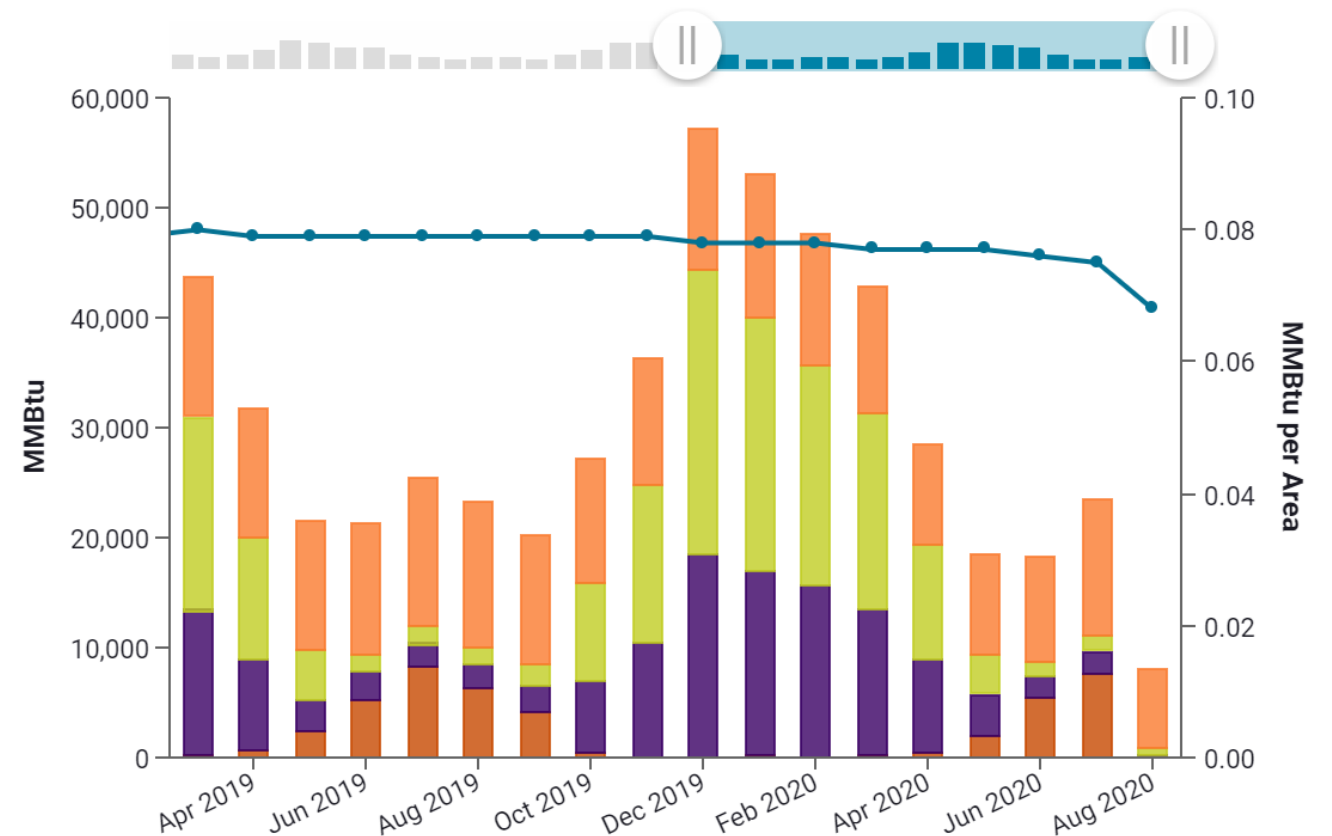


System-Wide Energy Use Intensity

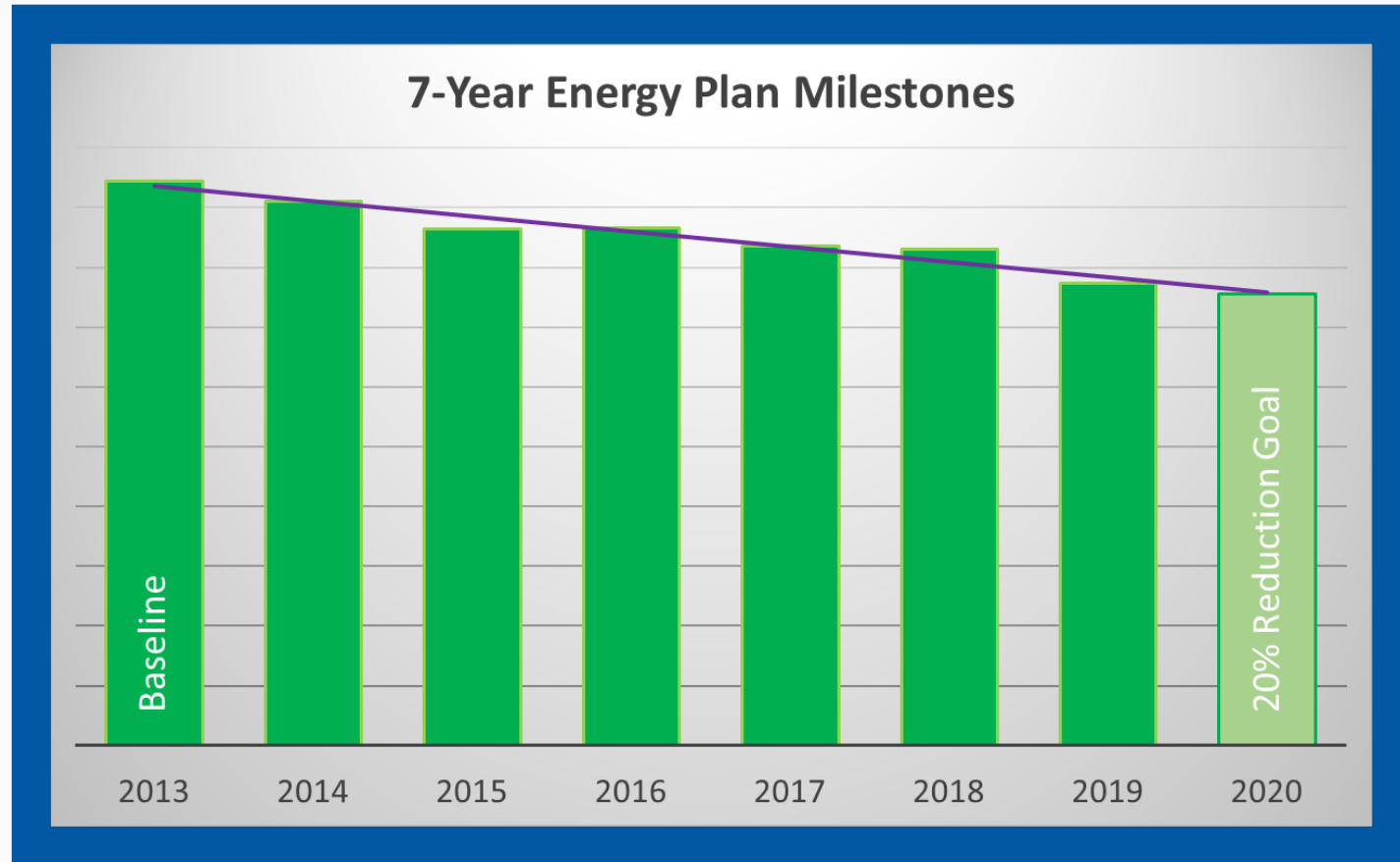


MEEA Conference: Facing the EE/COVID Challenge

Energy Manager, Hennepin County Facility Services, Leah Hiniker

Facility Services

- 79 buildings
- 6.5 million square feet
- \$9 million in utility costs
- 3% annual energy reduction
- 20% from 2013 baseline



ASHRAE Guidelines

- More ventilation
- More fresh air
- Cleaner/filtered air



Challenges

- How?
 - Turning off library computers
 - Adjusting open/close signs
 - Disabling carbon dioxide sensors
 - Increasing fresh air
 - Installing MERV 13 filters
 - Modifying lighting and HVAC

