



**Making the Most of Michigan's Energy Future**

# **Energy Programs & Technology Pilots Stakeholder Meeting 6**

***The meeting will begin shortly at 1:32 pm  
to allow people to join.***

June 11, 2020

1:30-3:45 PM



**MPSC**

**Michigan Public Service Commission**



**Making the Most of Michigan's Energy Future**

# Welcome and Overview

**Joy Wang**

[wangj3@Michigan.gov](mailto:wangj3@Michigan.gov)

MPSC Staff

Smart Grid Section



**MPSC**

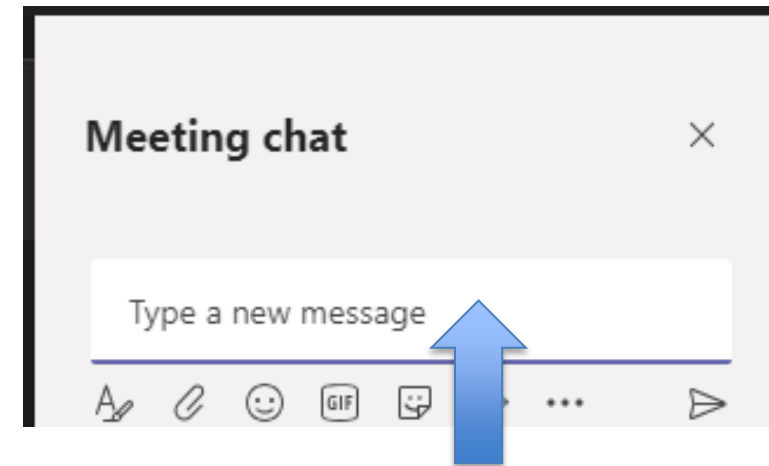
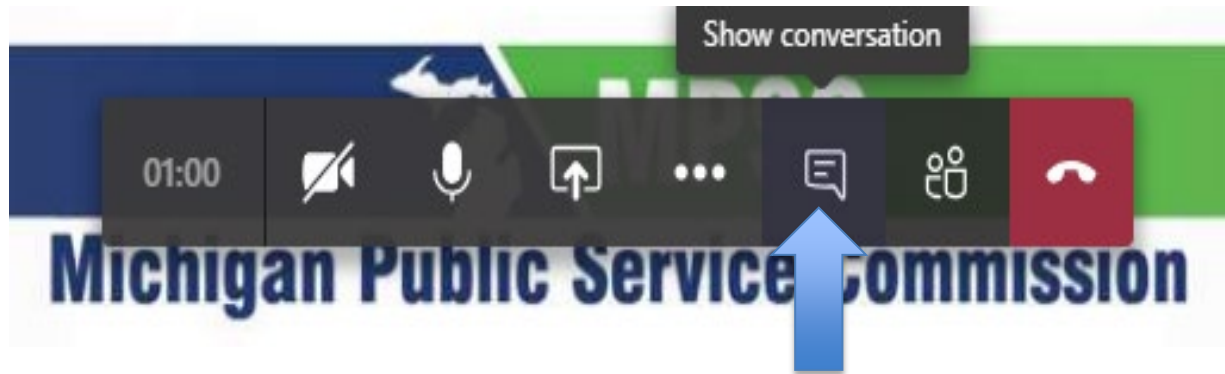
**Michigan Public Service Commission**

# Agenda

1:30 p.m.	Welcome & Overview of Last Meeting	Joy Wang (MPSC Staff)
1:35 p.m.	Panel: Community Pilot Experience, Best Practices, and Strategic Plans	<p>Panelists: Sergio Cira-Reyes (Urban Core Collective)          Jan Culbertson (Ann Arbor 2030 District)          Robert LaFave (Village of L'Anse)          Amy Roth (City of Three Rivers)          Alison Sutter (City of Grand Rapids)</p> <p>Moderator: Sarah Mills (University of Michigan)</p>
2:50 p.m.	Break	
3:00 p.m.	Startup Overview	Brad Fingland and Paul Jaques (MSU Innovation Center – Spartan Innovations)
3:30 p.m.	Staff Report Timeline & Outline	Joy Wang (MPSC Staff)
3:40 p.m.	Closing Statements	Joy Wang (MPSC Staff)
3:45 p.m.	Adjourn	



