

Fixing CO₂, San Diego, CA
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Co-Founders, Management:

Alma Zhanaidarova, lead scientist
 Eldar Akhmetgaliyev, business development
 Anya Mitskovets, lead engineer

Category: CO₂ utilization

Year Founded: 2019

Year Competed CTO: 2020

Number of Employees: 3

Funding to Date: \$100k non-diluted

Funding Stage: seed looking for \$1M

Use of Funds: customer scale prototype

Business Description:

Fixing CO₂'s has developed unique and patented electrochemical catalyst converts carbon dioxide (CO₂) into carbon monoxide (CO) that is used as a feedstock for many renewable fuels and chemicals. Our reactor converts CO₂ into CO, using water and electricity and allows customers to produce CO on-site for their needs cutting transportation costs and reliance on external CO suppliers.

Product/Market Fit:

\$3B market comprised of chemical/industrial companies that utilize CO for their production and emit CO₂ byproduct. We can develop of CO electrolyzer tailored to their specific production process on their site. \$100B market of renewable fuels that are produced from clean CO feedstock.

Business Model:

Our customers will have an existing infrastructure for CO₂, water and electricity. We will sell/lease our reactors to the customers and provide ongoing support and maintenance. The customers will use produced CO for their downstream operations.

Customers/LOI: No formal LOI. Potential partners expressed interest in co-development.

Management:

Alma Zhanaidarova, PhD at UC San Diego (2019), electrochemistry research at UCSD, Caltech and Stanford, fellowships from UCSD and NASA for CO₂ utilization on Mars. Primary goal: technical development.

Anya Mitskovets, PhD at Caltech (2020). Primary goal: engineering and product development.

Eldar Akhmetgaliyev, PhD at Caltech (2016), co-founder of MOCAP Analytics (acquired by Sportradar in 2017) and has an experience of a Primary goal: business development.

Charles Zahl, founder of SoCal EED. Primary goal: financial and operational strategy.

Alan Waskin, principal of General Counsel Consulting. Primary goal: strategic and corporate planning.

Technology Status: TRL = 4

Provisional patent: Zhanaidarova A.; Kubiak C. P. SD2019-283 Electrode (material) for the electrochemical conversion of CO₂ to CO in water. US Provisional Patent Application No. 62/827,597, filed April 1, 2019. Full PCT application filed April 1, 2020. Published in peer-review journal as a result of academic research effort funded by NASA/JPL.

Impact and Sustainability:

At Fixing CO₂, we strive to disrupt the current fossil fuel-based economy converting CO₂ emissions into useful chemical and fuels. Our majority female owned startup believes in empowerment of women and we thrive to build strong and sustainable future through research and innovation.

Markets:

We identified 2 customer segments in \$3B CO market worldwide:

1. Gas distribution companies such as AirGas and Praxair get CO delivered in bulk and re-distribute it in smaller cylinders to the end consumers. 2. Chemical/industrial companies such as Dow and Covestro are using large amounts of CO for production of chemicals (such as TDI/MDI).

Exposure to \$100B renewable fuel through feedstock of clean CO.

Competition:

Low-temperature electrolysis: Opus 12 and Dioxide Materials, US – lower energetic and Faradaic efficiency compared to Fixing CO₂. High temperature electrolysis: Sunfire and Haldor Topsoe, Denmark – lower efficiency and requires excess heat unlike low-temperature Fixing CO₂ technology

Financial Projections:

	2020	2021	2022	2023
Revenue	\$0	\$0	\$2M	\$4M
Profit	\$0	\$0	\$1M	\$2.1M
Funding Needs	\$200k	\$800k	\$4M	\$6M