CREATING IMPACT THROUGH INNOVATION

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XPRIZE Foundation
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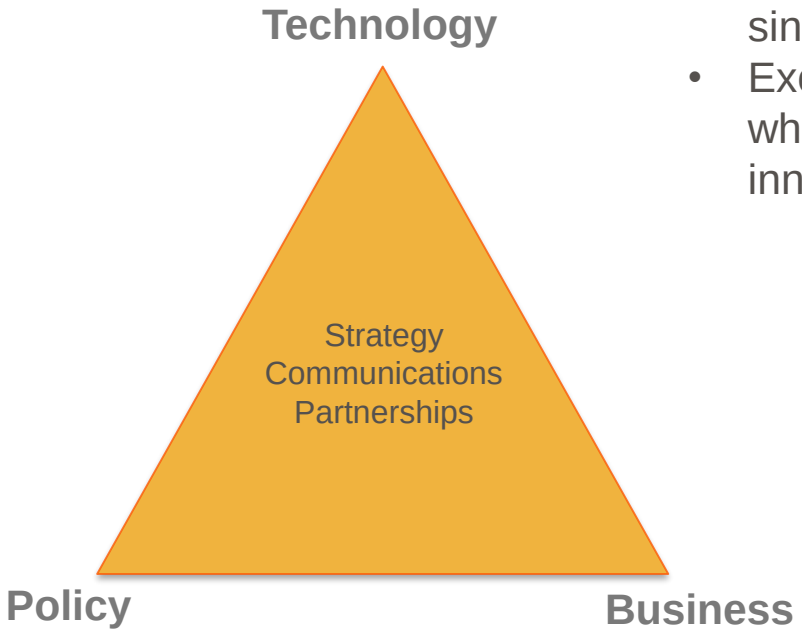
nrg | cosia CARBON XPRIZE

ABOUT ME…



- Optimistic, but pragmatic
- No energy source is perfect…and there's no single solution to our energy challenges
- Exciting, beneficial, important things happen when people try new things…that's what innovation is all about

- ~15 years in Washington, DC focused on energy and technology issues
- Have advised XPRIZE for last ~4 years
- Have worked on NRG COSIA Carbon XPRIZE since late 2013
- Have worked with Gov. Mead and WY stakeholders to help make ITC a reality!

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SNAPSHOT OF THE CARBON XPRIZE

THE WINNING TEAM WILL…	Convert the most CO_2 into one or more products with the highest net value
PRIZE PURSE	• $2.5M milestone prize purse for each track • $7.5M grand prize purse for each track
TIMELINE	4.5 years: September 2015 – March 2020
STRUCTURE	Teams register for one of two tracks: • 1 track tested on coal (“Track A”) • 1 track tested on natural gas (“Track B”) Teams compete in three rounds: • Round 1: Technical and Business Viability Assessment • Round 2: Pilot Scale Competition • Round 3: Demonstration Scale Competition
JUDGING CRITERIA	**Scoring Criteria:** • Amount of CO_2 converted into products • Net value of products **Minimum Thresholds:** • Maximum volume of fresh water consumed • Maximum land footprint in Round 3 demonstration

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COMPETITION TIMELINE: YOU ARE HERE

