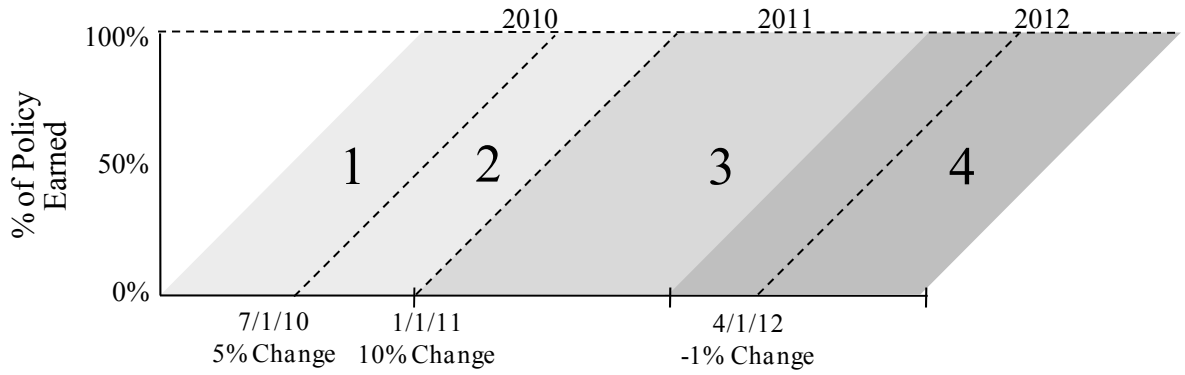
Standard Policy Year Calculations for Annual Policies

If the actuary is performing a policy year analysis, parallelograms are used instead of squares. The lines representing the rate changes are still diagonal. The following picture shows the policy year adjustment assuming the same rate changes and an annual policy term:

5.21 Rate Changes assuming PY EP with Annual Policies



As Policy Year 2011 has one rate level applied to the whole year, it is more helpful to show an example for Policy Year 2012, which has two rate level groups. The area of each parallelogram is base x height. For example, area 3 in Policy Year 2012 has a base of 3 months (or 0.25 of a year) and the height is 12 months (or 1.00 year). The relevant areas (Step 2) for Policy Year 2012 are as follows:

- Area 3 in PY 2012: 0.25 = 0.25 x 1.00
- Area 4 in PY 2012: 0.75 = 0.75 x 1.00

The cumulative rate level indices (Step 3) are the same as those used in the calendar year example.

The average rate level index (Step 4) for Policy Year 2012 is:

$$1.1464 = 1.1550 \times 0.25 + 1.1435 \times 0.75.$$

The following is the on-level factor (Step 5) to adjust Policy Year 2012 earned premium to current rate level:

$$0.9975 = \frac{1.1435}{1.1464}.$$

Rate Changes Mandated by Law

The previous example considers standard rate changes whereby the effective date of the rate change applies to policies effective on or after that date. In some cases, rate changes are in response to law changes that may mandate the rate change be applied to all policies on or after a specific date, even those that are currently in-force. In that special case, the rate level change is represented as a vertical line rather