

Modelling a larger Senedd under AMS, List PR and STV ERS Cymru briefing on Senedd Reform

Introduction

With the commitment to Senedd reform from Welsh Labour, including a larger Senedd elected via a system *at least* as proportional as the current AMS system, along with the recent cooperation agreement between Welsh Labour and Plaid Cymru, ERS Cymru has undertaken some modelling work to help inform the discussion on reform of the Senedd.

Our modelling has looked at an 80-, 90- and 100-member Senedd elected under the Single Transferable Vote (STV), an 80-seat Senedd under a modified Additional Member System (AMS) system, and a 80-, 90- and 100- seat Senedd under List Proportional Representation (List PR), where we have compared two constituency options. We have only considered systems that are as proportional or more than the current AMS system, in line with the Labour-Plaid Cymru cooperation agreement. This is also the reason behind our modelling of between 80 and 100 seats.

The methodology for each of these systems is set out below, however these particular systems were chosen as they represent proportional options for the Senedd and were considered by the [Expert Panel on Assembly Electoral Reform](#). These were also the easiest systems to practically model, either under existing boundaries (as they are or by pairing) or by using existing data and YouGov polling we commissioned in May 2021. This is not an endorsement of those boundaries as our preference, but merely a reflection of what is possible to model.

We welcome the developments towards long overdue reform and hope that this modelling can be of use to you as work proceeds in this area. We are happy to provide further briefings or analysis.

Methodology

It is important to note that it is impossible to predict with complete certainty the outcome of a particular election if it had been held using a different voting system. The projections that follow are an indication of what the results of the 2021 Senedd election – conducted under AMS – may have looked like if a modified AMS system, a List PR system or STV system had been used. It is of course impossible to account for the other changes that would likely

accompany a switch to an alternative electoral system, such as changes in voter behaviour, party campaigning, or the number of parties standing candidates.

STV projections

For our STV projections, it was necessary to create new multi-member constituencies. We paired each of the current 40 First Past The Post (FPTP) Senedd constituencies into 20 multi-member STV constituencies, each with between three to six members, depending on the size of the electorate of the STV constituency and the overall number of seats in the Senedd. We produced projections for a Senedd of 80, 90 and 100 members. We created the 20 STV constituencies by pairing the current 40 FPTP constituencies for two reasons. Firstly, it mirrors the approach taken in the Expert Panel report on Assembly Reform and, secondly, because this was the most straightforward way of using the existing 2021 Senedd election results, without arbitrarily designing new boundaries. We have no firm views on the optimum specific constituency boundaries for an STV-elected Senedd at this stage.

We obtained the regional list vote count for each of the 40 FPTP Senedd constituencies, from the respective Regional Returning Officers. We regard the regional list vote as a better measure for our purposes than the FPTP constituency vote, as the regional list vote represents the proportional part of the current AMS system. Parties' votes were then added up and their vote shares calculated for each STV constituency.

Although the regional list represents the proportional part of the AMS system, it may be that some people still applied tactical considerations when voting on their regional list ballot paper at the 2021 Senedd election. For example, a voter in any of the three South Wales regions may have realised that it was highly unlikely that Labour would be in a position to pick up any of the 'regional list' MSs and therefore decided to give their regional list vote to a different party, even if their first preference was for Labour. In an attempt to somewhat mitigate this and try to get a sense of voters' genuine first preferences, we commissioned a post Senedd election YouGov poll, asking respondents which party would have been their first preference choice at the election. The fieldwork for this poll was conducted between 7 and 11 May 2021, with a sample size of 1,039 adults in Wales (16+).¹

We then used the first preference data from the YouGov poll to adjust the results in each STV constituency, in an attempt to get a slightly more accurate picture of voters' genuine first preference. We compared how people said they had actually voted in the regional list section of the Senedd election with the party they listed as their first preference in the YouGov poll, and then adjusted accordingly. For the three biggest parties (Labour, Conservatives and Plaid) these adjusted results were calculated on a regional basis, reflecting the polling data in each of the five electoral regions. For the other parties, polling

¹ The question asked by YouGov was as follows: "Please indicate how you would have voted in the Senedd (Welsh Parliament) election if you had been asked to rank the parties in your order of preference. Put 1 for your preferred party, then 2 for your second best party, then 3 for your third* choice etc. You may rank as many or as few choices as you wish. If you would not vote or do not know how you would vote, tick the boxes below." *First and second preferences sufficed for our modelling.

data from across the whole of Wales was used to adjust their results, as there were not enough voters in the poll to meaningfully apply the adjustment on a regional basis.

