Committed use discount recommender

The committed use discount (CUD) (/docs/cuds) recommender helps you optimize the resource costs of the projects in your Cloud Billing account. Its recommendations are generated automatically based on historical usage metrics gathered by Cloud Billing. You can use these recommendations to purchase additional commitments and further optimize your Google Cloud costs.

Recommendations are available for both spend-based (/docs/cuds-spend-based) and resource-based (/docs/cuds#resource_based_commitments) commitments, for Cloud Billing accounts billed in US dollars (USD).

For more information about the Recommender service, see the Recommender overview (/recommender/docs/overview).

Warning:

Before applying recommendations in the console or using the API, ensure that impacts are assessed by a reviewer. The reviewer should have the knowledge to assess impacts identified in recommendations, as well as impacts specific to your infrastructure and business. Applying recommendations without proper assessment could result in unexpected changes, such as issues with system performance, poor reliability, or loss of required permissions. If you choose to apply recommendations without human review, ensure that you have set up a rollback process before making any changes.

Understanding commitment recommendations

Committed use discount recommendations let you identify spending and usage patterns in your Google Cloud projects. Your spending patterns generate recommendations for spend-based (/docs/cuds-spend-based) commitments, and your usage patterns generate recommendations for resource-based (/docs/cuds#resource_based_commitments) commitments. Purchasing the recommended commitments helps you optimize your Google Cloud costs.

Recommendations for committed use discounts are generated by two separate algorithms:

- *Stable usage recommendations* cover minimum stable spending or usage over time.

- *Optimal recommendations* are based on overall spending or usage and might cover resources that are not active all the time.

Stable usage recommendations

Stable usage recommendations take into account the minimum stable spending or usage for your account over the last 30 days. If your projects show a trend of uncommitted usage during that period, the recommender classifies this as an opportunity to purchase committed use discounts to reduce your costs.

Optimal recommendations

Optimal recommendations take into account overall historical usage, up to the most recent 30 days, including times when you exceeded the minimal stable spending or usage. These recommendations help you maximize savings associated with projects that experience periodic increases that aren't included in the stable usage calculations. When your spending or usage fluctuates over time, purchasing commitments at minimal stable usage might not give you the most cost savings. Optimal recommendations account for fluctuations in your usage and provide further cost savings.

In some use cases, it makes sense to purchase committed use discounts when the resource utilization or spending is lower than 100 percent. Providing recommendations in these scenarios enables you to lower your costs even more over 1-year or 3-year commitments.

