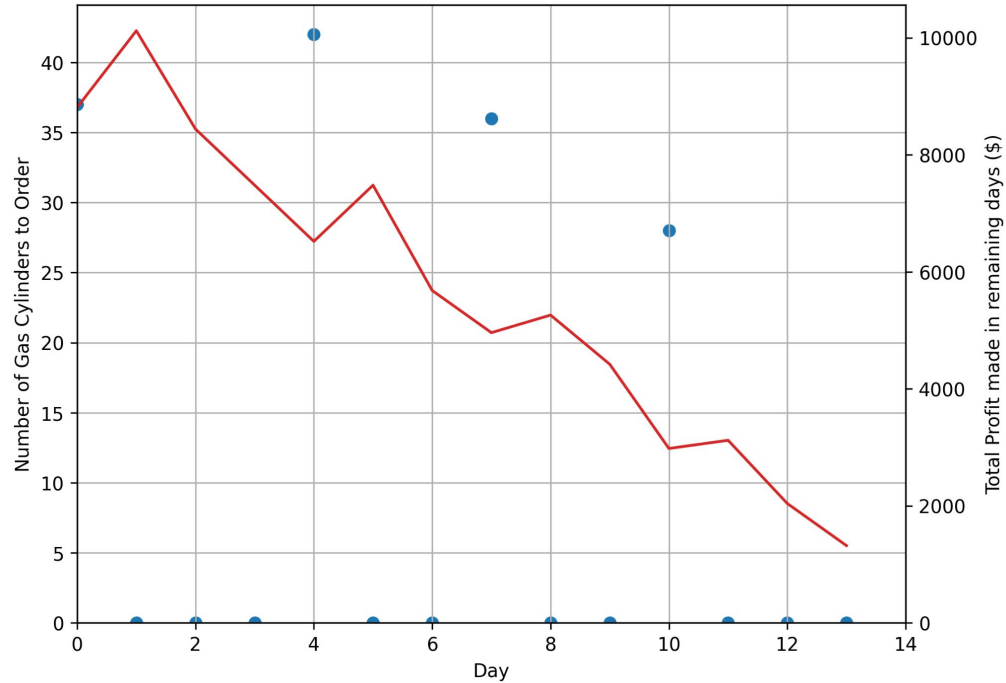


# Pacific Paradise Gas Communications

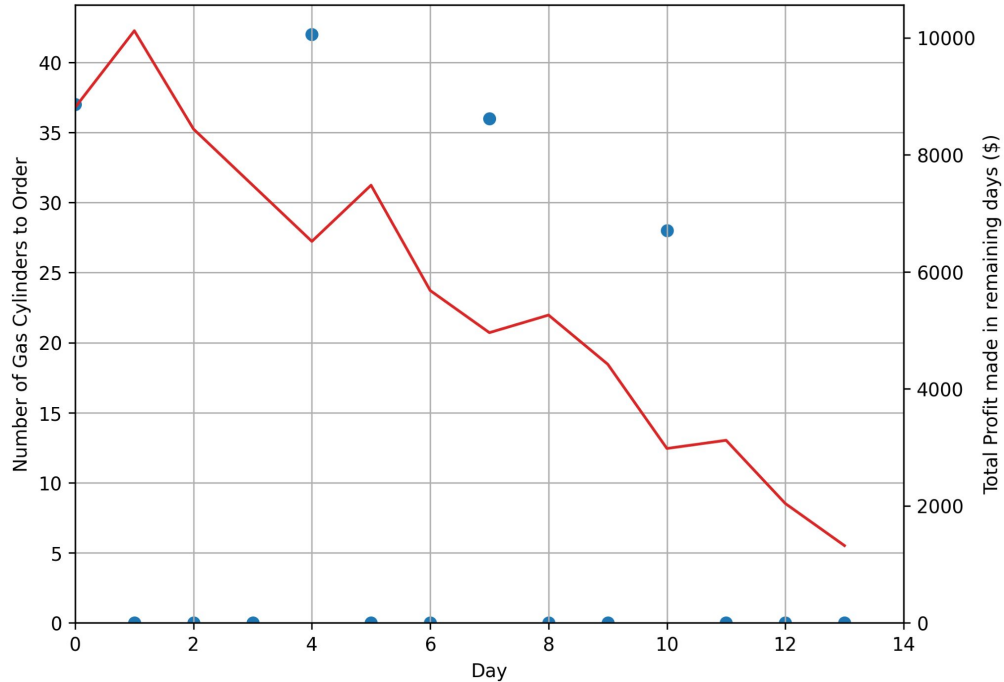
MATH3202 Assignment 3 - Ryan White

# Communication 11



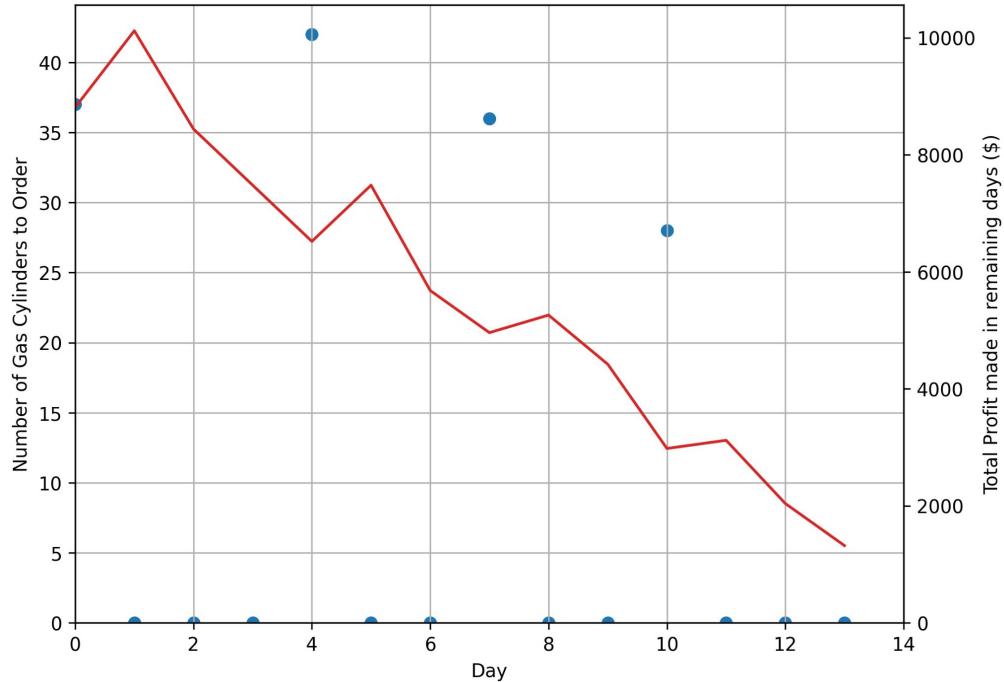
- Optimal profit of \$8810

# Communication 11



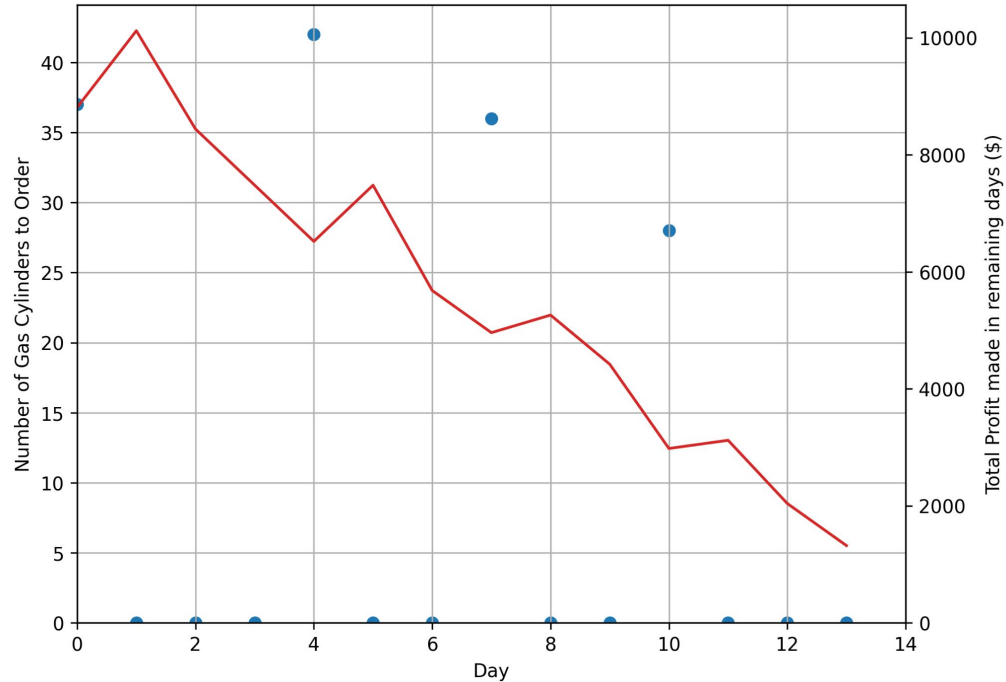
- Optimal profit of \$8810
- Model suggests buying many cylinders in few deliveries
