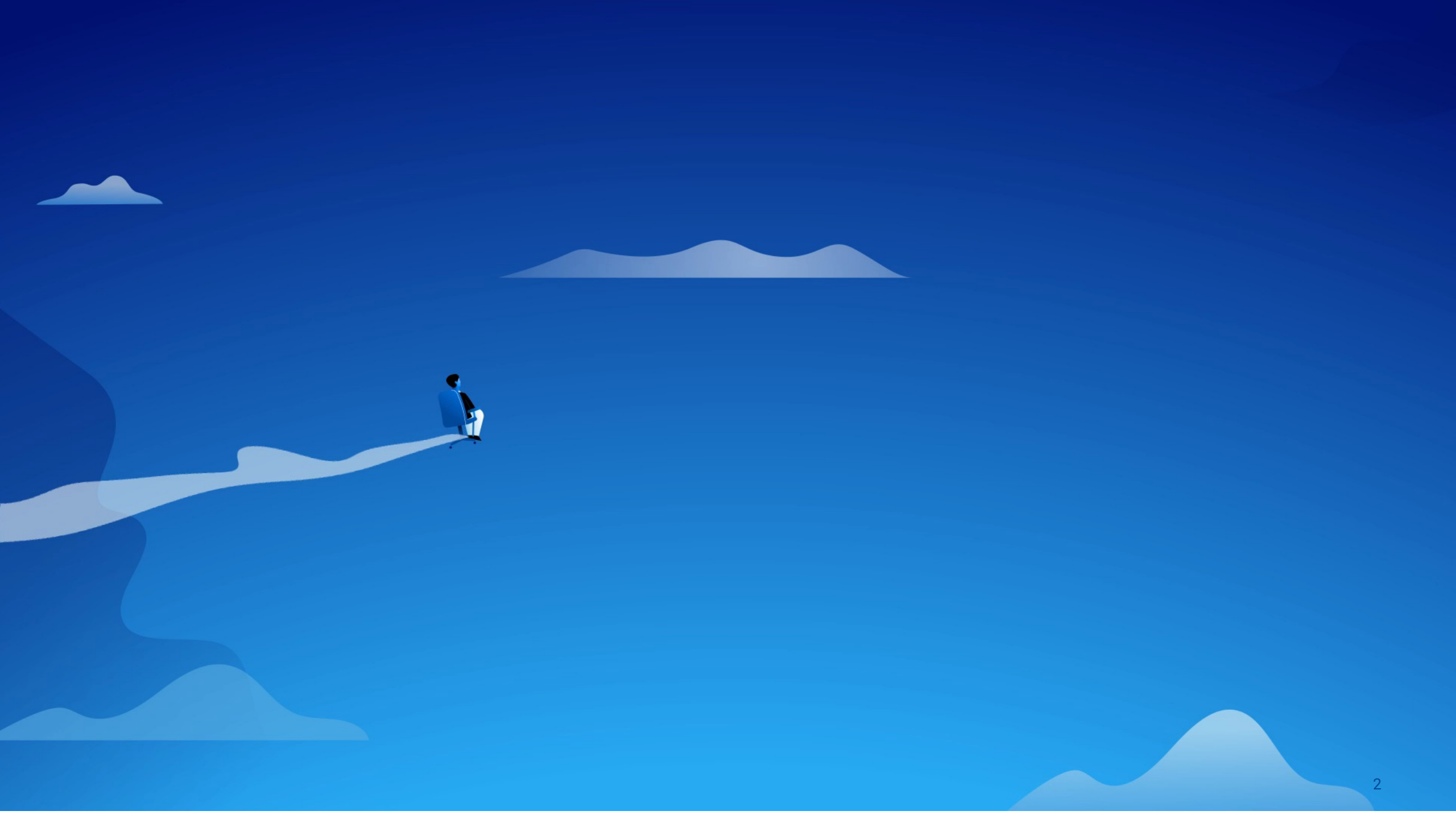


Zero Emission Transportation – Trends & Opportunities

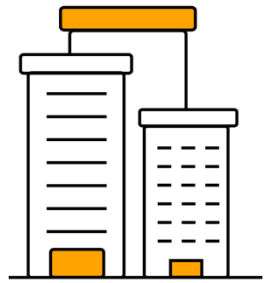
Mayda Bandy

Client Director – State and Local Governments



Black & Veatch Today

120+
Offices



and



12,000+
Professionals

\$4.25B
Revenue in 2022

Founded
1915

Projects on

6

Continents



9th largest employee-owned
company in the U.S.