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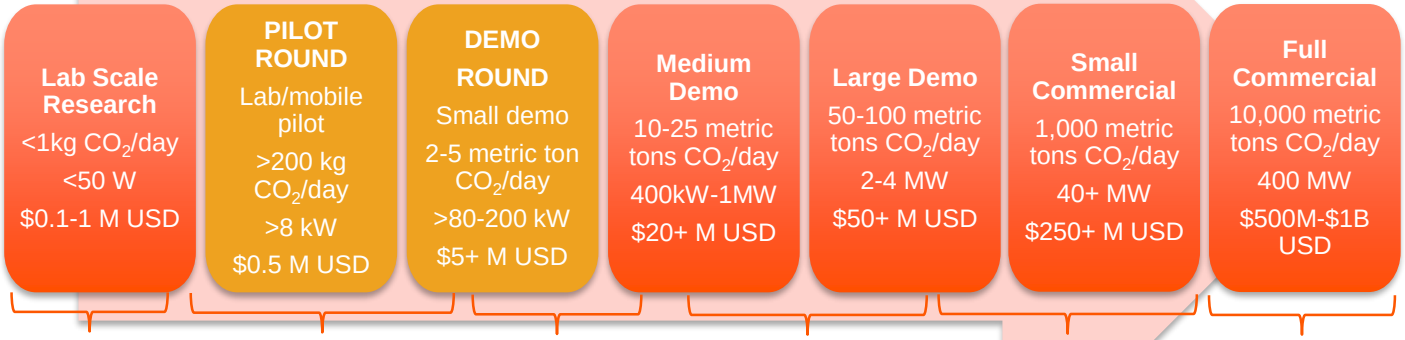
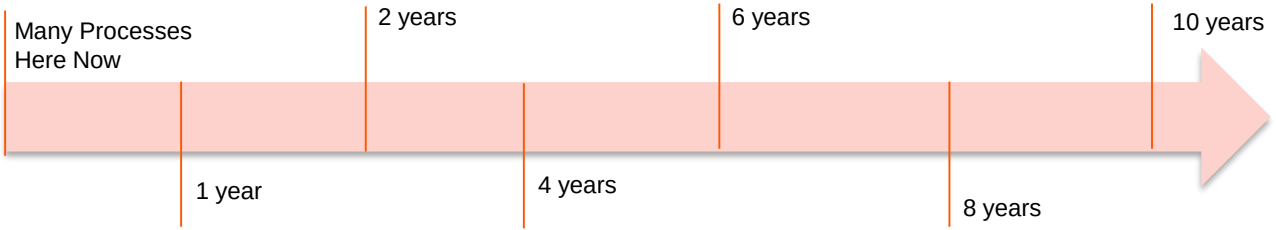
PATHWAY TO COMMERCIALIZATION



TRL 1- 3	TRL 4	TRL 5	TRL 6	TRL 7	TRL 8-9
Fundamental research through proof of concept for application Example today: "Solar fuels"	Validation of concept in laboratory environment Example today: Calcium looping	Validation of concept in a working environment Example today: IGCC	Demonstration in a working environment Example today: Oxyfuel combustion	Full scale demonstration in a working environment Example today: Amine scrubbing	Technology fully demonstrated, tested, and deployed Example today: Wet sulfur scrubbing



THE TEAMS!