Example

This example describes a customer's usage pattern of Compute Engine CPUs, with resource-based committed use discounts. The customer has a minimum stable usage of 200 CPUs, however, most of the usage during the period is at 300 CPUs.
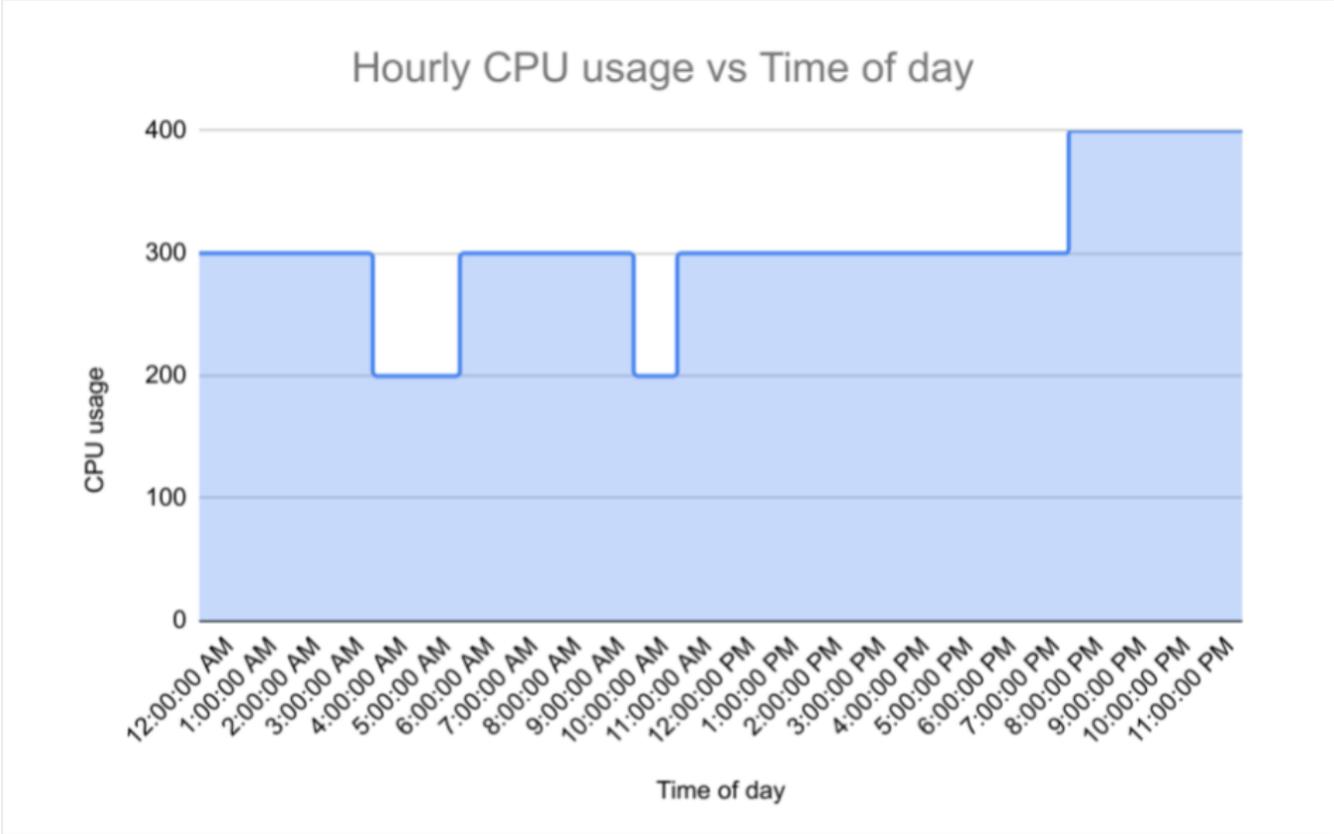
The following table reflects a 50% discount for the CPU price (regularly priced at $0.01/h for simplicity of the calculations here), covered by commitment (committed usage), and the difference in the total CPU cost from the previous chart. By purchasing the optimal recommendations (optimally committed at 300 CPUs), the customer saves an additional $9 for the period.

	Cost of commitment fee	Cost of uncommitted usage	Total cost

No commitments	$0	200 CPU * (24 h * $0.01/h) + 100 CPU * (21h * $0.01/h) + 100 CPU * (4h * $0.01/h)	$73
Stable usage (200 CPUs)	200 CPU * $0.01/h * 24h * 0.5	100 CPU * (21h * $0.01/h) + 100 CPU * (4h * $0.01/h)	$49
Optimally committed (300 CPUs)	300 CPU * $0.01/h * 24h * 0.5	100 CPU * (4h * $0.01/h)	**$40**
Fully committed (400 CPUs)	400 CPU * $0.01/h * 24h * 0.5	$0	$48

With optimal recommendations, you can maximize the savings amount offered by commitments. You commit to spend the additional amount while the price of the commitment is lower than the list price of that particular usage.

In the previous example, with a 50% discount, the commitment that covers the usage of 300 CPUs would cost $36 (300 CPUs * $0.01/hour * 24h * 0.5) and still reduce your total cost for the period, even though there were 3 hours in the period with lower usage (200 CPUs). This occurs because the customer committed to use the additional 100 CPUs at a reduced price, which was cheaper than paying for the actual usage of 21h at the list price of $0.01/hour.

Optimal recommendations calculate your break-even point in order to suggest the optimal commitment for you to purchase. The break-even point is when the price of a resource with the committed use discount applied is equal to the price without a commitment.

Note that *optimal recommendations* are derived from historical usage, up to the most recent 30 days. The recommendations are the most accurate for usage patterns that remain consistent over that time frame and into the future. If your usage pattern varies significantly from month to month, you might not receive maximum savings.

Permissions

Admin roles and viewer roles include the required permissions to view and update recommendations. If you are using custom roles, you must update the custom role to include the following individual permissions.

Required permissions to view

To view *spend-based* committed use discount recommendations:

- `recommender.spendBasedCommitmentRecommendations.get`

- `recommender.spendBasedCommitmentRecommendations.list`

- `recommender.spendBasedCommitmentInsights.get`

- `recommender.spendBasedCommitmentInsights.list`

To view *resource-based* committed use discount recommendations:

- `recommender.usageCommitmentRecommendations.get`

- `recommender.commitmentUtilizationInsights.get`

- `recommender.usageCommitmentRecommendations.list`

- `recommender.commitmentUtilizationInsights.list`

Required permissions to modify

To modify *spend-based* committed use discount recommendations:

- `recommender.spendBasedCommitmentRecommendations.update`

- `recommender.spendBasedCommitmentInsights.update`

To modify *resource-based* committed use discount recommendations:

- `recommender.usageCommitmentRecommendations.update`

- `recommender.commitmentUtilizationInsights.update`

Note: Granting your users these permissions might give them a partial view of the resource for which the recommendation is generated. For more information, see the Recommender Overview (/recommender/docs/overview).