voted

2022 Best Places to Work
for LGBTQ Equality

7,000 Active Projects
Worldwide

ENR Rankings:

Ranked #14 in Top 500 Design Firms

Power #2

Telecom #6

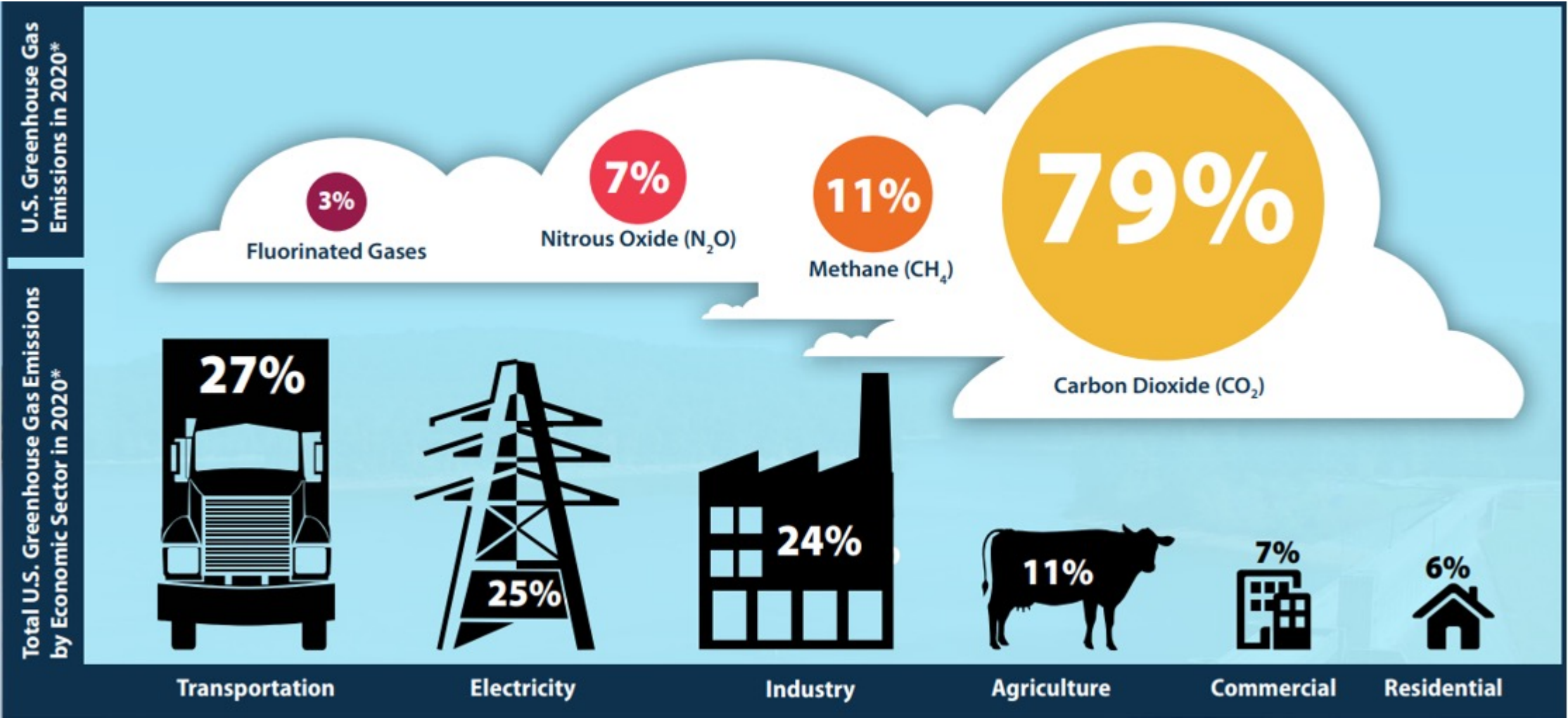
Solar Power #2

Petrochemical #8

Hydro Plants #4

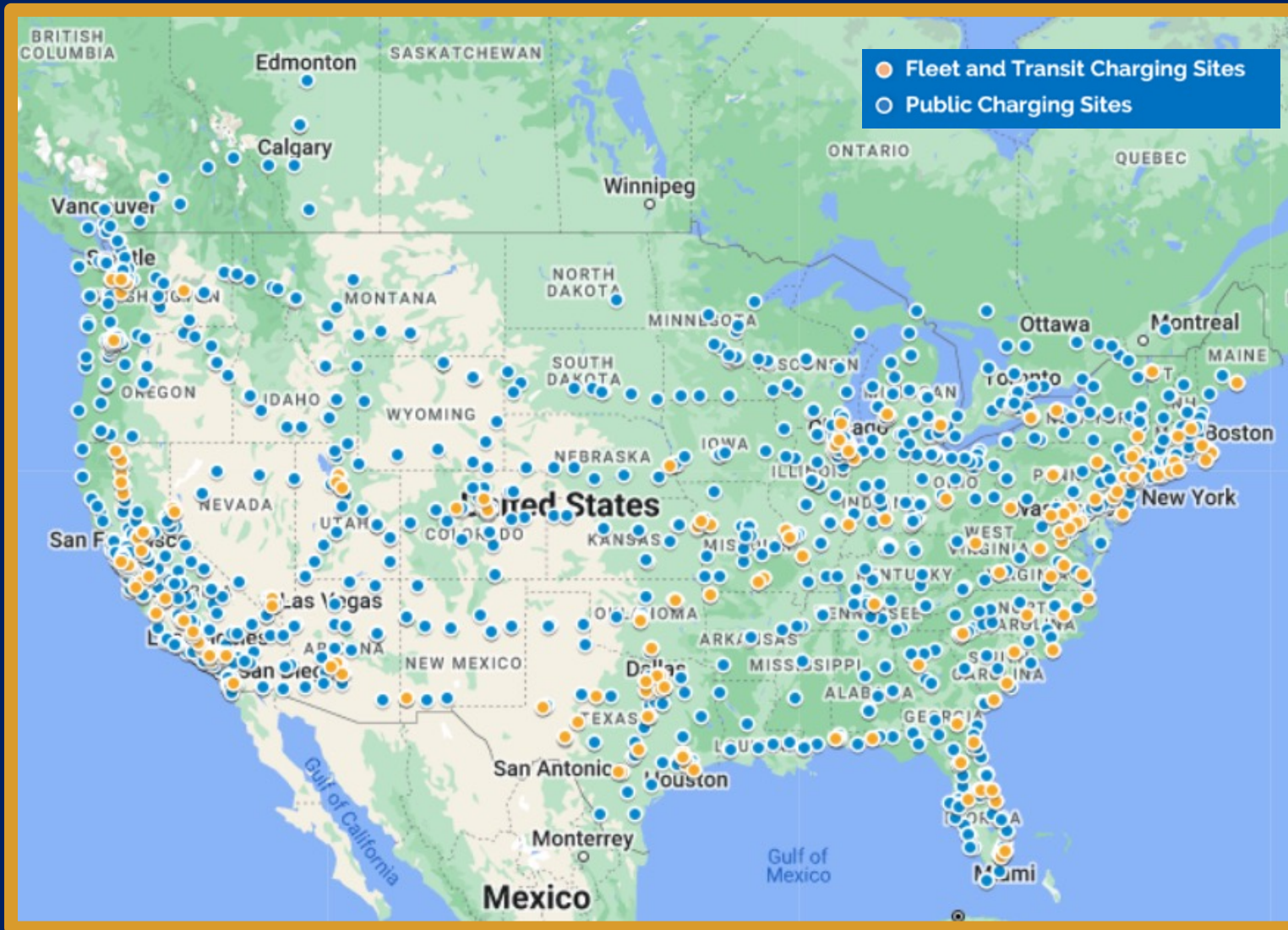
Water Supply #8

Clean Transportation Reduces Greenhouse Gas Emissions



Source: EPA, 2022

Black & Veatch Electric Vehicle Charging Deployment



30,134
Dispensers

2,266