  - This reduces the overall delivery cost due to the \$300 base cost

# Communication 11



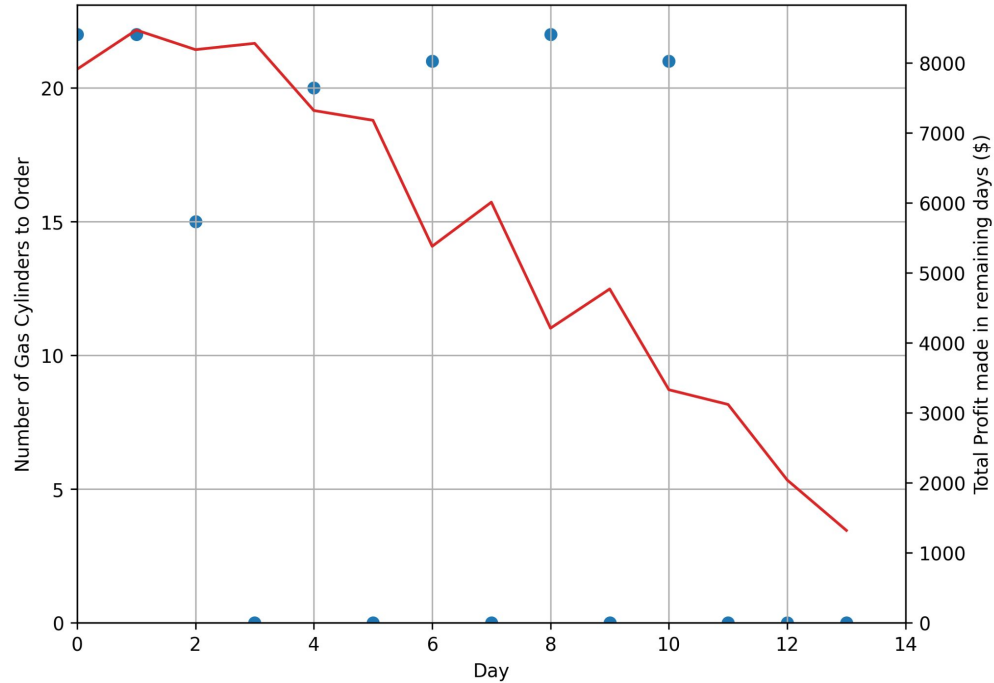
- Optimal profit of \$8810
- Model suggests buying many cylinders in few deliveries
  - This reduces the overall delivery cost due to the \$300 base cost
- Solution is limited by overnight storage
  - Ideally we would buy all cylinders on the first delivery