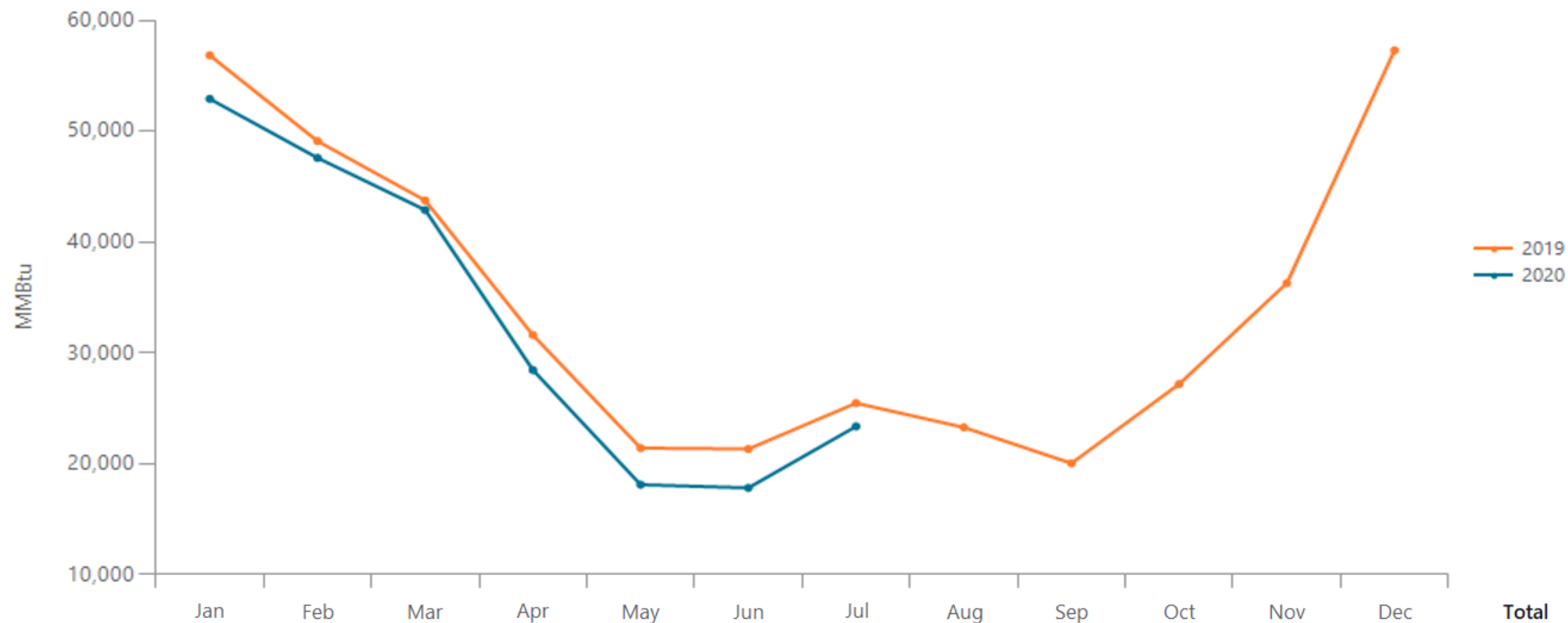


Flexible

- Now what?
 - What's open? Partial or full?
 - How many people? And when?
 - Educating users
 - Maintaining vacant buildings
 - Buying new buildings



Monthly Use by Year (Normalized for weather)



| | | | | | | | | | | | | | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
| 2019 | 56,843 | 49,109 | 43,756 | 31,620 | 21,429 | 21,342 | 25,481 | 23,294 | 20,053 | 27,199 | 36,299 | 57,291 | 413,716 |
| 2020 | 52,910 | 47,592 | 42,892 | 28,461 | 18,123 | 17,833 | 23,377 | | | | | | 231,188 |

Rolling 12-Month Performance



| Commodity | Cost | | Use | | Unit Cost |
|---------------|------|---------------------|-----|--------|------------------------|
| Total | | \$ 3,019,430 ▼ 11 % | | ▼ 14 % | |
| Electric | | \$ 1,587,149 ▼ 13 % | | ▼ 17 % | \$ 0.107 /kWh ▲ 6 % |
| Chilled Water | | \$ 633,769 ▲ 5 % | | ▲ 4 % | \$ 0.444 /Ton Hr ▲ 1 % |
| Steam | | \$ 379,975 ▼ 12 % | | ▼ 14 % | \$ 19.114 /klb ▲ 3 % |
| Water | | \$ 276,456 ▼ 20 % | | ▼ 33 % | \$ 0.014 /Gal ▲ 20 % |
| Natural Gas | | \$ 142,082 ▼ 26 % | | ▼ 18 % | \$ 0.515 /THERM ▼ 10 % |