Sites

2 GW
EV Charging
power engaged

49 States
and Canada,
Germany,
United Kingdom,
Spain & the
Netherlands

326 MW
Fleet charging
engaged

Black & Veatch's Unique Capacity to Decarbonize Transportation

Electric Vehicle Charging



Renewable Energy



Hydrogen Refueling



Battery Energy Storage Systems



Discovery



Fleet/Traffic
Discovery



Vehicle & Charger
Strategies



Power
Investigation



TCO
Analysis



Emission
Reduction Analysis



Funding &
Grants

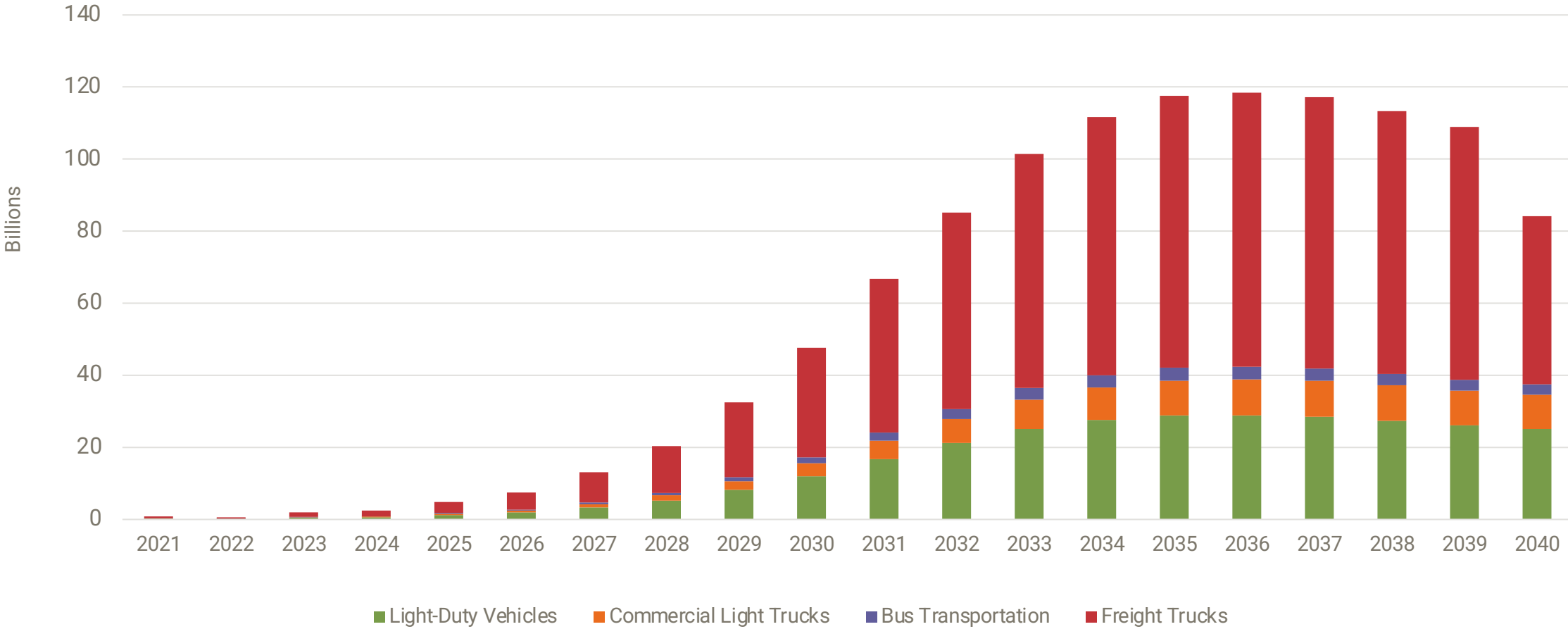


Electrification
Roadmap

Roadmap

Electric Vehicles

Estimated Capital Build-out for Charging Infrastructure



Sources: America 3.0; Black & Veatch analysis

Public Private Partnerships

Public Private Partnerships

- Develop, Finance, Construct, Maintain, Own & Operate

Charging as a Service

- No upfront costs; service fee over defined period
- Bundling of hardware, software, installation, maintenance and support