# Communication 11



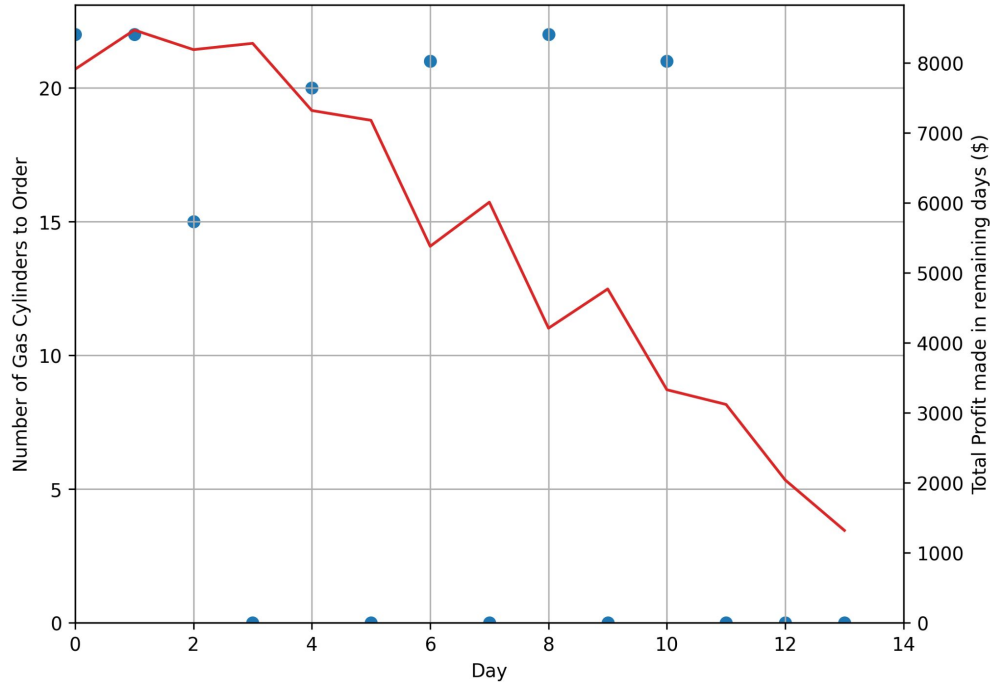
- Optimal profit of \$8810
- Model suggests buying many cylinders in few deliveries
  - This reduces the overall delivery cost due to the \$300 base cost
- Solution is limited by overnight storage
  - Ideally we would buy all cylinders on the first delivery
- We see dips in profit on days we order

