

# Site Performance Analysis Report

This report presents a comprehensive analysis of Revenue performance across different site regions, layouts, and vendors, to identify practically meaningful differences.



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# Key Regional Performance Differences

Our analysis identified several statistically significant differences in performance across regions, with the Coast region showing consistently lower performance compared to other regions.



## Coast vs Lower Central

The largest regional difference was between Coast and Lower Central with a mean difference of 97,124.01 ( $P=0.0002$ ), representing a 24.39% relative difference and a large effect size of 0.586.



## Coast vs Upper Central Rift

Coast also performed significantly lower than Upper Central Rift with a mean difference of 92,153.15 ( $P=0.0041$ ), representing a 23.44% relative difference and an effect size of 0.542.



## Coast vs Upper Western

Another notable difference was between Coast and Upper Western with a mean difference of 81,230.8 ( $P=0.0089$ ), representing a 21.25% relative difference and an effect size of 0.498.

These findings suggest that the Coast region (mean: 301,074.4) consistently underperforms compared to central and western regions, with differences that are both statistically significant and practically meaningful.

# Additional Regional Insights

## CBD Performance

The CBD region (mean: 314,068.4) showed significantly lower performance compared to Lower Central (mean: 398,198.4) with a mean difference of 84,129.98 ( $P=0.0027$ ) and an effect size of 0.463.

CBD also underperformed compared to Upper Central Rift (mean: 393,227.5) with a mean difference of 79,159.13 ( $P=0.0303$ ) and an effect size of 0.426.

## Eastern Region

The Eastern region (mean: 321,881.9) showed significantly lower performance compared to Lower Central with a mean difference of 76,316.51 ( $P=0.0425$ ) and an effect size of 0.448.

While not statistically significant, Eastern also showed a notable difference compared to Upper Central Rift with an effect size of 0.409.