# Housekeeping

- This meeting is being recorded
- Recording and slides posted on [workgroup website](#) in about a week
- All audience members will be muted
- Please type questions into the chat box
  - To access chat box:



- Staff will ask chat box questions during Q&A

# Housekeeping, cont.

- During the panel discussion, if clarification of your question is needed, we will ask you to unmute.
  - To unmute:
    - Phone: Press \*6
    - Teams: Click mic button
  - Please mute yourself again after your clarification.
- Chat box notes when audience member enter/exit.
  - These notices are automatic:
    -  Wang, Joy (LARA) added Guest to the meeting.
    -  Wang, Joy (LARA) removed Guest from the meeting.
- If Teams via web browser is not working, try a different web browser. Some browsers that may work are:
  - Google Chrome, Internet Explorer, and Mozilla Firefox

# Overview of May 28 Meeting

- Panel: Reflections on Pilot Best Practices, Recommendations, & Path Forward
  - Panelists: Ryan Kiley (Consumers)  
Camilo Serna (DTE)  
Laura Sherman (MiEIBC)  
Wayne Snyder (NextEnergy)  
Andrew Williamson (I&M)
- Panelists expressed their views on recommendations heard
  - Varied views expressed, though also agreement

# Overview of May 28 Meeting, cont.

- Peter Cappers (Lawrence Berkeley National Lab)
  - Making Pilot Data Publicly Available: Experiences and Opportunities
    - Multitude of considerations and challenges when making data publicly available.
    - There are benefits to making it public that must be balanced with the costs.
- Karen Gould (MPSC Staff)
  - MPSC EWR Pilot Annual Report Review
    - EWR pilot information filed in multiple places.
    - EWR annual reports not the best place to find the information.
    - One stop shop for pilot information may help those unfamiliar with all locations to access the pilot information

# Overview of May 28 Meeting, cont.

- Lekha Sridhar and Christy Lewis (WattTime)
  - Unintended Consequences of not Aligning Metrics with Program Goals
    - Metrics must be aligned with program goals.
    - Sometimes proxy metrics can lead to failure of goal realization.
    - Metrics need to be thoughtfully considered when designing pilot evaluation.
- Recording and presentation slides available at [workgroup website](#)



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**Making the Most of Michigan's Energy Future**

# **Energy Programs & Technology Pilots**

**Panel: Community Pilot Experience,  
Best Practices, and Strategic Plans**

**1:35 – 2:50 PM**

Stakeholder Meeting 6

June 11, 2020



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**Making the Most of Michigan's Energy Future**