Energy as a Service

- No upfront costs; service fee over defined period
- Upgrade equipment to maximize efficiency and integrate renewable energy to reduce GHG emissions,



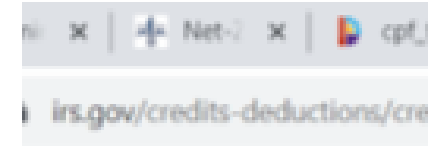
Funding



- Climate Pollution Reduction Grant



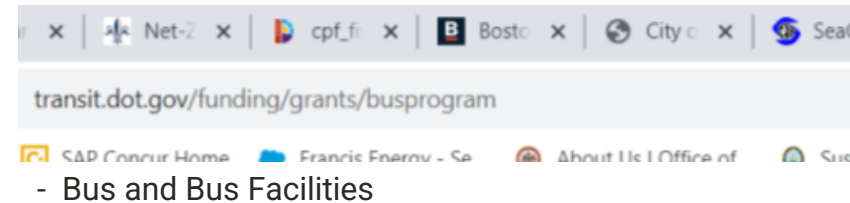
- Clean Transportation Program
- Renewable Energy



- Electric Vehicle Rebates



- Charging & Fueling Infrastructure
- NEVI



- Bus and Bus Facilities



Funding activities must be ongoing to maximize awards, mitigate costs, and maintain compliance.



Thank You

Mayda Bandy BandyMP@bv.com

Black & Veatch Guides your Transition to Clean Transportation



Market Drivers are Merging to Heighten Momentum

Policies & Regulations



Stringent emissions regulations

Federal & state targets on clean transportation & emissions

Funding Support



2021 Infrastructure Bill gives \$billions for EVs, \$7.5b for nationwide charging network

Total Cost of Operation



25-40% lower commercial maintenance costs

40% lower LDV maintenance costs

60% less LDV fuel costs

Potential grid value

Declining Battery Costs



86% reduction over last 10 years

7-8% year/year battery performance gains

Power Electronics



20% more efficient well/wheels

Silicon computing power (Moore's Law)

Better performance & experience

BV Solutions Portfolios

Black & Veatch has solutions across the infrastructure portfolio – for this discussion, we will be focused on the Distributed Infrastructure required for Clean Transportation

Integrated Solutions Offerings



Advanced Power Generation

Integrated solutions that address our clients' most pressing issues around the energy transition to clean, reliable, sustainable, affordable power.



Advisory Services

Industry-leading consulting services to support technology, operational, financial and regulatory challenges that require integrated, end-to-end global capabilities.



Commercial & Industrial Facilities

Guiding high-tech, commercial and industrial clients through strategic planning and design of sustainable, resilient, profitable and compliant facilities with future capacity needs in mind.



Distributed Infrastructure

We provide planning, analysis, site acquisition, design, and engineering services to deploy cost-efficient distributed systems across transportation, energy, communications, modular infrastructure and integrated medical and digital health systems.



Environmental Services

Support to solve complex environmental challenges by reducing regulatory complexity and compliance needs and ensuring budget and project schedules are met successfully with our integrated expertise in sustainable infrastructure.



Federal & Cybersecurity

Resilient, sustainable and integrated solutions all in the interest of protecting our government and commercial clients' mission-critical facilities, infrastructure and programs worldwide.



Grid

Preparing utilities for long-term, sustainable growth through the planning, designing and building of an intelligent, secure and resilient grid that reduces grid failures and enables diverse, renewable generation.



Operating Asset

We optimize infrastructure for heavy asset owners. Combining deep industry knowledge, lifecycle experience and proven processes to streamline construction and management.



Process

From small to utility-scale, we specialize in creating renewable energy assets and data infrastructure. These sustainable process solutions help clients lead the transition of resilient and affordable energy while accelerating pathways to global decarbonization.



Water

The collaborative partner with the complete and customizable technical, management and delivery expertise to solve any water infrastructure-related and associated lifecycle resource and compliance need.