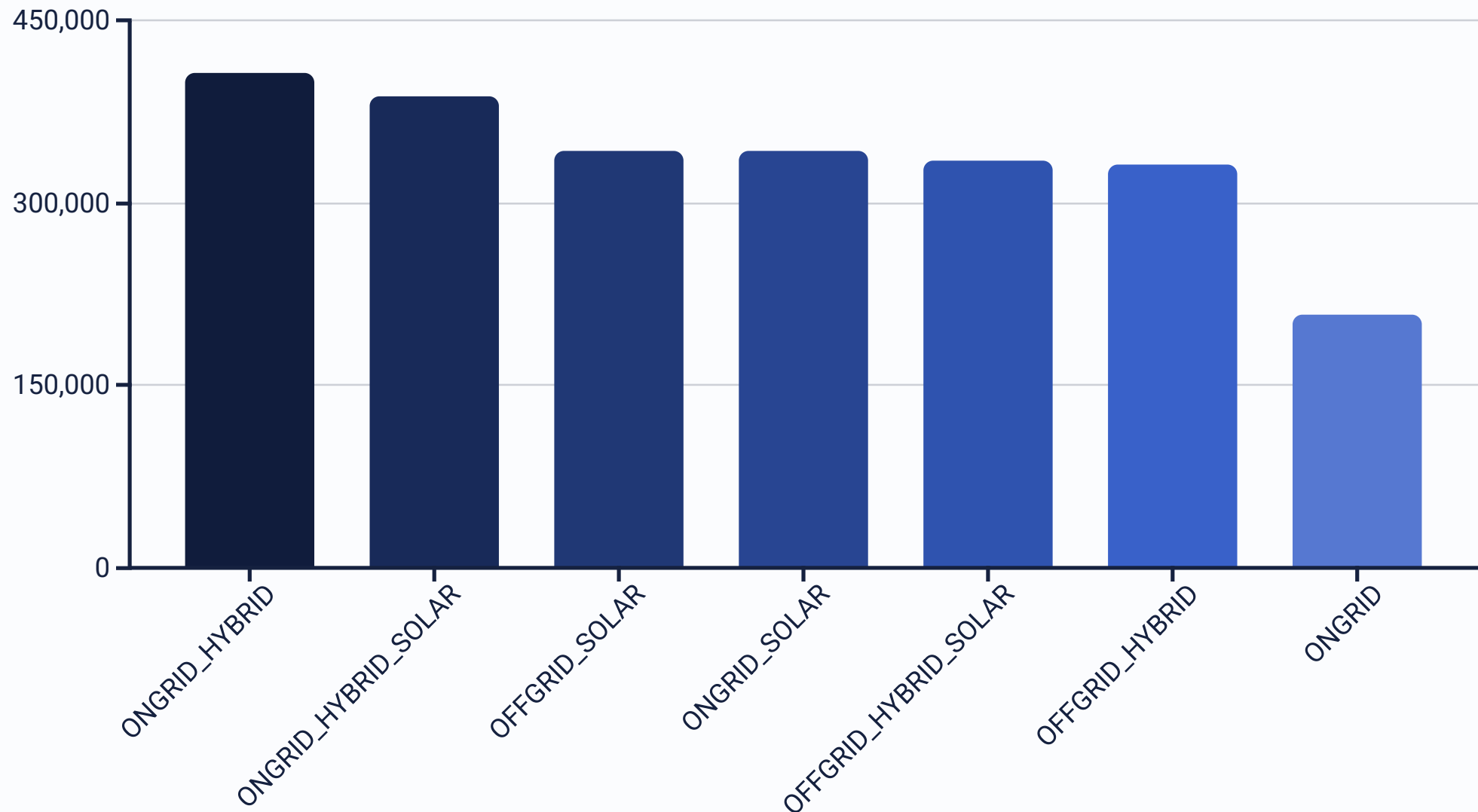
## Nairobi East

Nairobi East (mean: 327,555.2) showed significantly lower performance compared to Lower Central with a mean difference of 70,643.2 ( $P=0.0296$ ) and an effect size of -0.394.

This represents a relative mean difference of 17.74%, indicating that Lower Central outperforms Nairobi East by a substantial margin.

These findings highlight the performance disparities between regions, with Lower Central and Upper Central Rift consistently showing the strongest performance across comparisons.

# Site Layout Performance Analysis



The analysis of site layouts revealed that ONGRID layouts significantly underperform compared to other configurations. The tests could not detect a statistically significant difference in Revenue among the OFFGRID\_HYBRID sites, likely due to the small sample size of only 6 sites in total.

# Key Site Layout Findings

## ONGRID vs Hybrid Configurations

The most substantial difference was between ONGRID and ONGRID\_HYBRID layouts, with a mean difference of 198,473 ( $P=0.000$ ), representing a 48.78% relative difference and a very large effect size of 1.207.

Similarly, ONGRID significantly underperformed compared to ONGRID\_HYBRID\_SOLAR with a mean difference of 178,532.9 ( $P=0.000$ ), representing a 46.14% relative difference and an effect size of 1.192.



ONGRID also showed significantly lower performance compared to ONGRID\_SOLAR (mean difference: 133,835.6,  $P=0.000$ ) with an effect size of 0.827, representing a 39.11% relative difference.

These findings strongly suggest that hybrid configurations substantially outperform standard ONGRID layouts, with ONGRID\_HYBRID showing the highest overall performance across all layout types.

# Additional Site Layout Insights

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## OFFGRID\_HYBRID\_SOLAR vs ONGRID\_HYBRID

OFFGRID\_HYBRID\_SOLAR (mean: 334,487) showed significantly lower performance compared to ONGRID\_HYBRID (mean: 406,850) with a mean difference of 72,362.94 ( $P=0.0027$ ) and an effect size of 0.413, representing a 17.79% relative difference.

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## OFFGRID\_SOLAR vs ONGRID\_HYBRID

OFFGRID\_SOLAR (mean: 342,242.6) also underperformed compared to ONGRID\_HYBRID with a mean difference of 64,607.38 ( $P=0.0012$ ) and an effect size of 0.363, representing a 15.88% relative difference.

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## ONGRID\_HYBRID vs ONGRID\_SOLAR

ONGRID\_HYBRID outperformed ONGRID\_SOLAR with a mean difference of 64,637.4 ( $P=0.000$ ) and an effect size of 0.347, representing a 15.89% relative difference.