# Communication 12



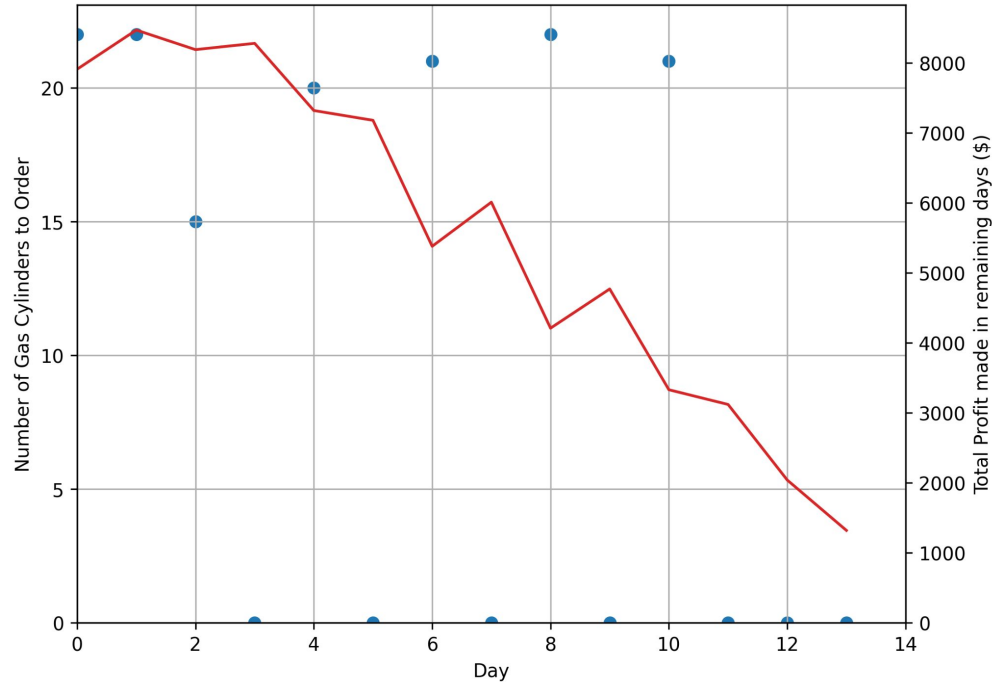
- Optimal profit of \$7910

# Communication 12



- Optimal profit of \$7910
- Model still suggests buying many cylinders in as few deliveries as possible

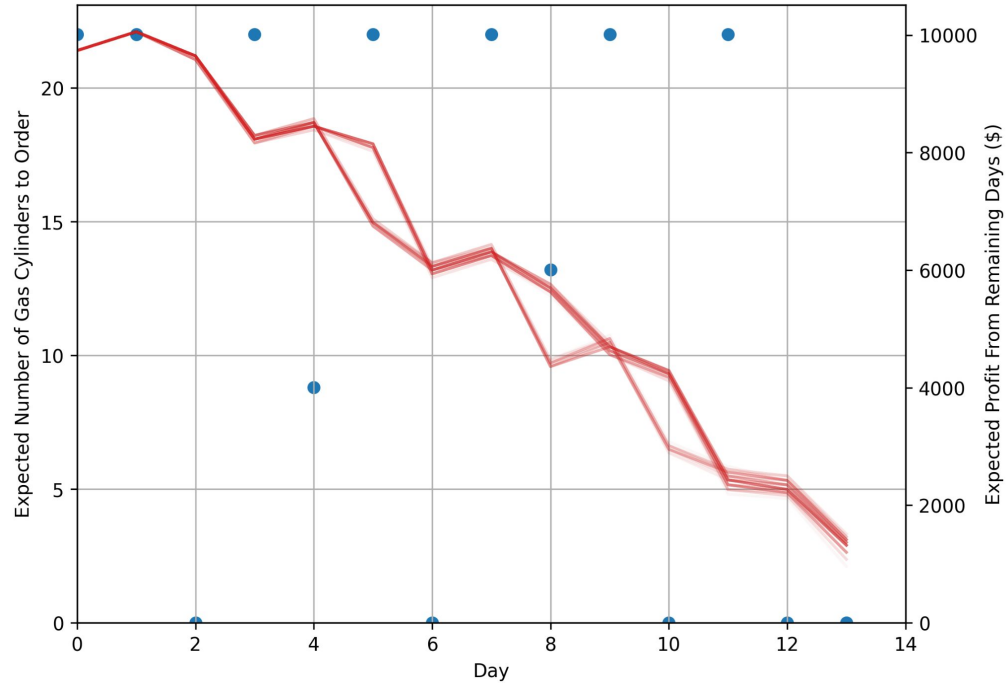
# Communication 12



- Optimal profit of \$7910
- Model still suggests buying many cylinders in as few deliveries as possible
- Solution is now limited by overnight storage *and* truck capacity
  - We see every order at almost full truck capacity
  - First few deliveries are large to fill up overnight storage space