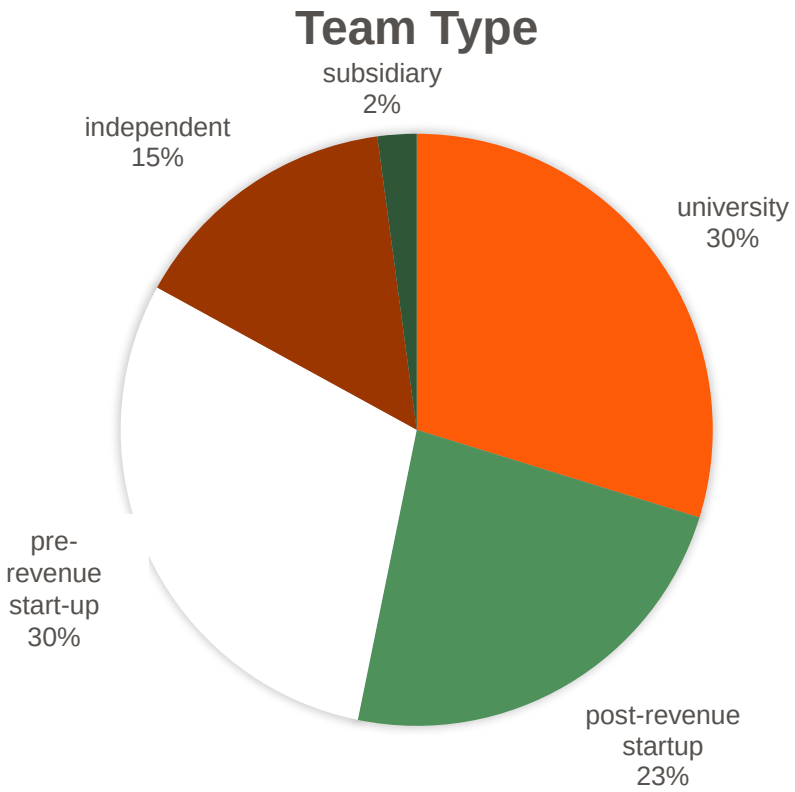
CARBON XPRIZE COMPETITORS

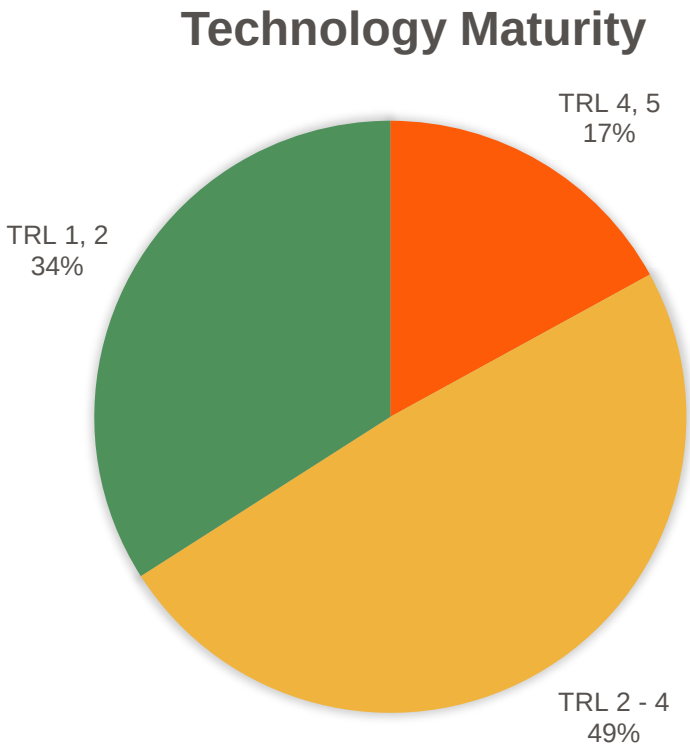
TEAM BREAKDOWN		
	Round 1	Round 2
Total Teams	38	25
Total Entries	47	31
Track A Entries	**20**	**12**
Track B Entries	27	19
Dual Track Entries	9	6

Competing for a spot in finals at the ITC in Gillette

GEOGRAPHIC BREAKDOWN		
	Round 1	Round 2
USA	21	13
Canada	12	8
China	1	1
India	1	1
Scotland	1	1
Switzerland	1	1
Finland	1	n/a