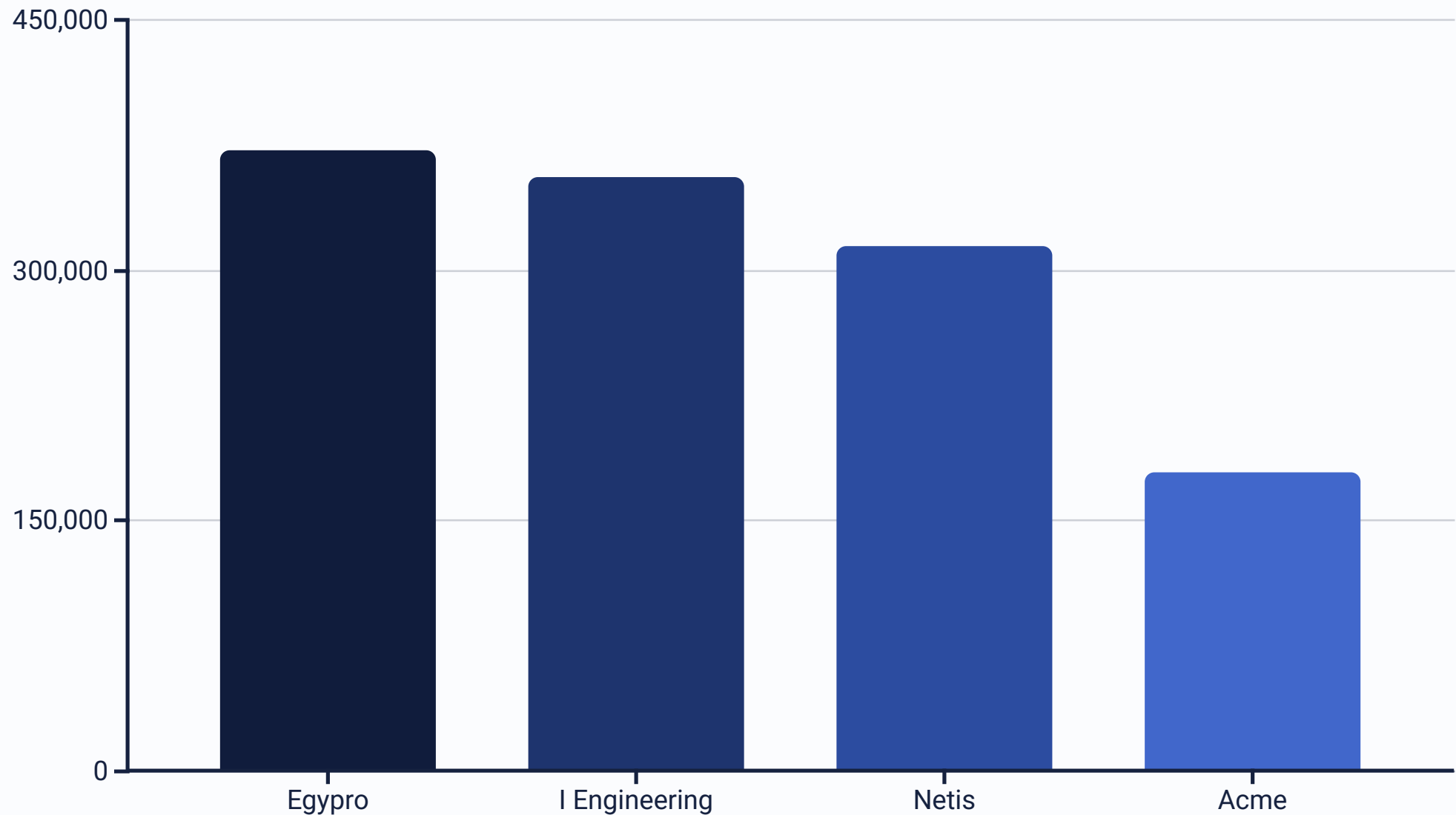
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## OFFGRID\_HYBRID\_SOLAR vs ONGRID\_HYBRID\_SOLAR

OFFGRID\_HYBRID\_SOLAR showed significantly lower performance compared to ONGRID\_HYBRID\_SOLAR with a mean difference of 52,422.82 ( $P=0.0235$ ) and an effect size of 0.325, representing a 13.55% relative difference.

These results consistently show that ONGRID hybrid configurations outperform their OFFGRID counterparts, suggesting that grid connection combined with hybrid technology yields the best performance.

# Vendor Performance Analysis



The analysis of vendor performance revealed substantial differences, with Acme significantly underperforming compared to other vendors, particularly Egypro.

## Acme vs Egypro

The most substantial difference was between Acme and Egypro with a mean difference of 192,603.7 ( $P=0.0392$ ), representing a 51.86% relative difference and a very large effect size of 1.539.

## Acme vs I Engineering

While not statistically significant ( $P=0.068$ ), Acme also showed a large performance gap compared to I Engineering with a mean difference of 177,489.3, representing a 49.82% relative difference and a large effect size of 1.379.

# Conclusions and Recommendations

## Regional Performance

The Coast region consistently underperforms compared to central and western regions, with effect sizes exceeding 0.5 in multiple comparisons. We recommend conducting a detailed investigation into the factors affecting performance in the Coast region.

## Site Layout Optimization

ONGRID\_HYBRID configurations significantly outperform all other layouts, with effect sizes exceeding 1.0 when compared to standard ONGRID layouts. We recommend prioritizing ONGRID\_HYBRID installations for new sites and considering upgrades for existing ONGRID sites.

## Vendor Selection

Egypro and I Engineering demonstrate substantially better performance than Acme, with effect sizes exceeding 1.3. We recommend reviewing the Acme contract and considering a shift toward the better-performing vendors for future installations.

Any statistically significant difference with effect size greater than  $\pm 0.5$  across all groups is practically meaningful and may warrant further investigation. The most substantial differences were observed in vendor performance and site layout configurations, suggesting these areas should be prioritized for optimization efforts.