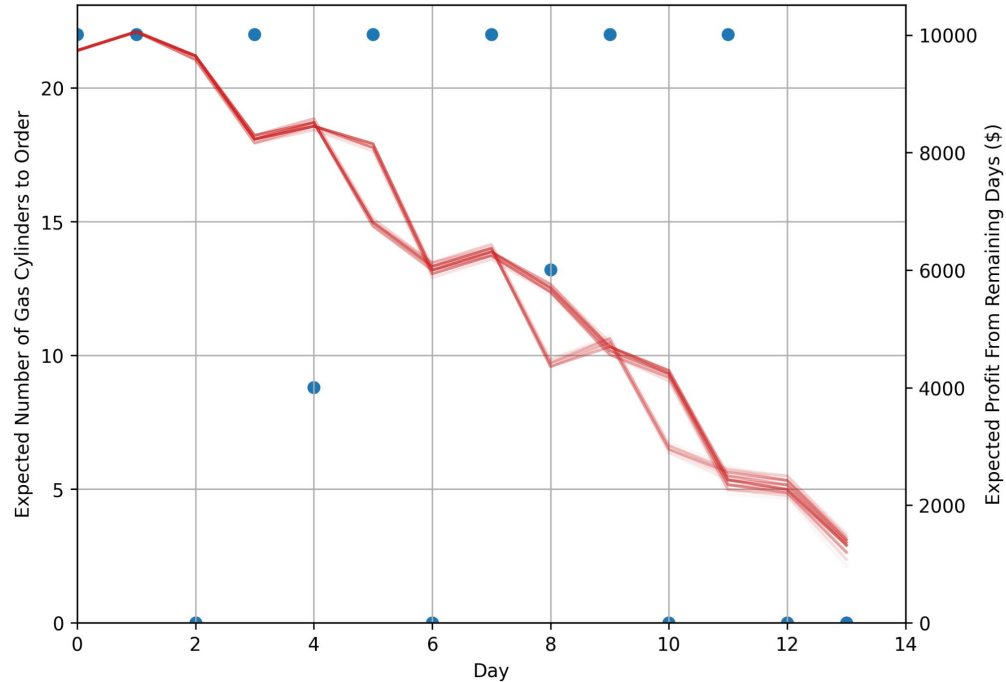


# Communication 13



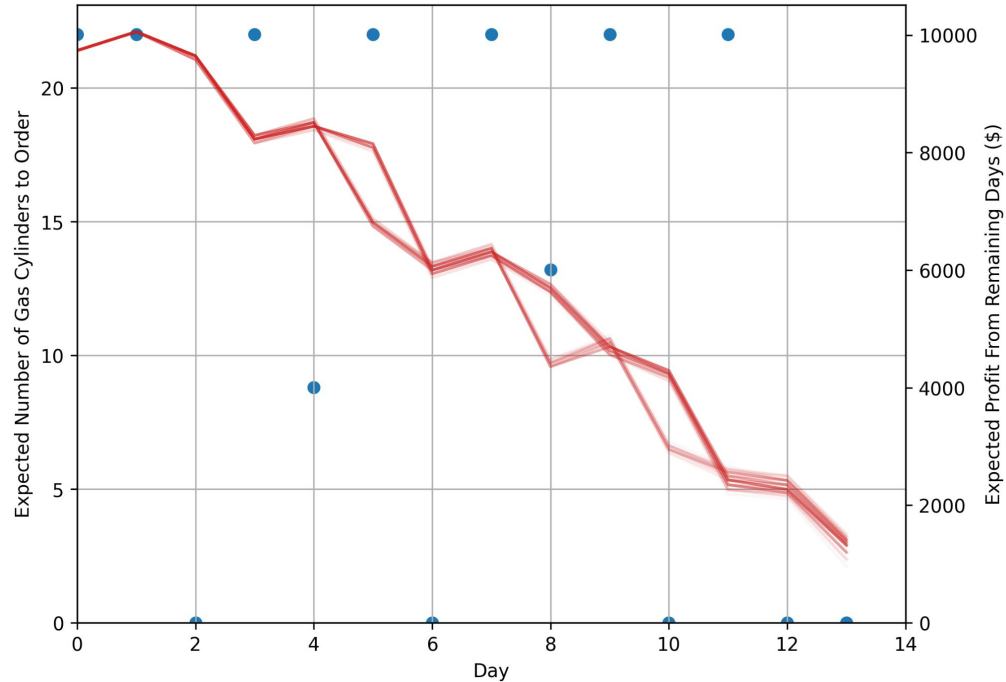
- Optimal expected profit of \$9736.83
  - This solution is stochastic, and so we may see a slightly smaller/larger true profit

# Communication 13



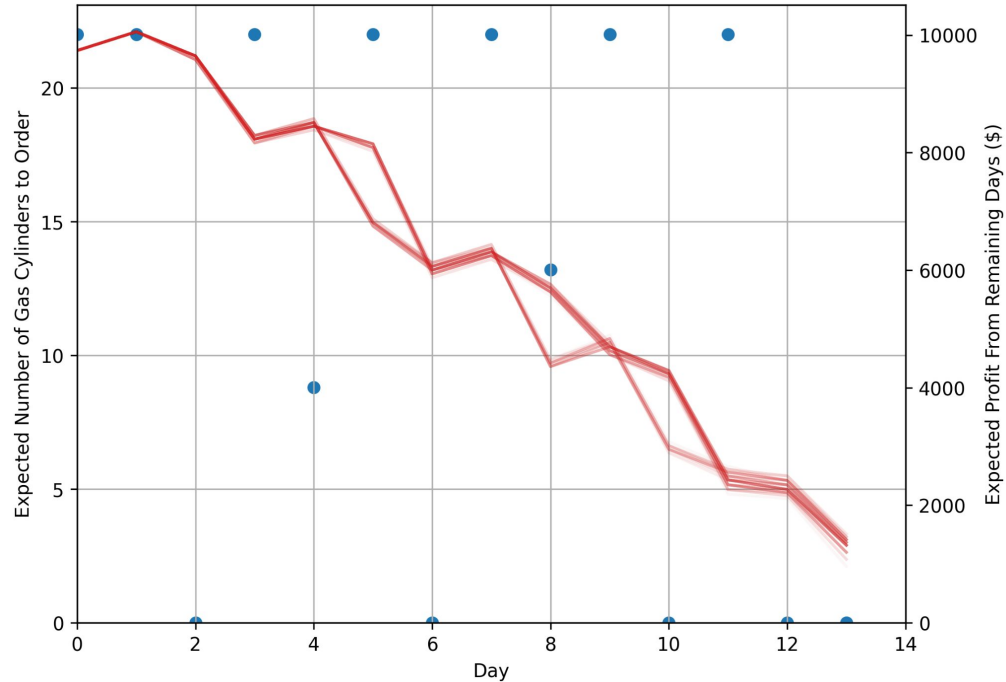
- Optimal expected profit of \$9736.83
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# Communication 13