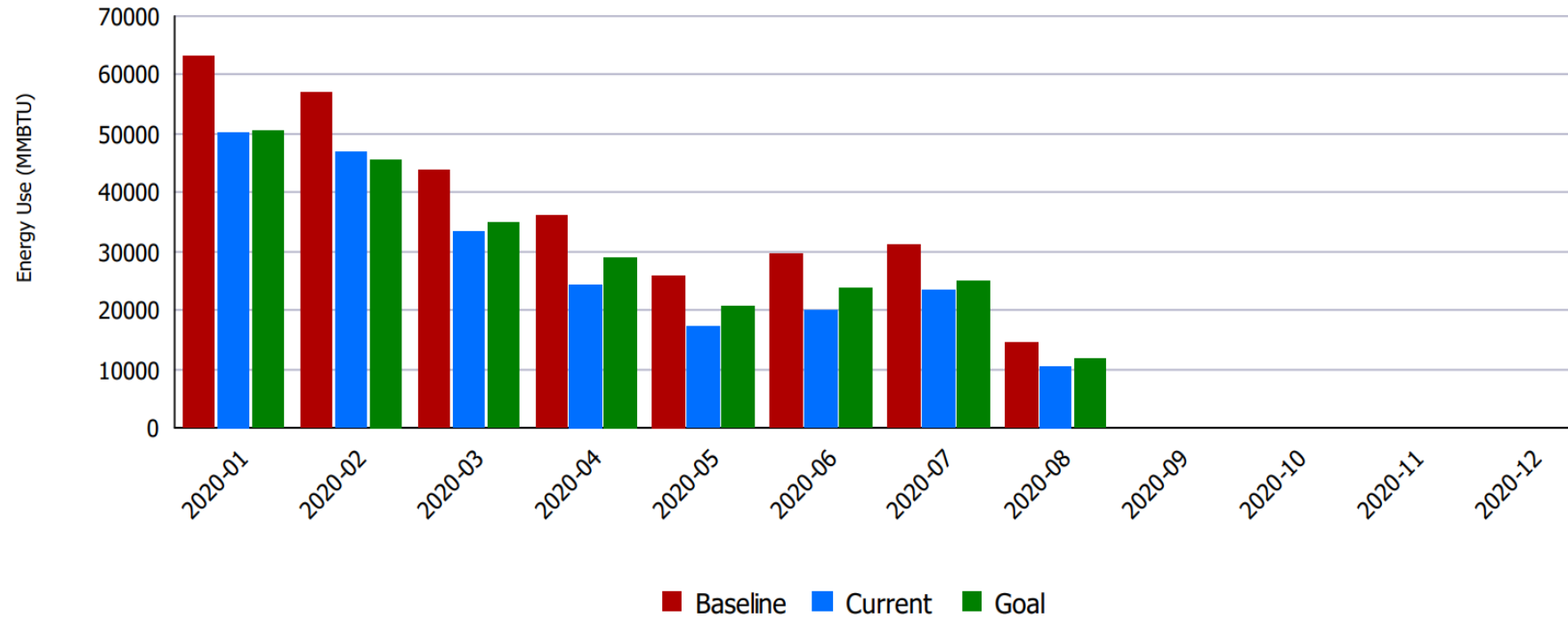
March 2019-July 2019
 March 2020-July 2020

Considerations

- Plug loads down
- Internal heat load down
 - Reduce cooling load
 - Increase heating load
- Reduced/increased hours
- Increase ventilation/pressure drop
- Lights off
- Water use significantly down