In order to more accurately model the allocation of seats to the STV constituencies, we also asked respondents to the YouGov poll who their second preference party at the Senedd election would have been. We then proceeded to allocate seats using the Droop quota, which means that, to win a seat, a candidate must receive a vote equivalent to the total number of votes cast divided by the number of seats to be allocated plus one. For example, in a three-seat constituency, the Droop quota is equivalent to 25%. Any party which reached the quota was allocated a seat. Seats were awarded on the basis of how many quotas of support (e.g. combinations of 25%) a party won. So, a party winning 50% of the vote in a three-member constituency was allocated two seats.

If no party achieved the quota, the party with the lowest vote share was eliminated and its vote share was redistributed to other parties using a formula based on second preference results from the YouGov poll. This process continued until all seats were allocated. In some cases when awarding the final seat, no party reached a full quota so the party with the highest remaining vote share was awarded the seat.

This modelling is of course only an approximation of the allocation of seats and transfers under STV and relies on a limited number of preferences (in a real-world STV election it is likely that a voter would rank more than two candidates/parties). But it does give an indication of how votes would transfer under STV and offers an insight into how voters' choices would be translated into seats.

Modified AMS projection

AMS combines First Past the Post and regional list seats. This is the system that is used for Senedd elections at present, with 40 FPTP seats and 20 regional list seats, with four of these 'additional' seats being allocated in each of Wales' five electoral regions - Mid & West Wales; North Wales; South Wales Central; South Wales East; South Wales West.

Our modified AMS projection is based on a Senedd of 80 members, with 40 FPTP seats and 40 regional list seats. It was not possible to model a 90 or 100 member Senedd using the current 40 constituencies without having more than 50% regional list seats and therefore only an 80 member Senedd was modelled under modified AMS. The 40 FPTP seats were allocated based on the actual results in these seats at the 2021 Senedd election.

We allocated eight regional list seats to each of the current five electoral regions. Regional list votes for each party at the 2021 Senedd election were added up across the constituencies in each region. We then performed the process that is used to allocate the regional list seats under the current AMS system but we allocated eight seats in each region, instead of four.

The eight regional list seats in each region were allocated on the basis of the D'Hondt formula, without applying a minimum vote share, or electoral threshold, required to gain a seat. The D'Hondt formula allocates a seat to the party with the most votes in each round of counting. Each time a party is allocated a seat, their original number of votes is divided by the number of seats it has won plus one. These rounds continue until all seats have been

assigned in each region. As list seats are designed to compensate for any disproportional results among the FPTP seats, any FPTP seats a party has won in a particular region are taken into account when applying the calculations. For example, if a party won seven FPTP seats in a particular region, their regional list vote total would be divided by eight before any regional list seats were allocated in that region.

List PR projections

Given limitations of modelling a Flexible List system, for this projection we followed the variant of List PR formerly used in Great Britain for elections to the European Parliament (Northern Ireland used STV for these elections).

90 seats, five regions

We used the existing five electoral regions that are used to elect the 'additional' regional list members of the Senedd under the current AMS system. In order to model a 90-seat Senedd, 18 seats were assigned to each region.

Regional list votes for each party at the 2021 Senedd election were added up across the constituencies in each region. The 18 seats in each region were then allocated on the basis of the D'Hondt formula, without applying a minimum vote share, or electoral threshold, required to gain a seat. The D'Hondt formula allocates a seat to the party with the most votes in each round of counting. Each time a party is allocated a seat, their original number of votes is divided by the number of seats it has won plus one. These rounds continue until all seats have been assigned in each region.

80, 90 and 100 seats, 20 constituencies

We paired each of the current 40 First Past The Post (FPTP) Senedd constituencies into 20 multi-member STV constituencies, each with between three to six members, depending on the size of the electorate of the new paired-constituency and the overall number of seats in the Senedd. We produced projections for a Senedd of 80, 90 and 100 members. We created the 20 paired-constituencies by pairing the current 40 FPTP constituencies for the same two reasons listed in the STV methodology above. We have no firm views on the optimum specific constituency boundaries for a List PR-elected Senedd based on 20 constituencies at this stage.