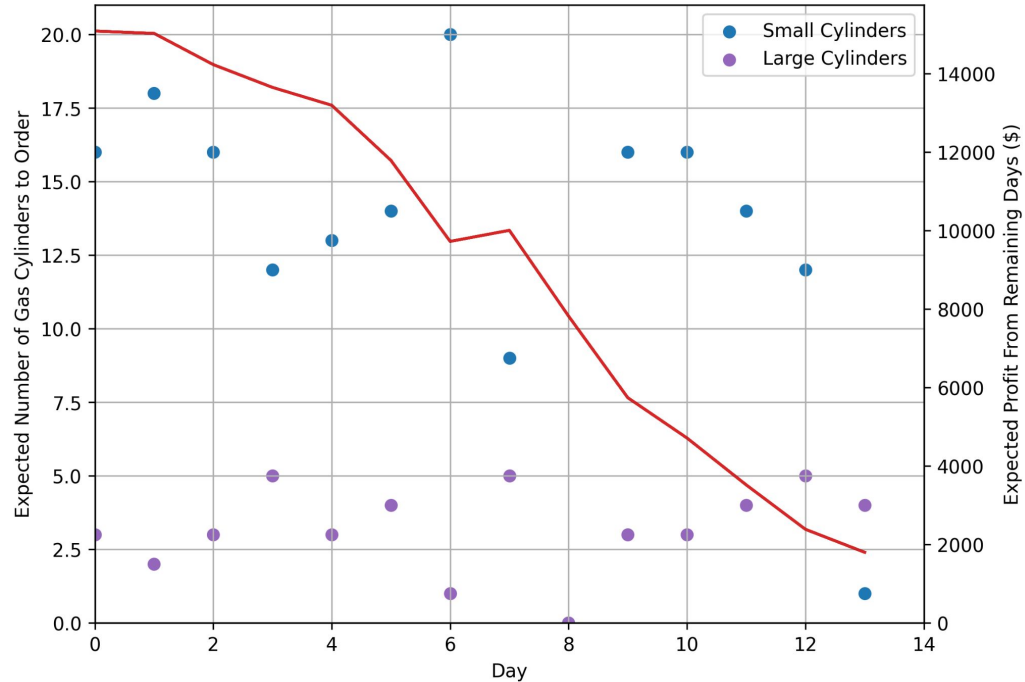
- Optimal expected profit of \$9736.83
  - This solution is stochastic, and so we may see a slightly smaller/larger true profit
- Model still suggests buying many cylinders in as few deliveries as possible
- We expect to make more orders due to the potential of higher demand days
  - Even though we incur more delivery cost, the net profit is still greater

# Communication 13



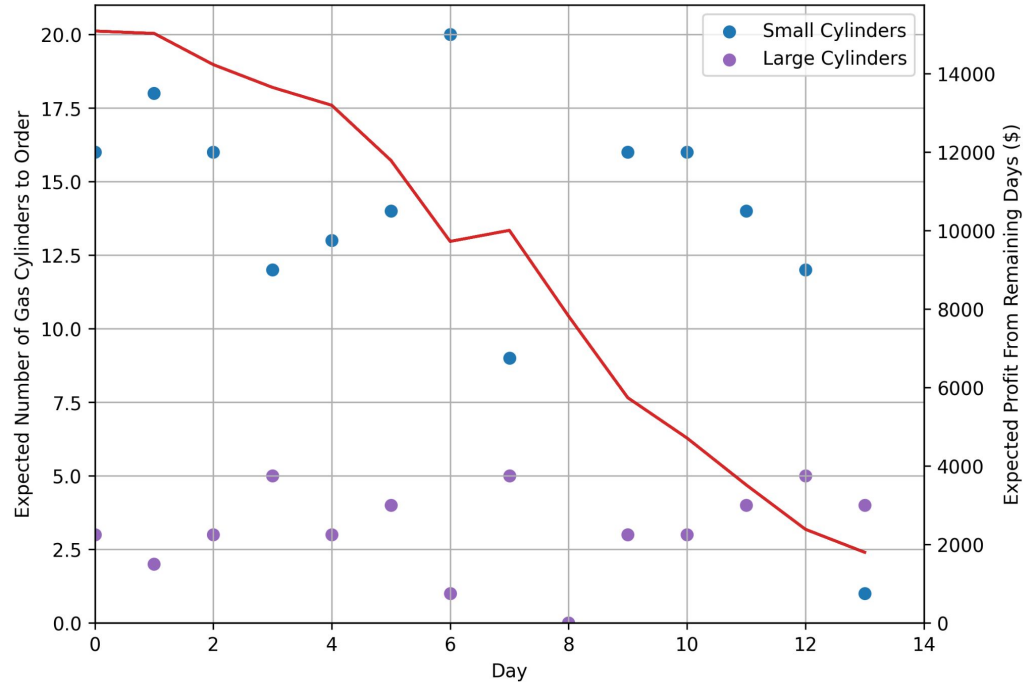
- Optimal expected profit of \$9736.83
  - This solution is stochastic, and so we may see a slightly smaller/larger true profit
- Model still suggests buying many cylinders in as few deliveries as possible
- We expect to make more orders due to the potential of higher demand days
  - Even though we incur more delivery cost, the net profit is still greater
- Gas cylinders may be discarded if demand is less than expected on consecutive days and storage is at capacity