Granting permissions

Assign the following roles for spend-based commitments and resource-based commitments where your Cloud Billing account is opted in for discount sharing
(/compute/docs/instances/signing-up-committed-use-discounts#turning_on_committed_use_discount_sharing):

- To view recommendations only, assign the **Billing Account Viewer** (`roles/billing.viewer`) role.

- To view and modify recommendations, assign the **Billing Account Administrator** (`roles/billing.admin`) role.

If you have *not* opted in for discount sharing
(/compute/docs/instances/signing-up-committed-use-discounts#turning_on_committed_use_discount_sharing) for resource-based commitments, you need to assign different IAM roles. They must be assigned for each project in your Cloud Billing account that has purchased committed use discounts:

- To view recommendations only, assign the **Viewer** (`roles/viewer`) role to the projects.

- To view and modify recommendations, assign the **Owner** (`roles/owner`) or **Editor** (`roles/editor`) role to the projects.

Learn how to assign these roles (/billing/docs/how-to/billing-access#update-cloud-billing-permissions)

Note: To change the IAM policy for a project, you must be granted a role that includes the `resourcemanager.projects.setIamPolicy` permission. For more details about IAM permissions, see IAM overview (/iam/docs/overview).

Viewing recommendations

There are different ways to view your committed use discount recommendations.

You can view all of your commitment recommendations in the Cost Recommendations dashboard, located in the Recommendations Hub (/recommender/docs/recommendation-hub/identify-configuration-problems) in the Google Cloud console. The recommendations include new commitments for regions in which you don't currently have any, as well as additional commitments for regions where you have already purchased some.

To view only the additional recommendations in regions with existing commitments, navigate to the Commitments or Commitment Analysis reports in the Google Cloud console.

To view the details of an individual commitment recommendation, access its recommendation summary card from the Cost Recommendations dashboard, Commitments dashboard, or the Commitment Analysis report. The card includes both *stable usage* and *optimal* commitment recommendations. Toggle between the two options to see the differences and savings associated with each.

To view the committed use discount recommendations for your Cloud Billing account, do one of the following:

To view	Instructions
To view *all recommendations* in the Recommendations Hub.	1. Sign in to the Google Cloud console (https://console.cloud.google.com/). 2. To view the Recommendations Hub, from the console home page, select the **Recommendations** tab. You can also navigate to the Recommendations Hub from anywhere in the console by opening the **Navigation menu** ≡, then selecting **Home > Recommendations**. 3. To view the Cost Recommendations dashboard, in the **Save with Committed Use Discounts** section, click **View all**. 4. To view the summary card for a recommendation, select the row of the recommendation to view, then click the estimated savings in the **Est. savings** column.
To view a list of *additional recommendations* for existing commitments in the commitments dashboard.	1. Sign in to your Cloud Billing account in the Google Cloud console (https://console.cloud.google.com/billing/overview). 2. At the prompt, **choose the Cloud Billing account** for which you'd like to view your existing commitments. The Cloud Billing Overview page opens for the selected billing account. 3. From the **Billing** navigation menu, select **Commitments**. 4. To view the summary card for a recommendation from the **Commitment type** list, in the **Recommendations** column, click the estimated savings for the commitment. For example,

SAVE $97.10/MO.

To view an individual analysis of each existing commitment that includes *additional recommendations*.

1. Sign in to your Cloud Billing account in the Google Cloud console (https://console.cloud.google.com/billing/overview).

2. At the prompt, **choose the Cloud Billing account** for which you'd like to view the Commitment Analysis report. The Cloud Billing Overview page opens for the selected billing account.

3. From the **Billing** navigation menu, select **Commitment analysis**.

4. To view the detailed analysis for a *spend-based* commitment from the **Commitment type** list, select the commitment. By default, only spend-based recommendations are visible in the **Commitment type** list.

   To view the detailed analysis for a *resource-based* commitment from the **Commitment type** list, select **Resource-based commitments**, which will populate the list with your resource-based commitments. Then from the re-populated **Commitment type** list, select the resource-based commitment.

5. Click **View details** in the recommendation banner to view the summary card for the recommendation.

   You can also navigate to the Recommendations Hub from the Commitment analysis page by clicking **Recommendations**.

