

Electorate Forecasting Methodology

Purpose

1. The Commission is invited to note the assessment of the accuracy of its electorate forecast methodology from its 5th Reviews of Electoral Arrangements.

Background

2. At its meeting of 30 October 2018, the Commission discussed Paper 2457 which considered principles and methodology for Interim/ Rolling Reviews and asked the Secretariat to highlight differences between actual and forecast electoral data.
3. When undertaking electoral reviews the Commission must take into account the likely change in the number of electors in a council area over a 5 year period. During its 5th Reviews the Commission adopted the same electorate forecasting methodology it had used during its Interim Reviews of Electoral Arrangements, conducted in 2010. A similar methodology was used during the Commission's 4th Reviews of Electoral Arrangements.
4. The methodology considers projected 5-year new build and demolition data supplied by council planning teams and then adds a scaling factor based on population projections from NRS for each council area.
5. The 5th Reviews of Electoral Arrangements used electorate data from September 2013 and forecasted the electorate from the start of the reviews in 2014 to 2019. This paper compares the 5 year forecast electorate used during the 5th Reviews of Electoral Arrangements and the electorate published by National Records of Scotland (NRS) in March 2019.
6. Comparisons between forecast and actual electorate for each ward and council area are shown in Appendix A.
7. The Commission's methodology for forecasting ward electorates is at Appendix B.

Analysis by Council Area

8. The actual electorate of 30 of the 32 council areas are within 5% of forecast electorate from the 5th Reviews forecasts. The exceptions are Aberdeen City Council area and Midlothian Council area.
9. During the 5th Reviews the Aberdeen City Council area electorate forecast over-estimated an increase in electorate by 19,741. This is an overall difference of 12% between forecast and actual electorate.
10. In Midlothian Council area the electorate forecast underestimated the increase in electorate by 4,064 electors or 6%.

Analysis by Council Ward

11. The actual electorate of 341 of the 354 electoral wards areas are within 10% of forecast electorate from the 5th Reviews forecasts; 9 wards are between 11% and 20%; 1 ward is between 21% and 30%; 1 ward is between 31% and 40%; and 2 wards are between 41% and 50%.

12. In Fife Council area St Andrews ward the forecast over-estimated the electorate by 4,729 electors or a difference of 49%.
13. In Aberdeen City Council area George St/ Harbour ward the forecast over-estimated the electorate by 4,898 electors or a difference of 43%.
14. Other wards with a difference over 20% include: Aberdeen City Council area Tillydrone/ Seaton/ Old Aberdeen ward with a 36% difference; and Glasgow City Council area Anderston/ City/ Yorkhill ward with a difference of 26%.
15. There are a further nine wards with a difference of over 10% between actual and forecast electorate. Three of these wards are within Aberdeen City Council area.
16. The wards with a wide variation between actual and forecast electorate contain large student populations. Aberdeen University is located by the George St/ Harbour ward and Tillydrone/ Seaton/ Old Aberdeen ward in Aberdeen City Council area. The Fife Council St Andrews ward contains St Andrews University and the Glasgow City Council Anderston/ City/ Yorkhill ward is adjacent to Glasgow University. Introduction of Individual Electoral Registration (IER) in September 2014 where individuals are required to register themselves on the electoral register rather than the "head of the household" is known to have had a particular impact in areas with student populations.
17. Other factors impacting on changes to the electoral register include the Referendum on Scottish Independence in 2014 and the EU Referendum in 2016.
18. The table below show the total Scottish Parliament and Local Government electorate on the Electoral Register, Scotland from 2010 to 2018. The table shows a higher electorate following the Referendums held in 2014 and 2016 but a decline soon thereafter.

Scottish Parliament and Local Government electorate from 2010 to 2018							
2010	2011	2012	2014	2015	2016	2017	2018
3,940,746	3,964,070	4,016,480	4,056,195	4,092,413	4,067,442	4,100,352	4,085,592

Summary

19. It is difficult to accurately forecast electorate as so many factors can influence electoral change. However, the Commission's electorate forecast methodology has proven to be a relatively robust method of forecasting electoral change.