# **Energy Programs & Technology Pilots**

## **Break: 2:50 – 3:00 PM**

Stakeholder Meeting 6

June 11, 2020



**MPSC**

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# MICHIGAN STATE UNIVERSITY

## Startup Overview

MI Power Grid  
June 11, 2020

**Paul Jaques**

Managing Director- Venture  
Creation



Burgess Institute  
for Entrepreneurship  
& Innovation

MICHIGAN STATE UNIVERSITY

**Brad Fingland, PhD**

Director, Spartan Innovations



MICHIGAN STATE UNIVERSITY  
**FOUNDATION**

# Michigan's Startup Ecosystem

## 2019 MVCA Research Report

140

Venture-Backed  
Companies in  
Michigan



\$385M  
Venture Capital  
Invested in 61  
Michigan  
Startups

27

Venture  
Capital Firms

\$967M  
Capital Need

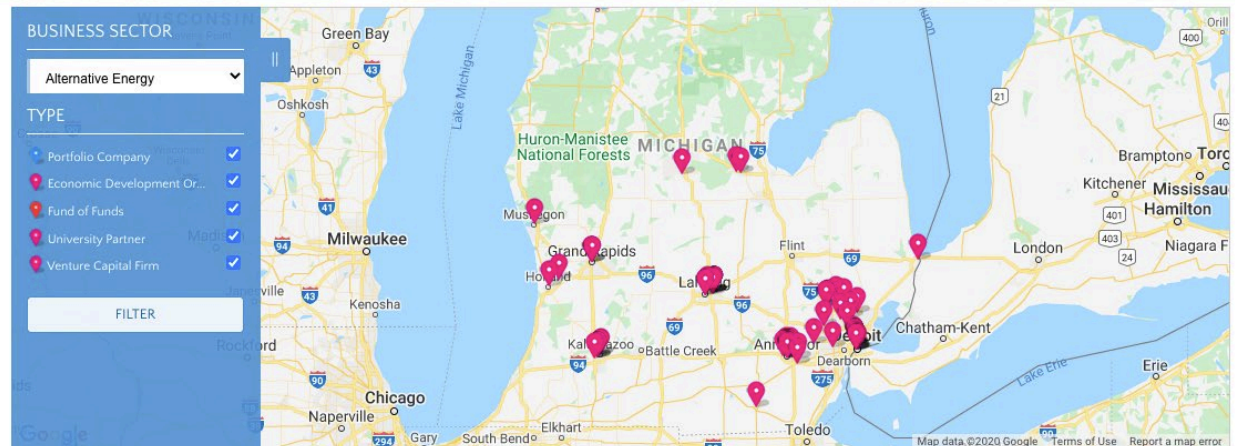
\$3.7B Total  
Capital under  
Management

85

Venture Capital  
Professionals



## MICHIGAN ENTREPRENEURIAL & INVESTMENT LANDSCAPE MAP



# What is the Burgess?



The Burgess Institute for Entrepreneurship and Innovation is an initiative of MSU's Provost office along with academics out of the Eli Broad school but open to all students.

**Mission-** The Burgess Institute for Entrepreneurship & Innovation empowers students to learn through action by providing campus-wide programs, courses, and resources to test ideas, foster an entrepreneurial mindset, develop empathy, and create new ventures.

The Burgess Institute is broken up into 2 areas:

**Venture Creation-** Discover Launch Program

**Academics-** which includes our minor in Entrepreneurship

The Burgess Institute manages 2 spaces on campus:



# What is the MSU Foundation?

The MSU Foundation (MSUF) is a 501(c)(3) non-profit research foundation outside of Michigan State University that is controlled by an independent board of directors.

**Mission** – *Assist Michigan State University to achieve their goals related to economic development through the commercialization of intellectual property created by faculty, staff, and students.*

The MSU Foundation manages MSU patent royalties and uses those earnings to

- a) fund block grants back to the university and
- b) fund three subsidiary entities whose purpose is entrepreneurial and economic development activities.

## **MSU Foundation Subsidiaries** – *Fostering Entrepreneurial Ecosystems & Economic Development*



### **Venture Creation**

Spartan Innovations drives MSU entrepreneurial faculty and staff to develop their ideas, leverage federal dollars (e.g. SBIR/STTR), create business plans and launch highly technical businesses.



### **Venture Investment**

Red Cedar Venture's vision is to be the leading Mid-Michigan Venture Fund.

- 60 companies & \$5M invested
- \$200M follow on funding
- Will manage MI pre-seed fund through a new subsidiary



### **Venture Spaces**

University Corporate Research Park provides spaces that cultivate and enable startup success and also accelerates corporate innovation and research partnerships with Michigan State University.

