In each round of counting the candidate with the least support is eliminated. Once a candidate is eliminated, ballots cast for that candidate are counted for the candidate ranked as the next choice on each ballot. To speed the count, elections officials can eliminate a group of two or more candidates whose total number of votes is less than the total received by all of the remaining candidates. Once the field is reduced to two finalists (or one when a candidate receives more than half of first choices), the candidate with the most votes is declared the winner.

Internationally, instant runoff voting has been used for decades for major national elections in Australia and Ireland, has been adopted more recently in such diverse places as Fiji, Papua New Guinea and the City of London and is under serious consideration in the United Kingdom and the Dominican Republic. A related system for multi-seat district elections called choice voting, or the single transferable vote, has also been used for decades for national elections in Australia and Ireland, and recently was adopted for all city elections in Scotland and many local elections in New Zealand. Malta has used choice for decades and has the highest voter turnout rate in the world in any nation without compulsory voting. After a full, nearly year-long review of options, a citizens assembly established by the provincial government in British Columbia recently voted overwhelmingly to recommend choice voting for provincial elections; it is now slated for a May 2005 referendum in British Columbia.



In the United States, IRV and choice voting have drawn support and some implementation over the years, but challenges with administering ranked voting systems on older voting machines kept most cities and states from considering ranked-choice systems. Cambridge (Mass.) has continuously used a ranked voting system -- choice voting for electing its city council and school committee -- for more than six decades, initially using hand counts and then converting to optical scan voting machines in 1997. With ongoing modernization of voting machines creating new opportunities to implement different voting methods, interest has grown rapidly.

Since starting to receive serious scrutiny in the late 1990s, IRV has received the support of leading presidential candidates such as Senator John McCain and Governor Howard Dean, the League of Women Voters in several states and a number of the nation's leading newspapers. It has been adopted for elections for mayor and many other city offices in San Francisco; this November marked the first of what will be annual IRV elections in the City. It also has been enacted by Utah Republicans to nominate federal candidates and party leaders at their state conventions, and considered by two dozen state legislatures. Voters approved IRV by landslide margins in all four jurisdictions where it was on the ballot in 2004: the cities of Burlington (VT), Ferndale (MI) and Berkeley (CA) and a state legislative district in western Massachusetts. Many colleges and organizations use IRV, and it is recommended by Robert Rules of Order for organizations holding mail-ballot elections

The case for IRV is straightforward. Whenever more than two candidates seek the same office, plurality voting allows the majority vote to divide itself in such a way that the first-place vote-getter can win despite most voters strongly preferring another candidate. Traditional delayed runoffs seek to prevent this violation of the principle of majority rule, but present their own problems, such as increased costs to taxpayers. IRV has the twin virtues of ensuring a winner has substantial support while not increasing the regular costs of election that come with holding a delayed runoff. IRV's history overseas and in San Francisco suggests IRV also boosts voter turnout in the decisive election and reduces personal attacks in campaigns.

Any jurisdiction considering IRV must weigh how to implement it. The latest generation of voting machines typically can implement IRV with little to no extra cost, but most machines now in place must be adapted in order to run IRV elections without a centralized count. We do not know how Maine intends to comply with the independent voting requirement for disabled voters in the Federal Help America Vote Act (HAVA). If touch screen or other new electronic voting machines are to be purchased statewide to meet these requirements, then the state simply needs to require that these new machines be ready to run IRV elections.

Acknowledging that uncertainty and based on our review of how Maine localities count ballots, we now discuss three main options for implementing IRV in Maine in declining order of cost.

- 1.) Precinct-level optical scan machines ready to run IRV elections:** Maine and its communities would adapt existing optical scan machines to record voters' rankings in IRV elections and would purchase IRV-ready voting machines for communities now counting ballots by hand. The electronic records of voters' rankings would be collected and sent to a central tabulator to determine the results for each office. HAVA funds could be used as long as the needs of people with disabilities are met.



2.) Statewide optical scan ballots for either in-precinct-level or central counting:

Maine and its communities would provide for all voters to use an optical scan ballot that would be designed to be easy and intuitive for voters to rank candidates and easy to count with a few central optical scanners or by local hand count. The ballot ideally would be uniform across the state to ease voter education, but could have differences associated with the requirements of different precinct-level optical scan equipment. Tallies of first choices would be done on the night of the election in exactly the same manner as presently, either through optical scanning or by a hand count. In races triggering an instant runoff (one where the combined vote for two or more candidates is more than the number of first choices received by any other candidate), ballots would be collected at a central location and counted by an IRV-compatible machine.