Recommendations

20. The Commission is invited to note the differences between actual and forecast electorate.

Secretariat
May 2019

**Comparison between number of local govt electors
on the Electoral Register and LGBCS forecast
electorate data from 5th Reviews**

Paper 2484
Appendix A

Council Area	Electoral Ward	LGBCS 5th Reviews – 5 year Forecast Electorate (2014 – 2019)	NRS Electorate – published 2019	% electorate difference
Aberdeen City		178,784	159,043	-12%
	Dyce/ Bucksburn/ Danestone	16,603	15,341	-8%
	Bridge of Don	15,985	14,804	-8%
	Kingswells/ Sheddocksley/ Summerhill	11,503	11,180	-3%
	Northfield/ Mastrick North	12,289	11,870	-4%
	Hilton/ Woodside/ Stockethill	11,666	10,983	-6%
	Tillydrone/ Seaton/ Old Aberdeen	11,915	8,781	-36%
	Midstocket/ Rosemount	11,925	10,415	-14%
	George St/ Harbour	16,300	11,402	-43%
	Lower Deeside	12,233	11,747	-4%
	Hazlehead/ Queens Cross/ Countesswells	16,004	13,877	-15%
	Airyhall/ Broomhill/ Garthdee	12,341	11,463	-8%
	Torry/ Ferryhill	15,656	14,422	-9%
	Kincorth/ Nigg/ Cove	14,364	12,758	-13%
Aberdeenshire		203,773	199,907	-2%
	Banff and District	8,869	9,029	2%
	Troup	7,876	7,694	-2%
	Fraserburgh and District	11,870	11,846	0%
	Central Buchan	10,917	10,989	1%
	Peterhead North and Rattray	12,027	11,826	-2%
	Peterhead South and Cruden	9,100	9,068	0%
	Turriff and District	10,659	10,455	-2%
	Mid Formartine	11,398	11,217	-2%
	Ellon and District	12,010	11,602	-4%
	West Garioch	8,829	8,945	1%
	Inverurie and District	11,682	11,289	-3%
	East Garioch	11,026	10,098	-9%
	Westhill and District	11,509	11,842	3%
	Huntly, Strathbogie and Howe of Alford	11,865	11,930	1%
	Aboyne, Upper Deeside and Donside	9,061	8,776	-3%
	Banchory and Mid Deeside	9,074	8,684	-4%
	North Kincardine	12,765	12,091	-6%
	Stonehaven and Lower Deeside	11,369	10,989	-3%
	Mearns	11,867	11,537	-3%
Angus		87,586	89,040	2%
	Kirriemuir and Dean	8,550	8,714	2%
	Brechin and Edzell	9,095	8,818	-3%
	Forfar and District	11,511	11,839	3%
	Monifieth and Sidlaw	12,813	13,295	4%
	Carnoustie and District	10,418	10,863	4%
	Arbroath West, Letham and Friockheim	13,373	13,615	2%
	Arbroath East and Lunan	9,898	10,101	2%