# Carbon Cash

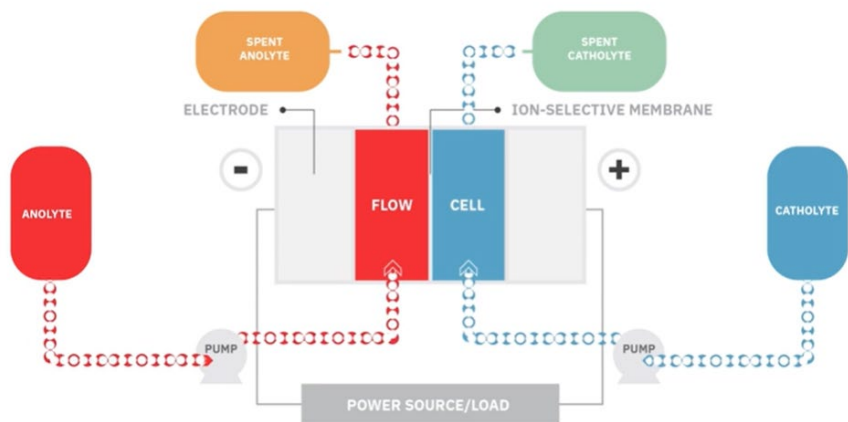


The purpose of Carbon Cash is to motivate tenants to conserve energy while offering simultaneous benefits to property owners, tenants, and retailers. The core idea of Carbon Cash is to bridge the gap between these groups in order to reduce overall electricity consumption in a way where everyone wins.

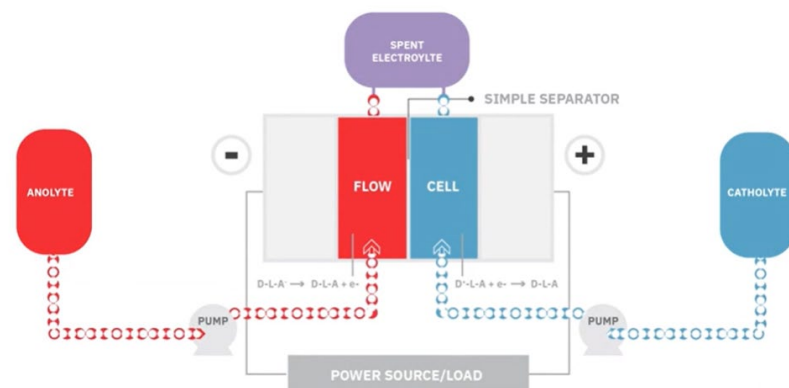


Rank	User Info	Points
1	BGibbard AKERS HALL	1200
2	Zaney2015 CRESCENT HALL	1050
3	BMurrrray LANGDON HALL	990
4	BPhillips CRESCENT HALL	850
5	Melony CRESCENT HALL	705
6	Porky CRESCENT HALL	695
7	abbyxo37 BAILEY HALL	635
8	SpartanFan3 CRESCENT HALL	590
9	ALauder BRODY HALL	575





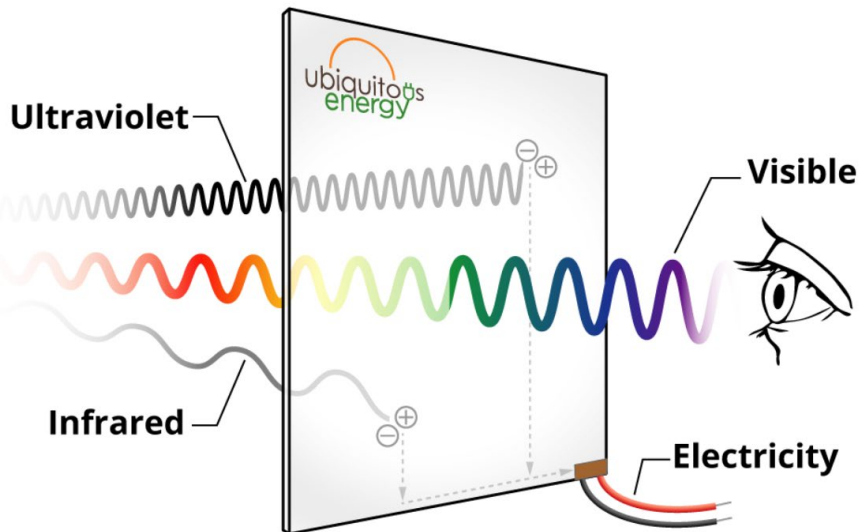
**Traditional Vanadium Redox Flow Battery**



