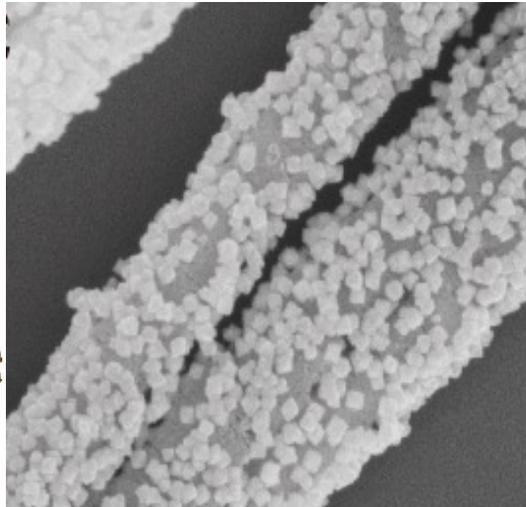
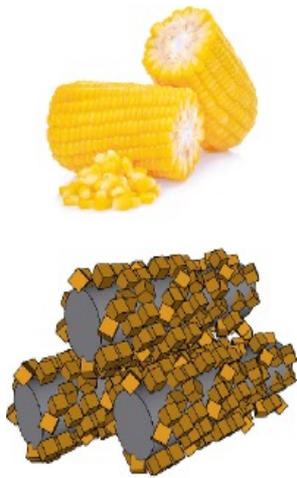


Environmental Sustainability Committee

Mike Edelen
APS Engineering Support Division Director



INCREASING THE EFFICIENCY OF CARBON CONVERSION



Work on carbon emissions capture and convert them into some other material (formic acid) that can be used in a variety of applications, from improving livestock feed to storing hydrogen for fuel cells.

See: Chen Qiu¹, Kun Qian², Jun Yu^{1*}, Mingzi Sun³, Shoufu Cao⁴, Jinqiang Gao¹, Rongxing Yu^{1,5}, Lingzhe Fang², Youwei Yao⁵, Xiaoqing Lu⁴, Tao Li^{2,6**}, Bolong Huang^{3***}, and Shihe Yang^{1,7****}, "MOF-Transformed $\text{In}_2\text{O}_3\text{-x@C}$ Nanocorn Electrocatalyst for Efficient CO_2 Reduction to HCOOH ," [Nano-Micro Lett.](#) **14**, 176 (2022). DOI: 10.1007/s40820-022-00913-6

Author affiliations: ¹Peking University Shenzhen Graduate School, ²Northern Illinois University, ³The Hong Kong Polytechnic University, ⁴China University of Petroleum, ⁵Tsinghua University, ⁶Argonne National Laboratory, ⁷Shenzhen Bay Laboratory

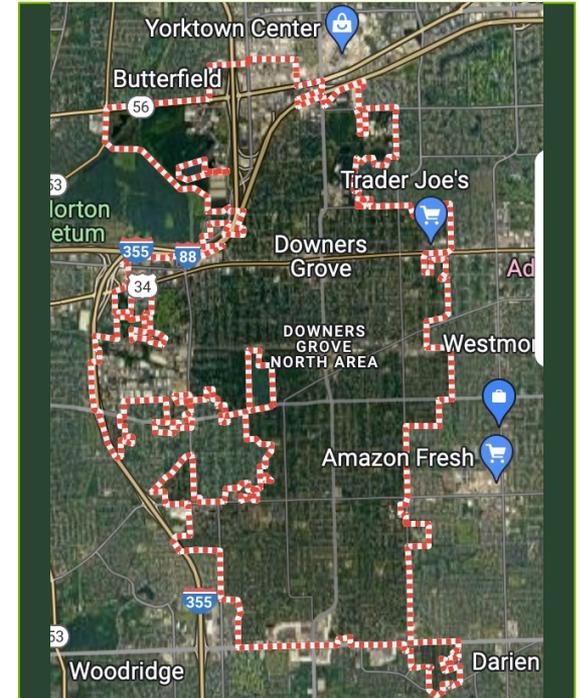
PSC ENVIRONMENTAL SUSTAINABILITY

- APS uses ~ 130M kWh of electricity annually
- **Cost (5c/kWh - current cost) = \$6.5M**
- Cost (12.5c/kWh – IL/National average) = \$16.25M