	Montrose and District	11,928	11,795	-1%
Argyll and Bute		66,585	66,725	0%
	South Kintyre	5,171	5,103	-1%
	Kintyre and the Islands	5,128	5,148	0%
	Mid Argyll	5,936	5,985	1%
	Oban South and the Isles	7,733	7,896	2%
	Oban North and Lorn	7,715	7,862	2%
	Cowal	5,680	5,734	1%
	Dunoon	5,527	5,500	0%
	Isle of Bute	4,843	4,696	-3%
	Lomond North	5,899	6,000	2%
	Helensburgh Central	6,916	7,357	6%
	Helensburgh and Lomond South	6,037	5,444	-11%
City of Edinburgh		364,433	364,813	0%
	Almond	25,197	26,055	3%
	Pentland Hills	23,298	22,869	-2%
	Drum Brae/ Gyle	17,794	18,340	3%
	Forth	22,736	23,235	2%
	Inverleith	23,704	23,461	-1%
	Corstorphine/ Murrayfield	18,619	19,122	3%
	Sighthill/ Gorgie	20,816	21,518	3%
	Colinton/ Fairmilehead	18,626	18,842	1%
	Fountainbridge/ Craiglockhart	17,341	16,611	-4%
	Morningside	23,359	22,810	-2%
	City Centre	20,823	19,036	-9%
	Leith Walk	24,178	23,544	-3%
	Leith	16,472	17,237	4%
	Craigentiny/ Duddingston	22,232	22,575	2%
	Southside/ Newington	22,861	20,937	-9%
	Liberton/ Gilmerton	25,025	25,692	3%
	Portobello/ Craigmillar	21,352	22,929	7%
Clackmannanshire		37,402	38,917	4%
	Clackmannanshire West	8,281	8,690	5%
	Clackmannanshire North	8,043	8,418	4%
	Clackmannanshire Central	5,890	6,170	5%
	Clackmannanshire South	8,515	9,039	6%
	Clackmannanshire East	6,673	6,600	-1%
Dumfries and Galloway		115,282	114,200	-1%
	Stranraer and the Rhins	11,739	11,157	-5%
	Mid Galloway and Wigtown West	10,383	10,426	0%
	Dee and Glenkens	7,855	8,042	2%
	Castle Douglas and Crocketford	7,332	7,384	1%
	Abbey	8,172	8,098	-1%
	North West Dumfries	9,828	9,884	1%
	Mid and Upper Nithsdale	8,181	7,944	-3%
	Lochar	10,528	10,692	2%

	Nith	10,465	10,040	-4%
	Annandale South	10,757	10,825	1%
	Annandale North	11,396	11,318	-1%
	Annandale East and Eskdale	8,646	8,390	-3%
Dundee City		110,398	107,377	-3%
	Strathmartine	15,077	14,903	-1%
	Lochee	14,193	14,231	0%
	West End	13,727	12,876	-7%
	Coldside	14,768	14,401	-3%
	Maryfield	12,778	11,981	-7%
	North East	11,218	11,290	1%
	East End	12,313	11,905	-3%
	The Ferry	16,324	15,790	-3%
East Ayrshire		96,016	94,226	-2%
	Annick	11,773	11,935	1%
	Kilmarnock North	9,194	9,127	-1%
	Kilmarnock West and Crosshouse	12,754	12,849	1%
	Kilmarnock East and Hurlford	12,042	12,152	1%
	Kilmarnock South	8,592	7,923	-8%
	Irvine Valley	9,771	9,661	-1%
	Ballochmyle	11,705	11,124	-5%
	Cumnock and New Cumnock	11,143	10,625	-5%
	Doon Valley	9,042	8,830	-2%
East Dunbartonshire		80,781	83,853	4%
	Milngavie	10,040	10,346	3%
	Bearsden North	10,940	11,400	4%
	Bearsden South	10,285	10,836	5%
	Bishopbriggs North and Campsie	15,278	15,249	0%
	Bishopbriggs South	11,683	12,266	5%
	Lenzie and Kirkintilloch South	11,329	11,997	6%
	Kirkintilloch East and North and Twechar	11,226	11,759	5%
East Lothian		81,166	80,710	-1%
	Musselburgh	16,185	15,762	-3%
	Preston, Seton and Gosford	13,995	14,459	3%
	Tranent, Wallyford and Macmerry	14,916	14,434	-3%
	North Berwick Coastal	10,652	10,771	1%
	Haddington and Lammermuir	14,468	14,139	-2%
	Dunbar and East Linton	10,950	11,145	2%
East Renfrewshire		69,826	71,574	2%
	Barrhead, Liboside and Uplawmoor	13,944	13,600	-3%
	Newton Mearns North and Neilston	11,711	11,870	1%
	Giffnock and Thornliebank	12,397	12,741	3%
	Clarkston, Netherlee and Williamwood	15,674	16,290	4%
	Newton Mearns South and Eaglesham	16,100	17,073	6%