Monthly Energy Consumption



All Commodities (MMBTU)

| | 2020-01 | 2020-02 | 2020-03 | 2020-04 | 2020-05 | 2020-06 | 2020-07 | 2020-08 | 2020-09 | 2020-10 | 2020-11 | 2020-12 | Total MMBTU |
|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------|
| Baseline Use | 63,085 | 56,951 | 43,723 | 36,221 | 25,774 | 29,738 | 31,140 | 14,500 | 0 | 0 | 0 | 0 | 301,132 |
| Current Use | 50,295 | 46,782 | 33,282 | 24,241 | 17,387 | 20,093 | 23,545 | 10,424 | 0 | 0 | 0 | 0 | 226,049 |
| Goal Use | 50,468 | 45,561 | 34,978 | 28,977 | 20,619 | 23,790 | 24,912 | 11,600 | 0 | 0 | 0 | 0 | 240,905 |
| Monthly Variance (%) | 20.3 | 17.9 | 23.9 | 33.1 | 32.5 | 32.4 | 24.4 | 28.1 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Variance YTD (%) | 20.3 | 19.1 | 20.4 | 22.7 | 23.8 | 24.8 | 24.8 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 | |

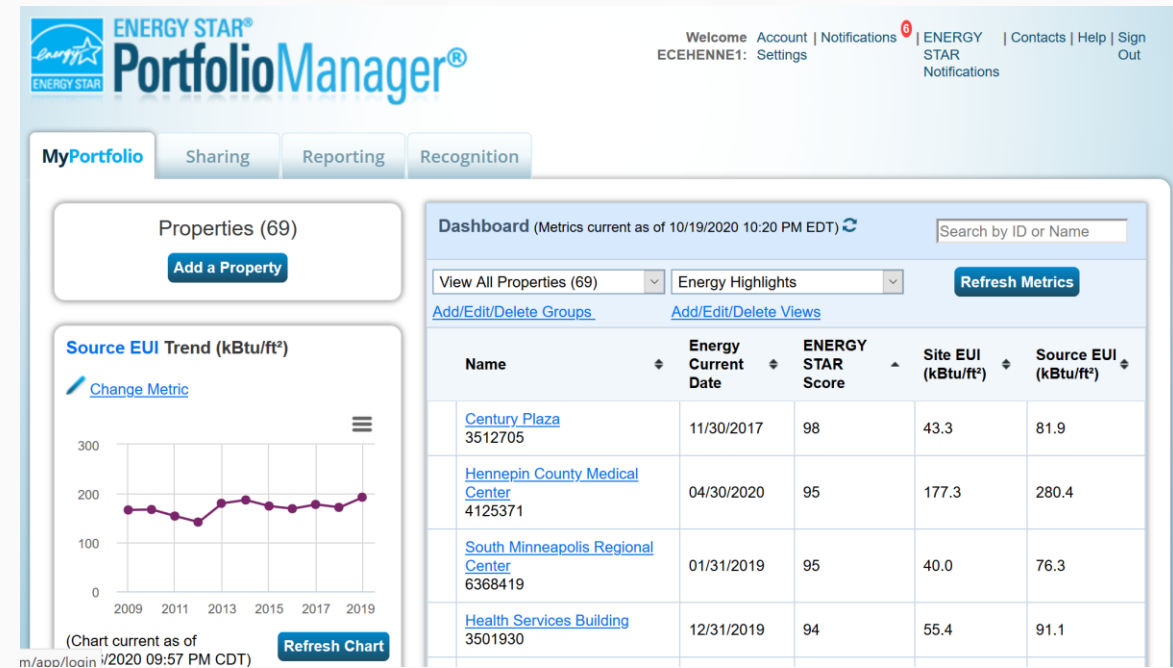
Opportunities

- Maintenance work
- LED light retrofits
- Reduced vehicle miles traveled
- Re-evaluate our future business model

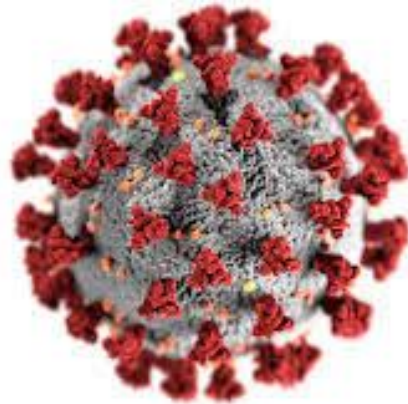


Efficient Buildings Collaborative

- Regional benchmarking program
 - Communication challenges
 - Access to invoices
 - Limited staff
 - Energy Star score comparisons
 - Compliance rates



THANK YOU



COVID-19

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