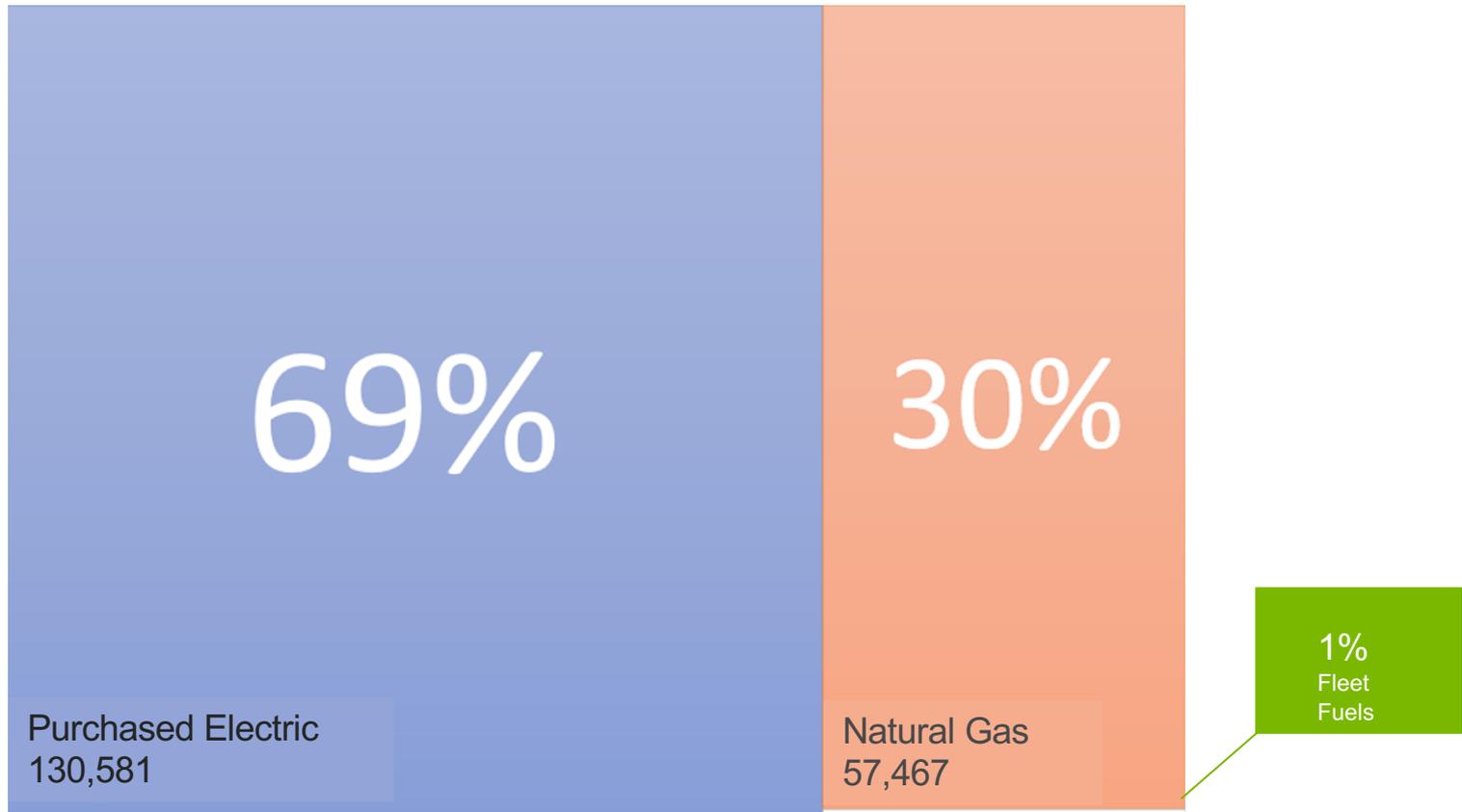


Annually, APS uses enough power to run **13,000** homes.