⚠ The behavior is different when accessing recommendations for *resource-based* commitments from the commitment analysis page than it is for *spend-based* commitments.

Clicking **View recommendations** takes you to the Cost recommendations report, within the Recommendations Hub. To view the summary card for a resource-based recommendation from the Cost recommendations report, select the row of the recommendation to view, then click the estimated savings in the **Est. savings** column.

Understanding recommendation summary cards

The following are examples of a recommendation summary card and an associated chart that explains how the recommendation is derived.

This summary card represents recommendations for a *resource-based* commitment with **maximize savings** selected.

Save $74.73/month by purchasing a commitment

Feedback?

Refreshed: Jan 20, 2021, 12:00:00 AM

I want this commitment to ...
- ● Maximize savings
- ○ Cover minimum stable usage

Recommended commitment

Duration	○ 1-year ● 3-year
Scope	Billing account: 012EAD-EC9CF8-7999A3
Region	us-central1
Type	General-purpose N1
vCPUs	15 vCPU

Estimated savings

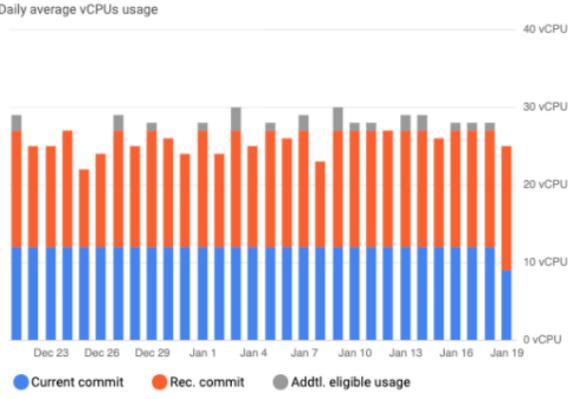Based on your Compute Engine usage from Dec 21, 2020 to Jan 20, 2021

Est. 3-year savings

$2,727.52

Estimated 30-day savings	$74.73
Last 30 days spend	$612.50

us-central1 Compute Engine
Daily average vCPUs usage

CONTINUE TO PURCHASE   DISMISS   CANCEL

The following represents recommendations for the same *resource-based* commitment as the previous summary card, with **cover minimum stable usage** selected.

Save $74.73/month by purchasing a commitment

Feedback?

Refreshed: Jan 20, 2021, 12:00:00 AM

I want this commitment to ...
- ○ Maximize savings
- ● Cover minimum stable usage

Recommended commitment

Duration	○ 1-year ● 3-year
Scope	Billing account: 012EAD-EC9CF8-7999A3
Region	us-central1
Type	General-purpose N1
vCPUs	10 vCPU

Estimated savings

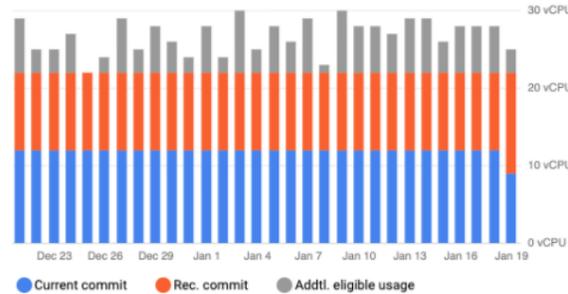Based on your Compute Engine usage from Dec 21, 2020 to Jan 20, 2021

Est. 3-year savings

$2,076.83

Estimated 30-day savings	$56.90
Last 30 days spend	$612.50

us-central1 Compute Engine
Daily average vCPUs usage

CONTINUE TO PURCHASE   DISMISS   CANCEL

This summary card represents recommendations for a *spend-based* commitment with **maximize savings** selected.

Save $22.46/month by purchasing a commitment   Feedback?

Refreshed: Oct 3, 2021, 12:00:00 AM

I want this commitment to ...   **Cloud SQL Database VM**
  ◉ Maximize savings ←   Hourly average on-demand cost
  ○ Cover minimum stable usage

Recommended commitment

Duration	○ 1-year ◉ 3-year
Scope	Billing account: 016676-F7EDE9-45E9C2
Region	europe-west1
Type	Cloud SQL Database VM
Commitment	$0.06/hr