Falkirk		116,616	121,812	4%
	Bo'ness and Blackness	11,526	11,944	3%
	Grangemouth	12,101	12,601	4%
	Denny and Banknock	14,694	14,749	0%
	Carse, Kinnaird and Tryst	15,596	16,412	5%
	Bonnybridge and Larbert	11,980	12,731	6%
	Falkirk North	15,195	16,343	7%
	Falkirk South	12,432	12,956	4%
	Lower Braes	11,117	11,744	5%
	Upper Braes	11,975	12,332	3%
Fife		287,849	277,323	-4%
	West Fife and Coastal Villages	12,625	12,930	2%
	Dunfermline North	12,452	11,858	-5%
	Dunfermline Central	16,134	15,635	-3%
	Dunfermline South	16,222	16,475	2%
	Rosyth	11,445	11,499	0%
	Inverkeithing and Dalgety Bay	14,182	14,190	0%
	Cowdenbeath	16,017	16,385	2%
	Lochgelly, Cardenden and Benarty	14,246	13,650	-4%
	Burntisland, Kinghorn and Western Kirkcaldy	11,871	11,399	-4%
	Kirkcaldy North	12,187	12,179	0%
	Kirkcaldy Central	11,423	11,260	-1%
	Kirkcaldy East	11,273	10,715	-5%
	Glenrothes West and Kinglassie	11,840	11,916	1%
	Glenrothes North, Leslie and Markinch	14,510	14,168	-2%
	Glenrothes Central and Thornton	12,204	11,740	-4%
	Howe of Fife and Tay Coast	11,230	11,103	-1%
	Tay Bridgehead	12,093	11,370	-6%
	St Andrews	14,455	9,726	-49%
	East Neuk and Landward	10,877	10,016	-9%
	Cupar	11,526	11,090	-4%
	Leven, Kennoway and Largo	15,011	14,647	-2%
	Buckhaven, Methil and Wemyss Villages	14,026	13,372	-5%
Glasgow City		477,202	462,147	-3%
	Linn	22,805	22,467	-2%
	Newlands/ Auldburn	17,913	18,291	2%
	Greater Pollok	23,348	24,846	6%
	Cardonald	22,544	23,104	2%
	Govan	20,496	20,111	-2%
	Pollokshields	21,622	22,027	2%
	Langside	23,373	24,277	4%
	Southside Central	20,458	19,827	-3%
	Calton	22,782	19,181	-19%
	Anderston/ City/ Yorkhill	25,151	19,940	-26%
	Hillhead	18,444	18,347	-1%
	Victoria Park	18,540	17,619	-5%
	Garscadden/ Scotstounhill	23,280	22,671	-3%
	Drumchapel/ Anniesland	21,582	21,525	0%

	Maryhill	16,262	15,301	-6%
	Canal	20,919	19,091	-10%
	Springburn/ Robroyston	21,625	19,891	-9%
	East Centre	20,434	20,319	-1%
	Shettleston	21,850	21,291	-3%
	Baillieston	17,521	18,386	5%
	North East	16,816	15,754	-7%
	Dennistoun	16,407	15,845	-4%
	Partick East/ Kelvindale	23,030	22,036	-5%
Highland		182,295	183,541	1%
	North, West and Central Sutherland	5,048	4,833	-4%
	Thurso and Northwest Caithness	9,889	10,083	2%
	Wick and East Caithness	10,399	9,815	-6%
	East Sutherland and Edderton	6,394	6,263	-2%
	Wester Ross, Strathpeffer and Lochalsh	10,439	9,895	-5%
	Cromarty Firth	9,484	9,643	2%
	Tain and Easter Ross	7,152	7,050	-1%
	Dingwall and Seaforth	9,689	10,063	4%
	Black Isle	8,059	8,503	5%
	Eilean a' Chèò	8,867	8,579	-3%
	Caol and Mallaig	7,461	7,003	-7%
	Aird and Loch Ness	9,484	9,716	2%
	Inverness West	8,080	8,178	1%
	Inverness Central	8,082	8,641	6%
	Inverness Ness-Side	7,595	8,151	7%
	Inverness Millburn	7,481	7,634	2%
	Culloden and Ardersier	8,106	8,240	2%
	Nairn and Cawdor	9,931	10,425	5%
	Inverness South	10,712	11,543	7%
	Badenoch and Strathspey	10,683	10,637	0%
	Fort William and Ardnamurchan	9,260	8,646	-7%
Inverclyde		59,403	59,747	1%
	Inverclyde East	8,260	8,434	2%
	Inverclyde East Central	7,841	7,959	1%
	Inverclyde Central	8,023	7,670	-5%
	Inverclyde North	10,528	10,187	-3%
	Inverclyde West	8,395	8,594	2%
	Inverclyde South West	8,567	9,147	6%
	Inverclyde South	7,789	7,756	0%
Midlothian		66,675	70,739	6%
	Penicuik	10,481	11,030	5%
	Bonnyrigg	12,355	13,713	10%
	Dalkeith	10,274	10,496	2%
	Midlothian West	11,847	12,278	4%
	Midlothian East	10,710	11,795	9%
	Midlothian South	11,008	11,427	4%