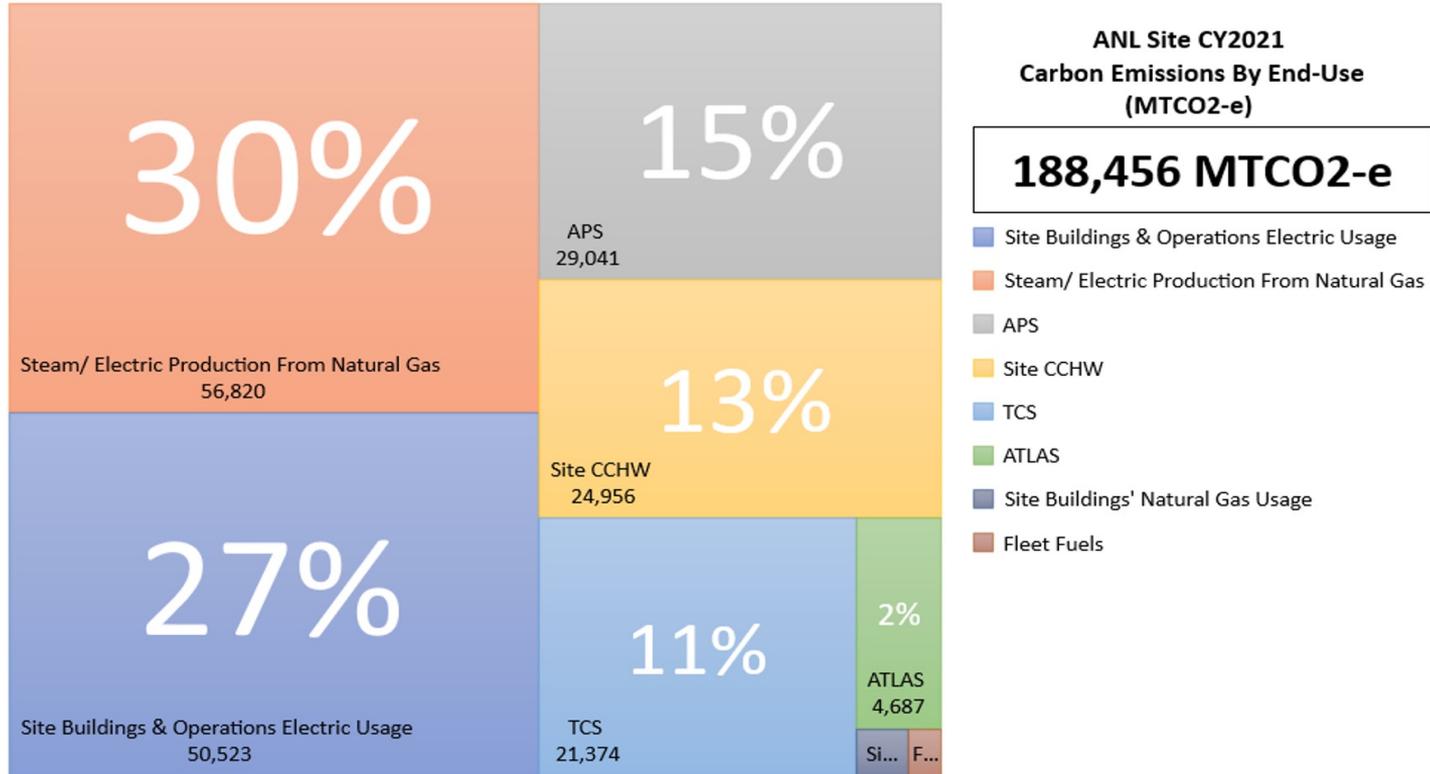
APS uses power equivalent to the entire Village of Downers Grove – approximately 50,000 people and several hundred businesses.