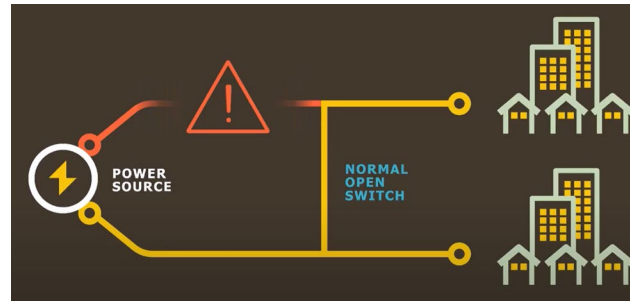
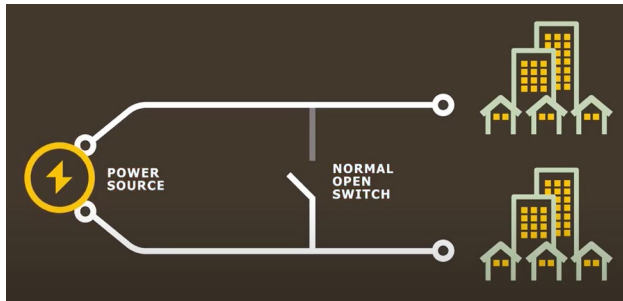
**Jolt Redox Flow Battery  
Carbon based electrolyte**

	Jolt Energy Technologies Organic Redox Flow Solutions	Vanadium Redox Flow Batteries (VRFBs)	Lithium-Ion Solutions (Li-Ion)
<b>Cost</b>	\$	\$\$	\$\$\$
<b>Energy Density</b>	approx . 80-100 Wh/kg	25 Wh/kg	250 Wh/kg
<b>Safest Grid-Scale Battery*</b>	Yes	No	No
<b>Service Life</b>	20 Years	20 Years	10 Years
<b>Environmental Impact**</b>	Low	Medium	High

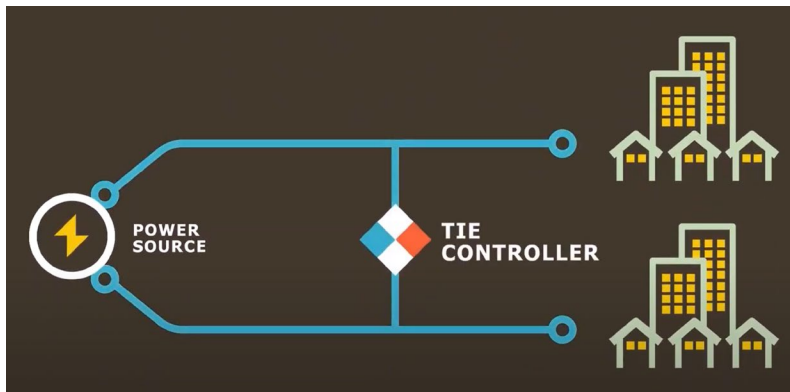
## ubiquitous energy



- **Invisible:** up to 90% visible light transmitted; absorbs only ultraviolet and infrared
- **Efficient:** over 10% achievable; optimization is independent of transparency
- **Low cost:** low-cost, non-toxic materials; industry standard deposition equipment
- **Thin and light:** film is less than 1/1000<sup>th</sup> of a millimeter thick
- **Ubiquitous:** generates electricity on any surface or device without aesthetic impact