Regional list votes for each party at the 2021 Senedd election were added up across the paired-constituencies. Seats were allocated in each paired-constituency (between three and six) using the D'Hondt formula as for the regional list PR above.

Results

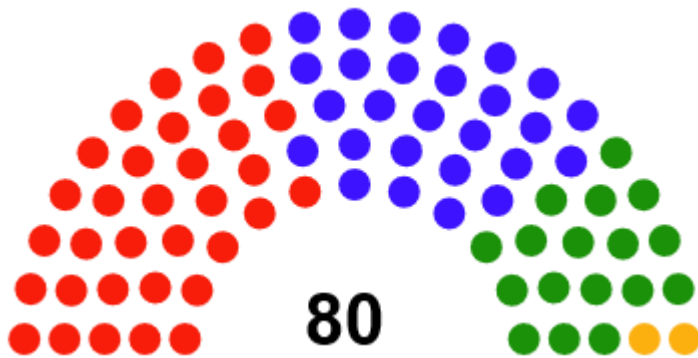
Using the above methodology we have modelled the results of an 80-, 90- and 100-seat Senedd elected under STV as well as an 80-seat Senedd elected under AMS (40 constituency and 40 regional list seats) and a 90-seat Senedd elected using a List PR system under the five existing electoral regions and an 80-, 90- and 100- seat Senedd under

List PR on 20 constituencies based on pairing the current 40. The full results with constituencies and workings are available in the accompanying spreadsheet to this briefing.

STV projections

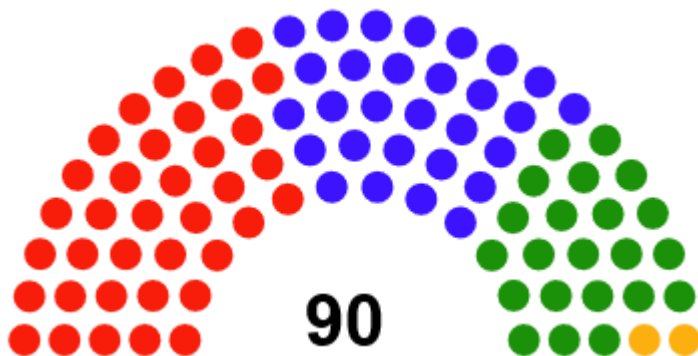
80 member Senedd

Party	Lab	Con	Plaid Cymru	LD	Total Seats
Total seats under STV modelling	34	27	17	2	80
Percentage of seats under STV modelling	42.5%	33.8%	21.3%	2.5%	100.0%



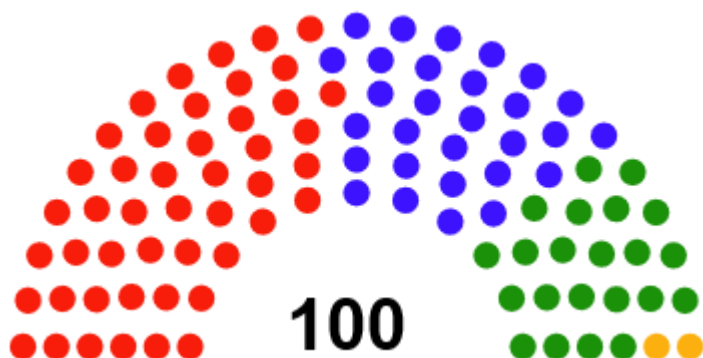
90 member Senedd

Party	Lab	Con	Plaid Cymru	LD	Total Seats
Total seats under STV modelling	37	29	22	2	90
Percentage of seats under STV modelling	41.1%	32.2%	24.4%	2.2%	100.0%



100 member Senedd

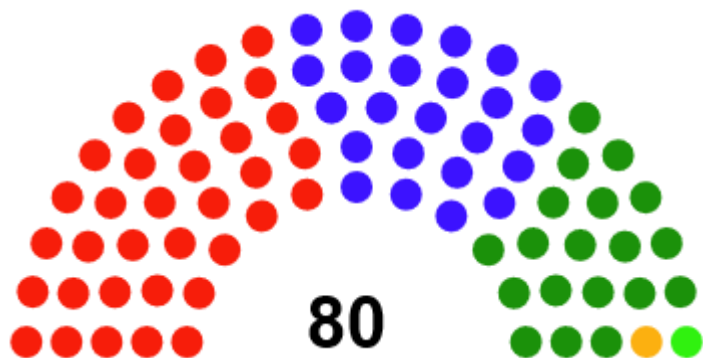
Party	Lab	Con	Plaid Cymru	LD	Total Seats
Total seats under STV modelling	47	29	22	2	100
Percentage of seats under STV modelling	47.0%	29.0%	22.0%	2.0%	100.0%