Moray		70,242	72,094	3%
	Speyside Glenlivet	7,283	7,275	0%
	Keith and Cullen	7,893	7,990	1%
	Buckie	7,831	7,873	1%
	Fochabers Lhanbryde	7,748	7,925	2%
	Heldon and Laich	10,384	10,534	1%
	Elgin City North	8,746	8,972	3%
	Elgin City South	8,896	9,622	8%
	Forres	11,461	11,903	4%
Na h-Eileanan Iar		21,508	21,432	0%
	Barraigh, Bhatarsaigh, Eirisgeigh agus Uibhis	2,490	2,455	-1%
	Beinn na Foghla agus Uibhist a Tuath	2,297	2,300	0%
	Na Hearadh agus Ceann a Deas nan Loch	1,885	1,834	-3%
	Sgir' Uige agus Ceann a Tuath nan Loch	2,350	2,406	2%
	Sgìre an Rubha	1,893	1,861	-2%
	Steòrnabhagh a Deas	3,029	2,890	-5%
	Steòrnabhagh a Tuath	2,918	2,959	1%
	Loch a Tuath	2,143	2,227	4%
	An Taobh Siar agus Nis	2,503	2,500	0%
North Ayrshire		107,824	106,851	-1%
	Irvine West	12,037	11,921	-1%
	Irvine East	9,551	9,907	4%
	Kilwinning	13,386	13,297	-1%
	Stevenston	9,679	9,509	-2%
	Ardrossan and Arran	9,892	9,584	-3%
	Dalry and West Kilbride	10,127	9,951	-2%
	Kilbirnie and Beith	10,654	10,501	-1%
	North Coast and Cumbræes	13,532	13,524	0%
	Saltcoats	10,028	9,842	-2%
	Irvine South	8,938	8,815	-1%
North Lanarkshire		250,420	254,097	1%
	Kilsyth	9,571	9,564	0%
	Cumbernauld North	13,619	14,472	6%
	Cumbernauld South	12,149	12,428	2%
	Cumbernauld East	13,037	12,588	-4%
	Stepps, Chryston and Muirhead	9,417	9,587	2%
	Gartcosh, Glenboig and Moodiesburn	10,164	9,554	-6%
	Coatbridge North	11,693	11,792	1%
	Airdrie North	13,824	14,573	5%
	Airdrie Central	12,048	12,398	3%
	Coatbridge West	9,563	9,917	4%
	Coatbridge South	12,072	12,621	4%
	Airdrie South	13,840	14,447	4%
	Fortissat	11,849	11,758	-1%
	Thorniewood	10,334	10,438	1%
	Bellshill	11,813	12,087	2%
	Mossend and Holytown	9,796	9,764	0%