TEAM TYPES AND CURRENT MATURITY





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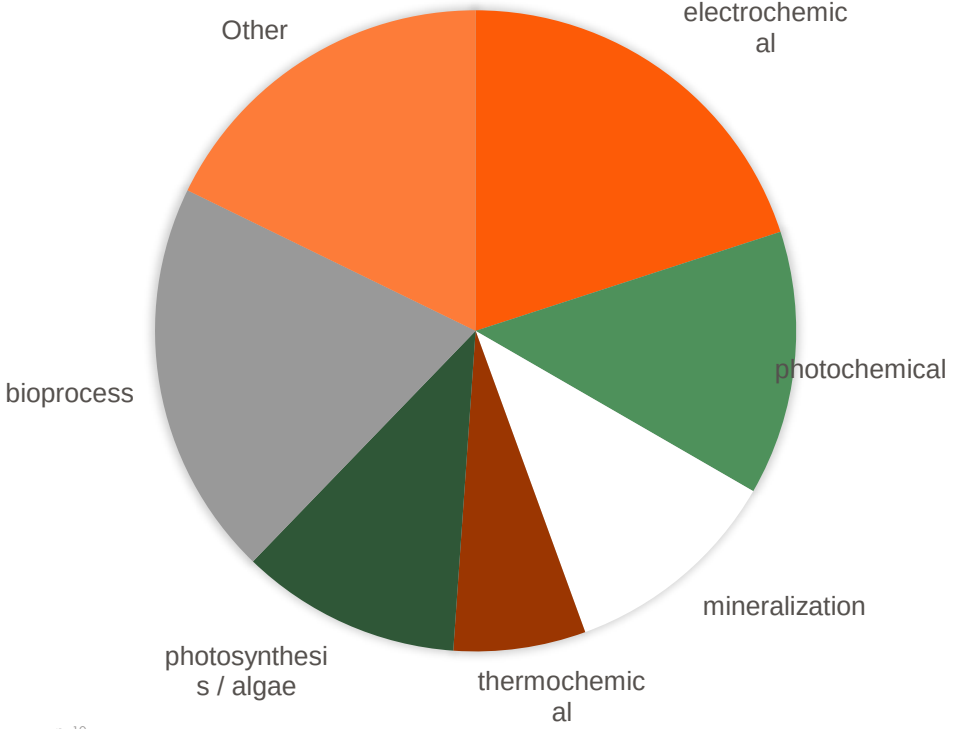
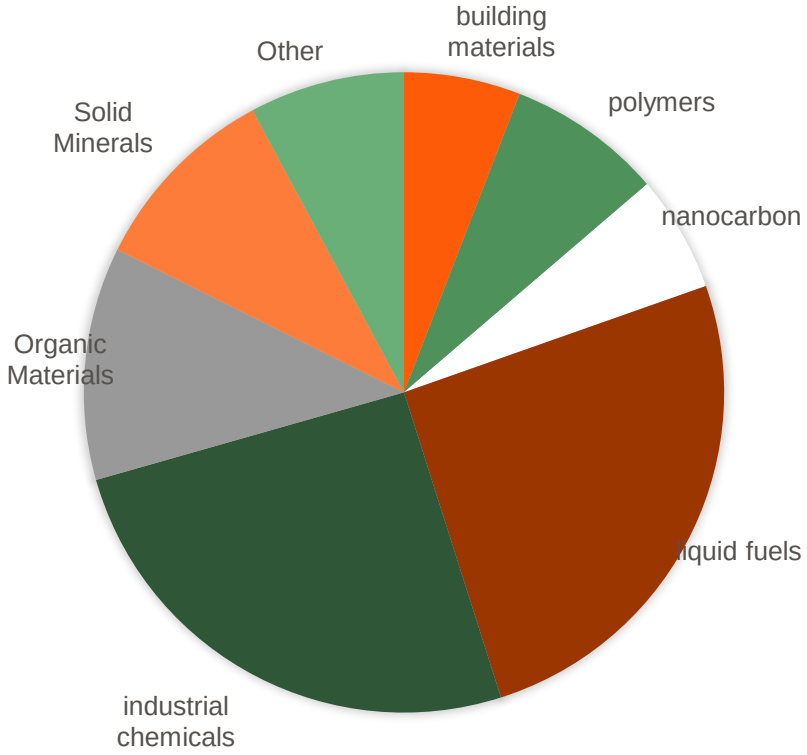
TEAM PROCESSES & PRODUCTS

TECHNOLOGIES



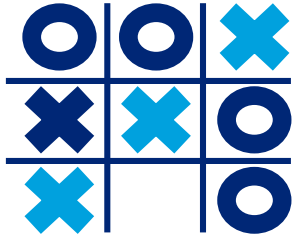
PRODUCTS



WHY DO TEAMS COMPETE?