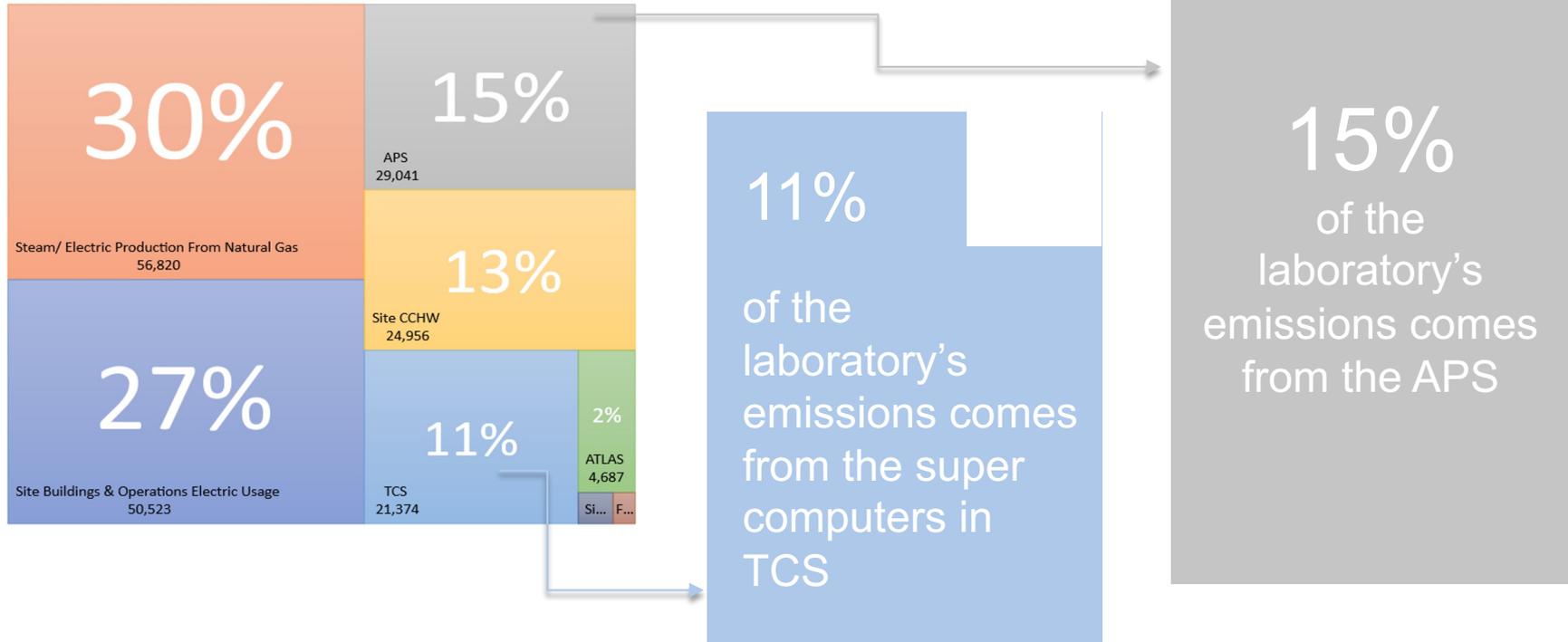
ARGONNE EMISSIONS BY SOURCE



APS IMPACT ON ARGONNE EMISSIONS



APS IMPACT ON ARGONNE EMISSIONS



IDENTIFIED OPPORTUNITIES

- Reuse of old APS magnets by Brookhaven - ~2000 tons of CO2 avoided
- Switching off hot spare klystrons saved APS ~\$900K per year since 2022.



PSC ENVIRONMENTAL SUSTAINABILITY – HOW YOU CAN HELP!

The committee is seeking 6-8 additional members

Goals:

- Reduce CO2 emissions
- Achieve carbon neutrality by 2050
- Operational strategies for climate adaptation and resilience in response to climate change

Actions:

- Environmental Sustainability Improvement Plan



Committee Members:

Mike Edelen
Dan Preuss
Dave Kazenko
Jon Smejkal
Chris Gorman
Stan Harnik
Connie Vanni
Rob Wright
Gene Swetin
Lester Erwin
Tejas Guruswamy

Interested in joining the team? Email Mike Edelen: jedelen@anl.gov

EARTH DAY 2023

Celebrate with Argonne to support the lab's sustainability efforts

Commit to the Personal Decarb Challenge and get tools to help you measure and reduce your individual carbon footprint.

Calculate your carbon footprint using the calculator developed by the EPA.

Complete the carbon footprint form.

Earth Day Photo Contest



entries accepted until Friday, April 21.

Nominate a colleague who deserves to be recognized for their sustainability efforts on campus by Tuesday, April 18.