	Motherwell West	10,302	10,512	2%
	Motherwell North	13,716	13,444	-2%
	Motherwell South East and Ravenscraig	13,847	14,496	4%
	Murdostoun	13,789	14,096	2%
	Wishaw	13,977	13,561	-3%
Orkney Islands		17,081	17,031	0%
	Kirkwall East	3,492	3,391	-3%
	Kirkwall West and Orphir	3,569	3,478	-3%
	Stromness and South Isles	2,244	2,139	-5%
	West Mainland	3,386	3,530	4%
	East Mainland, South Ronaldsay and Burray	2,582	2,695	4%
	North Isles	1,808	1,798	-1%
Perth and Kinross		116,438	114,631	-2%
	Carse of Gowrie	7,827	7,857	0%
	Strathmore	12,430	12,122	-3%
	Blairgowrie and Glens	8,993	8,630	-4%
	Highland	7,469	7,292	-2%
	Strathtay	8,965	9,108	2%
	Strathearn	8,824	8,415	-5%
	Strathallan	8,544	8,759	2%
	Kinross-shire	10,656	10,776	1%
	Almond and Earn	7,935	7,565	-5%
	Perth City South	12,737	12,907	1%
	Perth City North	9,439	8,916	-6%
	Perth City Centre	12,619	12,284	-3%
Renfrewshire		130,967	137,803	5%
	Renfrew North and Braehead	11,646	13,157	11%
	Renfrew South and Gallowhill	9,054	9,400	4%
	Paisley Northeast and Ralston	8,676	9,206	6%
	Paisley Northwest	12,466	13,245	6%
	Paisley East and Central	9,726	9,681	0%
	Paisley Southeast	9,102	9,515	4%
	Paisley Southwest	11,641	11,965	3%
	Johnstone South and Elderslie	12,453	12,989	4%
	Johnstone North, Kilbarchan, Howwood and	11,549	11,888	3%
	Houston, Crosslee and Linwood	12,123	12,220	1%
	Bishopton, Bridge of Weir and Langbank	9,580	11,201	14%
	Erskine and Inchinnan	12,951	13,336	3%
Scottish Borders		90,887	89,227	-2%
	Tweeddale West	7,691	8,014	4%
	Tweeddale East	8,342	8,440	1%
	Galashiels and District	10,546	10,760	2%
	Selkirkshire	8,157	7,557	-8%
	Leaderdale and Melrose	8,738	8,484	-3%
	Mid Berwickshire	8,642	8,332	-4%
	East Berwickshire	9,027	8,636	-5%

	Kelso and District	8,374	8,173	-2%
	Jedburgh and District	7,337	6,962	-5%
	Hawick and Denholm	7,059	7,002	-1%
	Hawick and Hermitage	6,974	6,867	-2%
Shetland Islands		18,089	17,542	-3%
	North Isles	2,305	2,165	-6%
	Shetland North	2,484	2,498	1%
	Shetland West	2,042	2,009	-2%
	Shetland Central	2,292	2,350	2%
	Shetland South	2,715	2,822	4%
	Lerwick North	2,690	2,291	-17%
	Lerwick South	3,561	3,407	-5%
South Ayrshire		89,490	89,702	0%
	Troon	12,132	12,463	3%
	Prestwick	12,085	12,301	2%
	Ayr North	13,106	12,875	-2%
	Ayr East	10,029	10,057	0%
	Ayr West	13,822	14,078	2%
	Kyle	10,215	10,183	0%
	Maybole, North Carrick and Coylton	9,359	9,010	-4%
	Girvan and South Carrick	8,742	8,735	0%
South Lanarkshire		245,124	246,997	1%
	Clydesdale West	15,348	15,070	-2%
	Clydesdale North	11,671	11,705	0%
	Clydesdale East	10,051	10,137	1%
	Clydesdale South	11,506	11,439	-1%
	Avondale and Stonehouse	12,150	13,290	9%
	East Kilbride South	12,669	12,251	-3%
	East Kilbride Central South	11,745	11,970	2%
	East Kilbride Central North	12,318	12,647	3%
	East Kilbride West	12,116	12,121	0%
	East Kilbride East	10,784	10,739	0%
	Rutherglen South	10,865	11,473	5%
	Rutherglen Central and North	11,322	11,570	2%
	Cambuslang West	11,937	11,993	0%
	Cambuslang East	11,568	11,907	3%
	Blantyre	12,260	12,469	2%
	Bothwell and Uddingston	10,374	10,348	0%
	Hamilton North and East	11,947	11,619	-3%
	Hamilton West and Earnock	14,168	13,934	-2%
	Hamilton South	15,763	15,999	1%
	Larkhall	14,562	14,316	-2%
Stirling		67,229	67,905	1%
	Trossachs and Teith	8,669	9,113	5%
	Forth and Endrick	9,650	10,391	7%
	Dunblane and Bridge of Allan	10,502	11,303	7%