Money

Resources



Fun

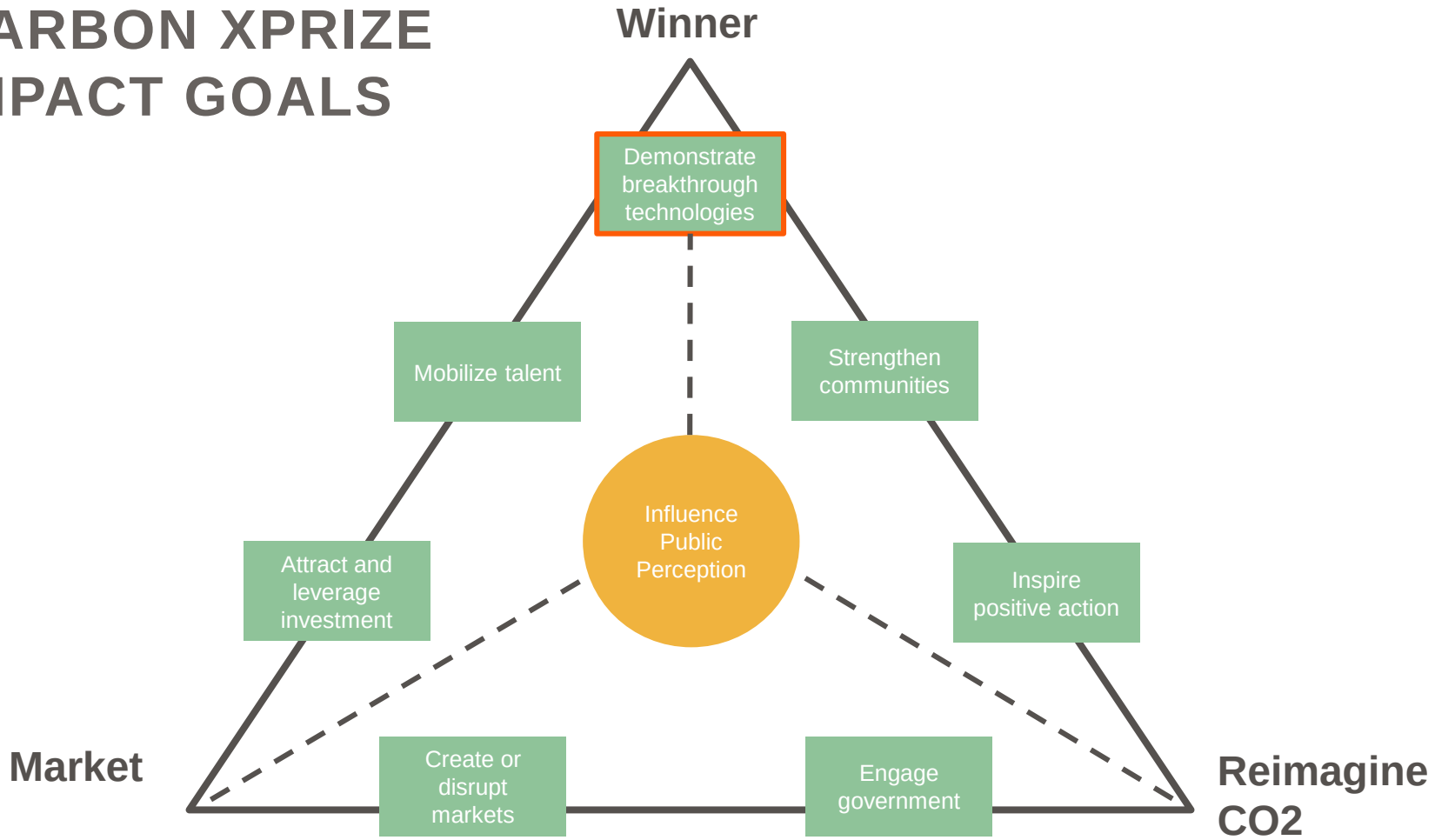
Credibility

Purpose

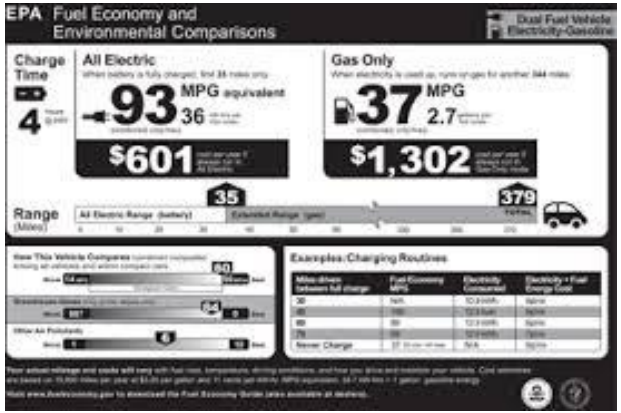
Competitive Spirit

CREATING IMPACT

CARBON XPRIZE IMPACT GOALS



PRIZE IMPACT EXAMPLES…



HOW WE ARE HELPING DELIVER VALUE IN WYOMING…

- Focus industry, government, media attention on WY
  - Position WY as leader on innovative energy solutions that can drive economic growth
  - Position WY to incentivize and attract carbon industries in the state
  - Potential events and tours at ITC site throughout the competition
- Early view of universe of technologies and companies operating under real world conditions
- Increase economic activity in Gillette, particularly in 2018-2020 once ITC opens and teams are operating
- Create pipeline of future tenants for ITC
- Inspire people like YOU to start new initiatives!

REIMAGINE CO2 PROGRAM

Reimagine CO_2 is…

- A program intended to broaden and strengthen the **impact of the Carbon XPRIZE**
- A **series of events** convened and facilitated by XPRIZE to **engage with key stakeholders** and seed new thought leadership and action to support innovative carbon technologies