AMS projections

80 member Senedd

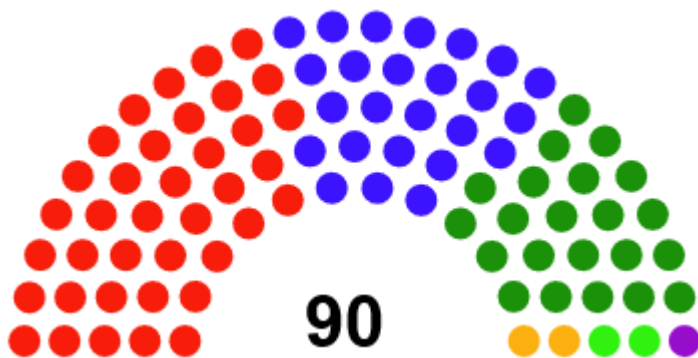
Party	Lab	Con	Plaid Cymru	LD	Green Party	Total Seats
Total seats under AMS modelling	35	24	19	1	1	80
Proportion of seats under AMS modelling	43.8%	30.0%	23.8%	1.3%	1.3%	100.0%



List PR projections

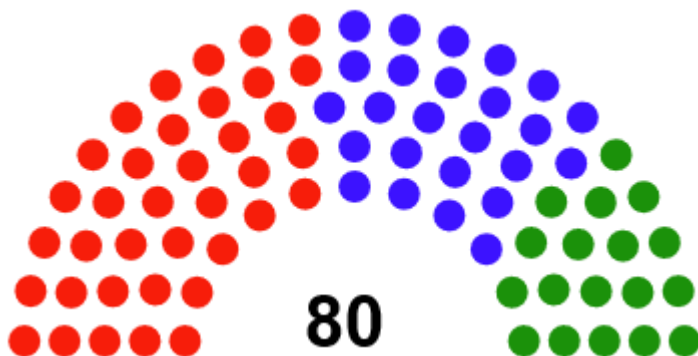
90 member Senedd under existing five regions

Party	Lab	Con	Plaid Cymru	LD	Green Party	AWAP	Total Seats
Total seats under list PR modelling	38	25	22	2	2	1	90
Proportion of seats under list PR modelling	42.2%	27.8%	24.4%	2.2%	2.2%	1.1%	100.0%



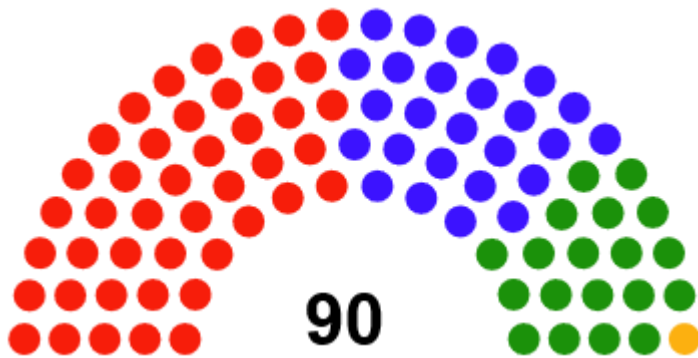
80 member Senedd based on 20 paired constituencies

Party	Lab	Con	Plaid Cymru	Total Seats
Total seats under List PR modelling	37	25	18	80
Percentage of seats under List PR modelling	46.3%	31.3%	22.5%	100.0%



90 member Senedd based on 20 paired-constituencies

Party	Lab	Con	Plaid Cymru	LD	Total Seats
Total seats under List PR modelling	44	26	19	1	90
Percentage of seats under List PR modelling	48.9%	28.9%	21.1%	1.1%	100.0%



100 member Senedd based on 20 paired-constituencies

Party	Lab	Con	Plaid Cymru	LD	Total Seats
Total seats under List PR modelling	50	29	20	1	100
Percentage of seats under List PR modelling	50.0%	29.0%	20.0%	1.0%	100.0%