3.) Central hand-counting of all ballots for any election that requires consideration of voters' runoff choices:

Voters would vote using ballots as they do now, but with a design making it easy and intuitive for them to rank candidates rather than vote for just one. In races where voters' runoff choices need to be counted, ballots would be collected at a central location, and the IRV election would be conducted by hand as currently occurs with traditional recounts.

These options will now be discussed in more detail.

Option 1: Purchasing IRV-Compatible Machines for Entire State

Proposal: Maine and its communities would adapt current optical scan machines to be able to record voters' choices in IRV elections in each precinct and would purchase IRV-ready voting machines for localities now counting ballots by hand. The record of each voter's rankings would be collected and sent to a central tabulator to determine the results for each office.

Discussion: Used in the highly successful November 2004 IRV elections in San Francisco (see accompanying analysis), this approach involves: 1) having machines that can record each voter's ballot at the precinct level and maintain it as a separate electronic record; 2) sending those record to a central processor; and 3) conducting IRV counts when they are triggered. Optical scan machines would alert voters to any overvotes and, potentially, undervotes, and then record the data into a text script. That script would then be input to the mainframe, which would conduct all rounds of counting and produce a report. A program simple enough for most personal computers tallies scripts easily.

San Francisco and Cambridge (Mass.) both have voting machines that record voters' ranked-choice ballots at the precinct level. San Francisco runs IRV elections on ES&S's Optech Eagle system, similar to ES&S machines used in 68 Maine communities. 48 additional communities use Diebold's AccuVote optical scanner, similar to the AccuVote ES-2000 that Cambridge purchased from Diebold subsidiary LHS Associates in 1996 and has used for its ranked-choice elections since 1997. This suggests that the cost of adapting these machines should be modest. Cambridge had to pay only an additional \$40,000 for software development when it purchased IRV-ready voting equipment from LHS Associates in 1996. Costs in San Francisco were higher, but most of them involved ES&S's research, testing and certification that are now completed. Purchasing new IRV-ready optical scan equipment for Maine's communities that do



hand-counts should be no more expensive than purchasing new equipment that is not ready to run IRV elections.

Assessment:

Advantages: Fastest method of obtaining results. Ensures precinct-level error notification for voters who overvote and, potentially, voters who undervote. Tested alternative for voters, and straightforward training necessary for pollworkers.

Disadvantages: Costs associated with adapting existing optical scan voting equipment and purchasing voting equipment for Maine's remaining communities. Requires optical scan equipment in communities that may want to keep hand-count rules; optical scan ballots are generally more expensive to print. Programming costs for all municipalities (or the state) exist for every election.

Option 2: Standardized Optical Scan Ballots for Central Tabulation

Proposal: Maine and its communities would provide for all voters to use an optical scan ballot designed to be easy and intuitive for voters to rank candidates and to be easily counted by a few central optical scanners or by local hand count. The ballot ideally would be uniform across the state to ease voter education, but could have differences associated with the requirements of different precinct-level optical scan equipment. Tallies of first choices would take place at the precinct level as they are now, either through optical scanning or by a hand count. In races triggering an instant runoff (one where the combined vote for two or more candidates is more than the number of first choices received by any other candidate), ballots would be collected by the Elections Division at a central location and counted by an IRV-compatible machine.

Discussion: For this option optical ballots should be designed to be counted either by optical scanners or by hand. The only difference with current optical scan ballots is that a second, third, fourth, etc. choice option is listed by each candidate's name. (See attached example ballots.) Voters fill in circles or connect lines as usual, except they rank their preferences. First choices are counted at the town/precinct/county level and reported to the Secretary of State as usual. If an instant runoff is triggered, ballots are brought to a central location, just as they are when the state now conducts a recount. These ballots then are scanned on IRV-ready optical scanning equipment. After all data for a given race is integrated, software conducts an instant runoff as was done in San Francisco.

This proposal is similar to the first option explained above except that it would allow -- but not require -- precinct-level tallying of voters' full rankings. This option thus likely would be inexpensive for the state, with the primary costs being voter education about their new power to rank candidates in order of choice and purchasing a small number of optical scan equipment in order for the Elections Division to count IRV ballots at a central location.