Estimated savings

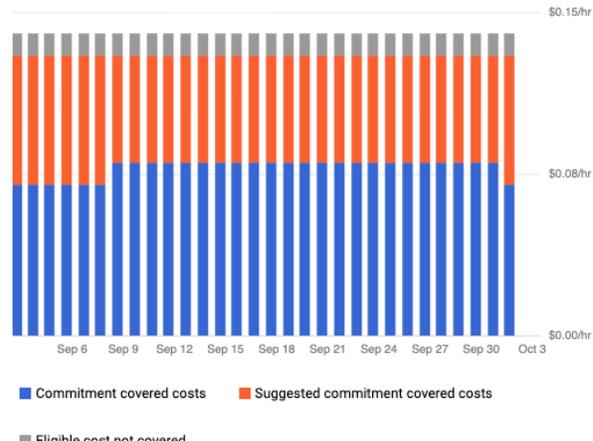Based on your usage from Sep 3, 2021 to Oct 3, 2021

Est. 3-year savings

$820.70

Hourly commitment cost	$0.03
52% off on-demand price	
30 day commitment cost	$20.74
Estimated 30-day savings	$22.46

[APPLY]   DISMISS   CANCEL

■ Commitment covered costs   ■ Suggested commitment covered costs

■ Eligible cost not covered

The summary card displays the following:

- **I want this commitment to ...** - Lets you toggle the recommendations between *maximize savings* and *cover minimum stable costs* to view the difference in recommended commitment purchases and the associated savings.

- **Recommended commitment** - Contains the scope (either project or billing account), the region, the commitment type, and the size of the recommended commitment.

- **Estimated savings** - Highlights the impact of the recommendation. This is the estimated savings over the entire length of the commitment contract (toggle between 1 or 3 years to see the savings of each). This estimates how much you can save in the next 30 days based on your last 30 days spend.

The stacked bar chart displays the following:

- Daily average quantities of **commitment-covered usage** (lower part of the bar, blue-colored section).

- Additional **usage that would have been covered by the recommended commitment** (middle part of the bar, orange-colored section).

- Usage not covered by historical or recommended commitments (top part of the bar, grey-colored section).

Purchasing recommendations

Recommendations for spend-based and resource-based commitments are purchased by accepting them from the summary card. To access the recommendations summary cards, see underlying recommendations (#viewing-recommendations).

When viewing the recommendations summary card for *spend-based* commitments, select **Apply** to purchase them.

When viewing the recommendations summary card for *resource-based* commitments, select **Continue to purchase** to complete your purchase.

Reviewing and accepting recommendations

While viewing your commitment recommendations (#viewing-recommendations), access the summary card (#understanding-summary-cards) for the recommendation you'd like to accept and proceed as follows:

1. Toggle between **Maximize savings** and **Cover minimum stable usage** to see your estimated savings for each option.

2. Toggle between **1-year** and **3-year** to see your savings for each term.

3. To begin the purchase process for the commitment recommendation:

   - For *spend-based* commitment recommendations, click **Apply** at the bottom of the card to proceed.

   - For *resource-based* commitment recommendations, click **Continue to purchase** at the bottom of the card to proceed.

4. To complete the purchase process, review the pre-populated fields in the Purchase Commitment form for accuracy and then click **Purchase**.

Dismissing recommendations

To no longer see a particular recommendation, you can **dismiss** it. This prevents it from surfacing in the Cost Recommendations dashboard, Commitments dashboard, or Commitment Analysis reports.

To dismiss recommendations in the Cost Recommendations report, select the recommendation in the list and click **Dismiss**.

To dismiss a recommendation while viewing its summary card, select **Dismiss** at the bottom of the card.

Restoring dismissed recommendations

You can restore dismissed recommendations in your Recommendation Hub 🕐 **History**.

1. View the history of your recommendations (#recommendations-history).

2. To view commitment recommendations that have been dismissed, click the **Dismissed** tab.

3. Select the commitment recommendation to be restored, then click **Restore**.

Viewing history of recommendations

To view the history of commitment recommendations applied and dismissed, do the following:

1. From the console **Navigation menu** ≡ , select **Home > Recommendations** or the **Recommendations** tab from the console home page.

2. Click 🕐 **History**.

   - To view commitment recommendations that have been applied to your account, click the **Applied** tab.

   - To view commitment recommendations that have been dismissed, click the **Dismissed** tab.

Related topics

- <u>Learn more about committed use discounts</u> (/docs/cuds)

- <u>Analyze the effectiveness of your committed use discounts</u> (/billing/docs/how-to/cud-analysis)

- <u>View the credits you are receiving in reports</u> (/billing/docs/how-to/reports#credits)

- <u>Understand your savings with cost breakdown reports</u> (/billing/docs/how-to/cost-breakdown)