- A mission to **inspire new thinking and action** among industry, innovators, investors, governments, and the public to reimagine CO2 and **enable creative solutions** that address climate change, drive economic benefits, and lead to a stronger energy future.

HOW CO2 UTILIZATION CAN DRIVE ECONOMIC DEVELOPMENT IN WYOMING (MARCH 2017)

FUTURE REIMAGINE WORKSHOPS

- **June 2017 – International Student Energy Summit (Merida, Mexico)**
  - 700+ young energy leaders from 100 countries
  - Workshop will explore how participants can engage in energy innovation and impact environmental and economic issues globally

- **Q3/Q4 2017 – TBD, but possible topics we are considering:**
  - Building stronger environmental NGO support for innovation
  - Financing commercialization and scale-up of CO2 conversion
  - Creating new policy to drive CO2 as an asset

WHAT NEXT?

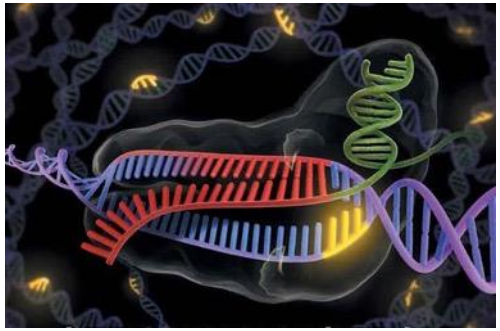
Exponential TECHNOLOGIES

Sensors

Artificial Intelligence

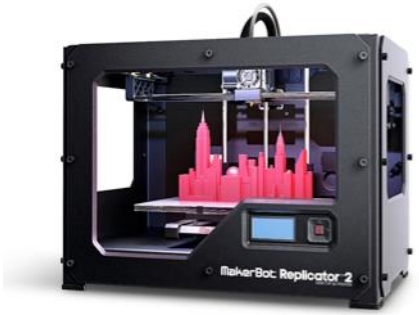
Robotics

Synthetic Biology



Virtual Reality

3D Printing



Exponential TOOLS

Crowdfunding

Crowdsourcing

Design Thinking

Blockchain

Big Data

Prizes

“THINK GLOBALLY, ACT LOCALLY”

Impact begins with YOU!

THANK YOU

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