# Communication 14



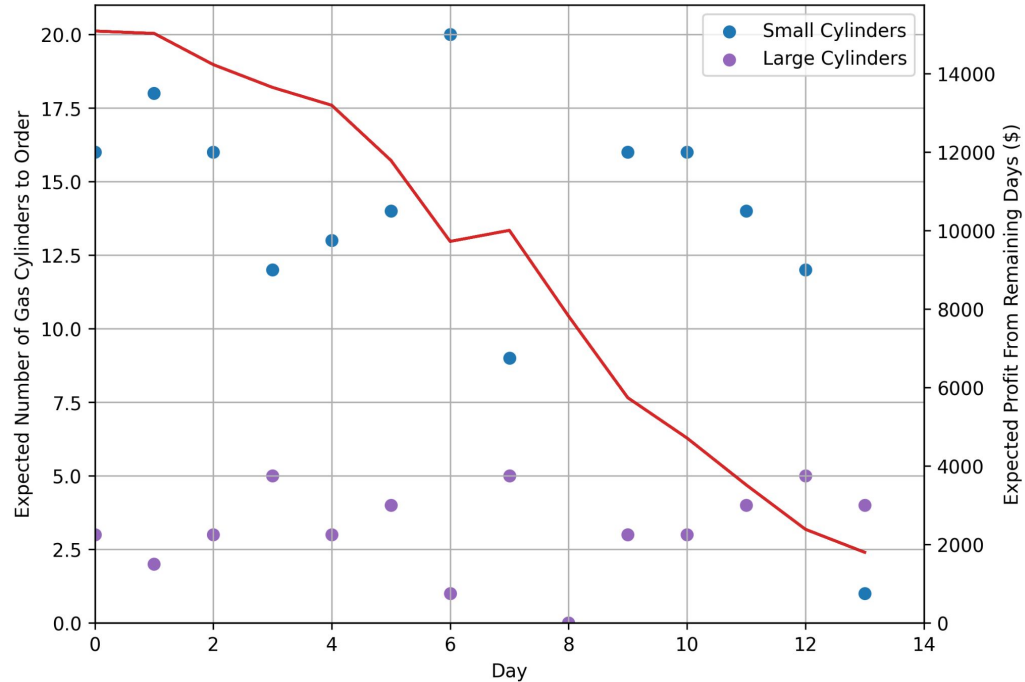
- Optimal expected profit of \$15081.38
  - This solution is stochastic, and so we may see a slightly smaller/larger true profit

# Communication 14



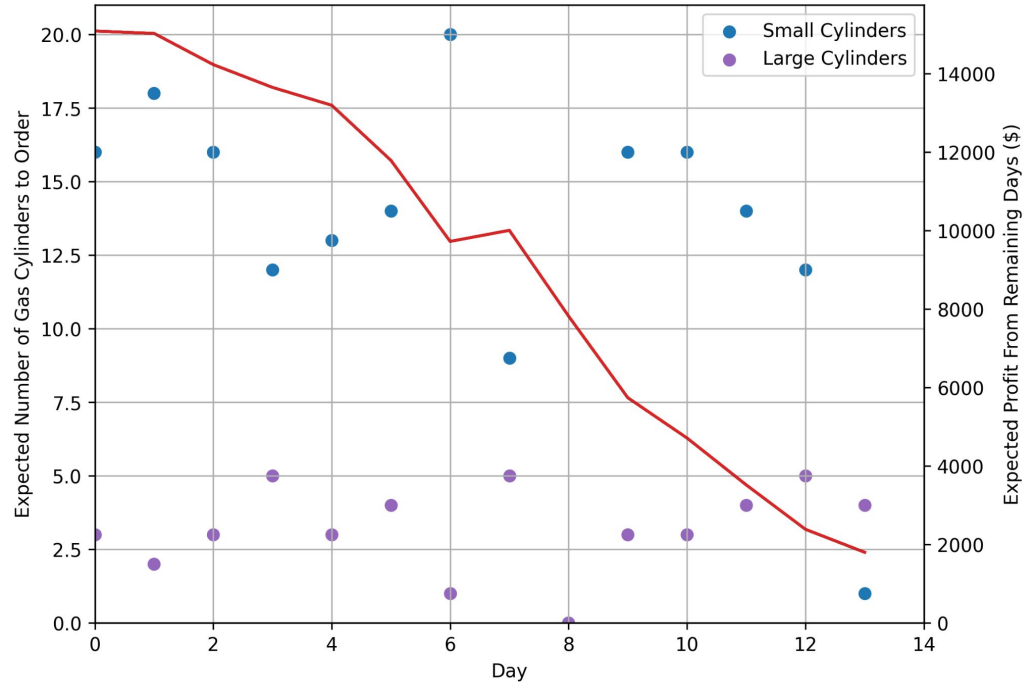
- Optimal expected profit of \$15081.38
  - This solution is stochastic, and so we may see a slightly smaller/larger true profit
- Large cylinder demand must be met
  - Large cylinders are prioritised on the delivery truck

# Communication 14



- Optimal expected profit of \$15081.38
  - This solution is stochastic, and so we may see a slightly smaller/larger true profit
- Large cylinder demand must be met
  - Large cylinders are prioritised on the delivery truck
- We expect to make more orders due to the potential of higher demand days, as well as the small storage capacity of large cylinders

