What would be the impact of the polysilicon cost increase on Canadian Solar’s gross profit and on its standard variances?

Canadian Solar (NASDAQ: CSIQ) and other solar panel manufacturers are facing a shortage of a key raw material used in the production of solar panels, polysilicon. Environmental regulators in China shut down several factories, triggering the shortage. The cost of polysilicon has risen by as much as 35% in the past several months. A kilogram of polysilicon went from $14 to $19 near the end of 2017.

In addition to the rise in the cost of polysilicon, the selling price of solar panels has been falling throughout the world.

Questions

1. How is gross profit calculated?
2. What would be the impact of the increase in the cost of the polysilicon on Canadian Solar’s gross profit? Explain.
3. What would be the impact of the decrease in the selling price of solar panels on Canadian Solar’s gross margin? Explain.
4. Assume that Canadian Solar uses a standard costing system for tracking the production of its solar panels. What variance(s), if any, have been impacted by the increase in the cost of polysilicon? Explain.