	Stirling North	11,558	10,403	-11%
	Stirling West	9,203	9,621	4%
	Stirling East	8,270	8,461	2%
	Bannockburn	9,377	8,613	-9%
West Dunbartonshire		66,618	67,150	1%
	Lomond	8,890	9,007	1%
	Leven	12,898	13,545	5%
	Dumbarton	13,082	12,723	-3%
	Kilpatrick	8,789	8,851	1%
	Clydebank Central	11,511	11,632	1%
	Clydebank Waterfront	11,448	11,392	0%
West Lothian		133,914	137,436	3%
	Linlithgow	11,960	12,265	2%
	Broxburn, Uphall and Winchburgh	15,393	15,471	1%
	Livingston North	16,935	17,647	4%
	Livingston South	17,009	18,067	6%
	East Livingston and East Calder	16,041	16,382	2%
	Fauldhouse and the Breich Valley	11,906	12,077	1%
	Whitburn and Blackburn	15,022	15,655	4%
	Bathgate	16,997	17,516	3%
	Armadale and Blackridge	12,651	12,356	-2%
TOTAL		4,107,903	4,085,592	-1%

Methodology used to forecast ward electorates during Fifth Reviews of Electoral Arrangements.

Step	Description	Variable
1	Calculate local government electorate per ward, excluding attainers from electoral register.	E
2	Calculate electorate for council area by adding ward data.	EC
3	Tabulate council area dwelling count from NRS: https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/electoral-statistics We use count of dwellings rather than households (dwellings include vacant property and second homes) since the forecast change data from councils is also about dwellings rather than households.	D
4	Calculate electorate per dwelling for council area.	$N=EC/D$
5	Collate new build and demolition data from council per ward for 5 year forecast and hence change in number of dwellings per ward.	C
6	Calculate raw forecast electorate per ward	$R=E+(C*N)$
7	Calculate council area raw forecast electorate by adding ward raw forecasts.	RC
8	Tabulate current population (PC) and 5 year projected population (PP) from NRS population projections for Scottish areas https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-projections/population-projections-scotland	PC PP
9	Calculate scaling factor so that electorate change over period is consistent with NRS projected population change for period.	$S=(EC*PP)/(PC*RC)$
10	Calculate forecast ward electorates by applying scaling factor to each raw forecast ward electorate.	$F=S*R$
11	Calculate council area forecast electorate by adding forecast ward electorates.	FC

Worked example of an invented council area, with 4 wards

Step	Data	Calculation	
1	electorates Ward 1 – 10,000 Ward 2 – 10,000 Ward 3 – 10,000 Ward 4 – 10,000		E
2		Council area total = $10,000+10,000+10,000+10,000$ $=40,000$	EC
3	Dwelling count 32,000		D
4		Electorate per dwelling = $40,000/32,000$ $=1.25$	N
5	Change in dwellings per ward Ward 1 – 4,000 Ward 2 – 0 Ward 3 – 0 Ward 4 – 0		C
6		Raw forecast electorates Ward 1: $10,000 + (4,000*1.25)=15,000$ Ward 2: $10,000 + (0*1.25)=10,000$ Ward 3: $10,000 + (0*1.25)=10,000$ Ward 4: $10,000 + (0*1.25)=10,000$	R
7		Council area raw forecast electorate $15,000+10,000+10,000+10,000$ $=45,000$	RC
8	Existing population – 50,000 5 year forecast population – 55,000		PC PP
9		Scaling factor $(40,000*55,000)/(50,000*45,000)$ $=0.9778$	S
10		Forecast electorates Ward 1: $15,000*0.9778 = 14,666$ Ward 2: $10,000*0.9778 = 9,778$ Ward 3: $10,000*0.9778 = 9,778$ Ward 4: $10,000*0.9778 = 9,778$	F
11		Council area forecast electorate $14,666 + 9,778 + 9,778 + 9,778$ $=44,000$	FC