According to data from the Elections Division, 402 of Maine's 518 communities use solely paper ballots, and the remaining 116 communities rely on optical scan equipment that accepts paper ballots. Those small communities that may be served well by hand-counting paper ballots



could continue that method for their races by using an easy-to-read optical scan ballot that would make it easy to count first choices by hand.

Assessment:

Advantages: Relatively fast method of obtaining final results once ballots are all collected. Provides precinct-level error notification for voters who overvote and, potentially, voters who undervote in those precincts with optical scan equipment. Minimal impact on local elected officials and minimal costs. Allows a tested ballot design for voters. Since hand-count towns do not need to acquire on any optical scanners, there are no increases in ongoing programming costs.

Disadvantages: The number of ballots needing to be transported to Augusta from around the state likely would increase. Not all voters would have the advantage of error notification. Optical scan ballots are generally more expensive to print.

Option 3: A Central Hand-Count

Proposal: Voters would vote using ballots as they do now, but with a design making it easy and intuitive for them to rank candidates rather than vote for just one. In races where voters' runoff choices need to be counted, ballots would be collected at a central location, and the IRV election would be conducted by hand as currently occurs with traditional recounts or potentially after typing the data from each ballot into a computer.

Discussion: This approach would involve virtually no change for local election officials. Ballots would need to be designed to make it easy and intuitive for them to rank candidates rather than vote for just one, but voters could still use optical scan and traditional paper ballots.

For races triggering an instant runoff, ballots likely would be brought to the Secretary of State's office. Ballot-workers would tally votes according to IRV rules. If one ballot paper has voters' rankings in more than one election triggering an instant runoff, each ballot would need to be handled separately for each instant runoff election.

A hand-count could be assumed to proceed at approximately 300 ballots per person per hour for a race with 4 or 5 candidates. This would necessitate roughly a full workweek for 40 workers to tabulate the 505,190 ballots cast in the 2002 Governor's race. The speed of the count would depend on the number of election workers hired. In Ireland's most recent IRV election for president had more than 1.2 million voters and required two rounds of counting. The hand-tally was finished in approximately nine hours.

A different counting option would require election workers to enter results from each ballot into a spreadsheet, which would then be used to supply voters' rankings to the IRV tallying software. This might be more practical if there are several races requiring IRV on a single ballot paper. Some combination of hand-entry and computer data processing done on normal computers would cost less than new equipment purchases, while potentially saving more time than a hand-count.



Assessment:

Advantages: Easy for local election officials. Hand-counts are tested around the world. Optical scan equipment already in use in 116 communities can be used without modification. No limitation on rankings required by equipment.

Disadvantages: Takes the most time of the three options. Requires training and supervision for workers running hand-counts. Labor costs associated with every race that needs an IRV tabulation.

Conclusion and Recommendation:

Our recommendation for which option is most appropriate for Maine is tied in part to what offices IRV is used for. If IRV were adopted for a range of offices, we believe the second option of using IRV-ready optical scan equipment at a central location would be the most efficient and cost-effective option. The impact on local election officials and the costs would be relatively minimal, yet results would be obtained in a relatively timely manner. However, if IRV is adopted for only certain races such as the office of Governor, only authorized for cities to try or only adopted to fill vacancies in special elections (as proposed in others states like Massachusetts), then investment in IRV-compatible equipment may be more expensive than the occasional hand-count described in the third option. Regardless, optical scan equipment already in use in 116 communities can still be used for all methods described.

Note that we believe adopting uniform statewide optical scan ballots allowing local hand-counts, but central counting when an IRV tally is triggered would provide several benefits in addition to more fair and effective elections through IRV:

- Maine’s mid-size communities would be prepared for obtaining electronic equipment as they grow and modernize.
- The Secretary of State’s office could conduct normal recounts with ballots that are easily read and counted by either electronic or manual means.
- Maine will be able to maintain the paper trail not afforded to some states that use touchscreen machines that lack a paper trail.
- All Maine communities will be able to easily transition to IRV for municipal elections, if they choose.

If you have any questions, please contact FairVote’s executive director Rob Richie (rr@fairvote.org, 301-270-4616) or IRV America program associate Steven Hoeschele (steve@fairvote.org, 301-270-4616).