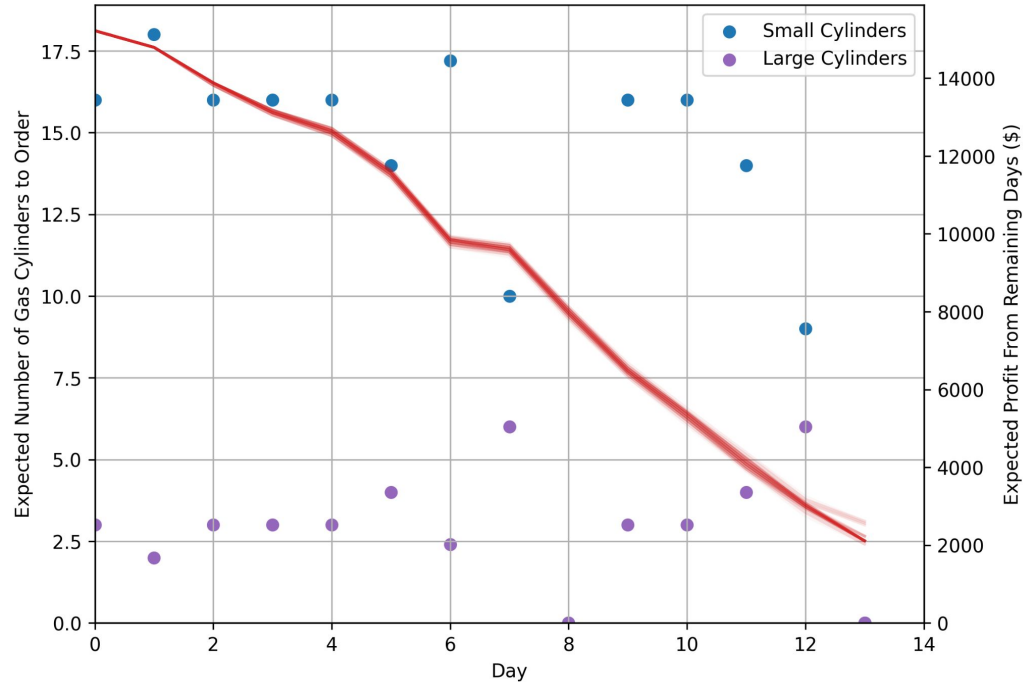
# Communication 14



- Optimal expected profit of \$15081.38
  - This solution is stochastic, and so we may see a slightly smaller/larger true profit
- Large cylinder demand must be met
  - Large cylinders are prioritised on the delivery truck
- We expect to make more orders due to the potential of higher demand days, as well as the small storage capacity of large cylinders
- Interestingly, all expected storage values are integers

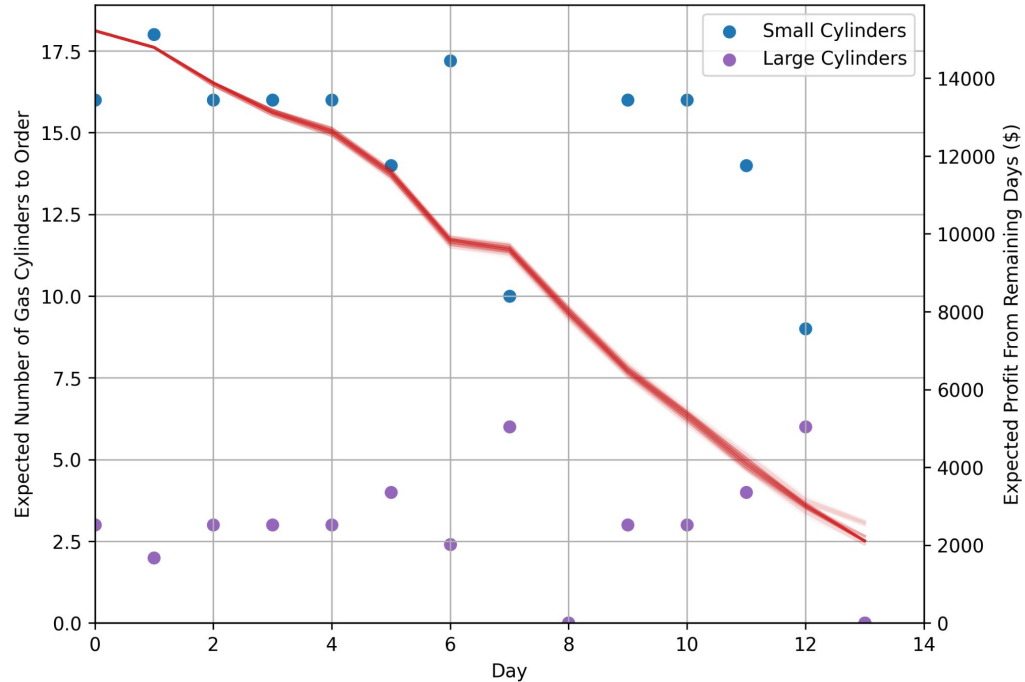


# Communication 15



- Optimal expected profit of \$15221.37
  - This solution is stochastic, and so we may see a slightly smaller/larger true profit
  - Approximately \$140 increase to Communication 14

# Communication 15



- Optimal expected profit of \$15221.37
  - This solution is stochastic, and so we may see a slightly smaller/larger true profit
  - Approximately \$140 increase to Communication 14
- 2x 45kg cylinders may now be used in place of 1x 90kg cylinder.
  - We see this reducing the total deliveries needing to be made

The background is a solid pink color. In the top right corner, there is a decorative arrangement of overlapping squares and triangles in various shades of pink and magenta, creating a modern, geometric pattern.

Thanks for listening!