Additional Topics Addressed in Remainder of Report:

- Instant Runoff Voting in Practice
- The November 2004 San Francisco Election
- Voting Equipment and IRV
- Description of Attachments with Additional Information



Facts Relating to Legislature's Directive:

Instant runoff voting in practice:

- The City of San Francisco used IRV to elect seven seats on its Board of Supervisors in November 2004 and will use it to elect at least one city office every year from now on.
- Cambridge does not use IRV, but since 1941 has used a choice voting system to elect its city council and school committee in which voters rank candidate in the same manner as they do with IRV.
- Utah Republicans use IRV to choose party officers and nominees for federal and statewide offices at its state convention.
- A rapidly growing number of universities use IRV for student government elections.
- The American Political Science Association uses IRV to elect its president.
- Many Louisiana parishes use an IRV ballot for overseas absentee voters for federal and state elections, including in this year's congressional runoff elections.
- Ireland has used IRV to elect its president its first contested election in 1945 and had used a similar transferable ballot system to elect its parliament and local offices since the nation's independence.
- Australia has used IRV to elect its House of Representatives since 1918 and uses a similar transferable ballot system to elect its senate.
- Malta, which uses the single transferable vote (STV) and non-compulsory voting, had the highest turnout rate of all nations in the 1990's (95.3%, 98.0%, and 95.9% of voting age population in three elections), according to data from the Institute for Democracy and Electoral Assistance (IDEA).
- In 2000, London first used a simplified form of "two-choice" IRV to elect its mayor; several other cities in the United Kingdom now use IRV to elect their mayors. In 1998 a prestigious commission headed by Lord Roy Jenkins recommended IRV to elect the UK's House of Commons
- Ireland's STV elections have had a lower average of spoiled ballots (0.9%) than Canada's plurality elections (1.0%) over the last 30 years, according to data from the Institute for Democracy and Electoral Assistance (IDEA). In the last four presidential races with data on valid ballots, the rate of spoiled ballots has averaged just 0.7%.

The November 2004 San Francisco election:

- San Francisco State University will soon release a study on use of IRV in San Francisco's 2004 municipal elections.
- See attached detailed report on how IRV worked this year in San Francisco
- Decisive election results in three San Francisco elections for the City's Board of Supervisors were announced on Election Night and in the four remaining Supervisor races on Friday, three days later. The results released this year on Friday typically will be released on Wednesday after the election in future IRV elections in San Francisco.



Voting equipment:

- ES&S—which makes the Model 100, OpTech Eagle, and OpTech IIP machines that are used by 68 Maine communities—has assured FairVote that all of its current systems can be relatively easily converted to accommodate IRV after its successful efforts to convert San Francisco’s existing Optech Eagle equipment.
- The Diebold Accuvote optical scanner used by 48 additional Maine communities is the same model used by Cambridge, Massachusetts for its elections employing the single transferable vote. These Maine communities should already be capable of instituting IRV with relatively modest modifications.
- In addition to ES&S and Diebold, Sequoia Pacifica has suggested that it will be able to run IRV elections soon. New DRE companies such as AccuPoll, Populex and Avante also are prepared to run IRV elections.
- Regarding federal funding for equipment upgrades, the Election Assistance Commission provides block grants for that purpose.
- While the Help America Vote Act (HAVA) has mandated error notification measures for voting equipment by 2006, a voter education process can replace the mandate, according to the Election Reform Information Project (University of Richmond).
- Maine could apply for funds through HAVA for optical scan technology, which presumably would include IRV-related technologies. Given Maine’s stated intentions to spend 30-45% of \$20 million in funds on new voting machines, the state has the opportunity to implement IRV with predominantly federal funding.

Attachments:

- “Evaluation of San Francisco’s First Ranked-Choice Voting Election” by Robert Richie, with Caleb Kleppner and Steven Hill, for FairVote in December 2004
- Turnout, Valid Votes, Overvotes and Undervotes in the November 2004 San Francisco IRV Election” by Caleb Kleppner, for FairVote, November 2004
- “Global Spread of Preferential Voting: Australian Institutional Imperialism?” by Benjamin Reilly, Australian Journal of Political Science, July 2004
- “Instant Runoff Voting: What Mexico (and Others) Could Learn”, by Rob Richie, Election Law Journal, Volume 3, Number 3, 2004
- Letter written on April 2, 2003 by Theresa Neighbor, city clerk of the Cambridge, also available at <http://www.fairvote.org/administration/cambridgeletter.htm>
- Graphics and information on how hand-counts of IRV ballots could work in San Francisco
- Examples of IRV ballot designs