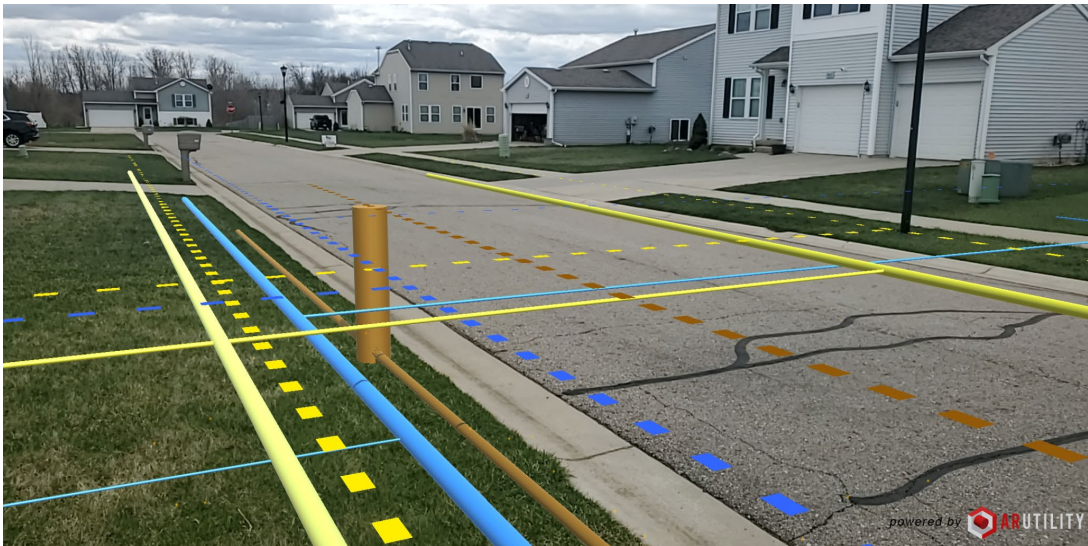


**Need:** Actively managed power distribution in field tie switches

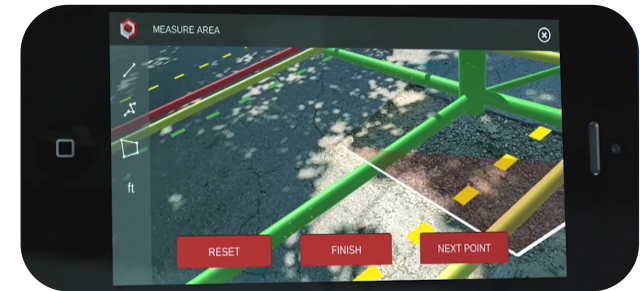


Enable legacy grid infrastructure to

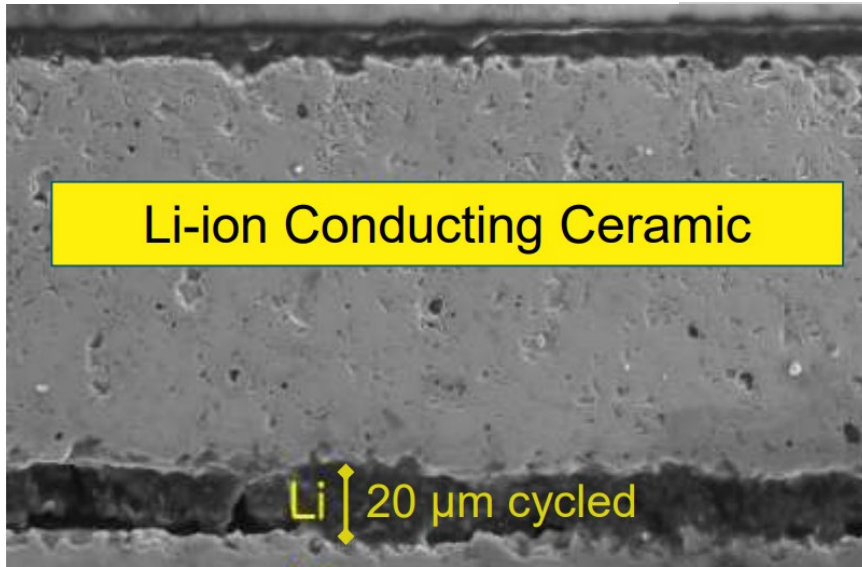
- Provide power-electronics that increase reliability and efficiency
- Double distributed energy generation (e.g. solar) capacity
- Increase 25% load growth without expensive infrastructure upgrades



- Reduce underground damage
- Make excavation more cost effective
- Aid Engineers in identifying conflicts before they happen
- Assist utilities with asset management



Utility x-ray Vision enabled by Geographic Information Systems (GIS) database and external GPS for **accuracy within inches**



## Solid electrolyte Li battery

- Solid electrolyte
  - Stabilizes the Li
  - Non-combustible, improved safety
- Solid Li anode
  - 2x energy density
- Manufacturability
  - Leverages existing Li-ion processes

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**Everyone benefits through strategic investing, connections, and shared research**

## **Diversity**

- Focus on minority and women entrepreneurship
- Training programs centered on enabling underserved populations to start businesses

## **Targeted Technology & Initiatives**

- Health care
- Energy
- Materials
- IoT
- Software
- Transportation
- Artificial Intelligence
- Etc. ...

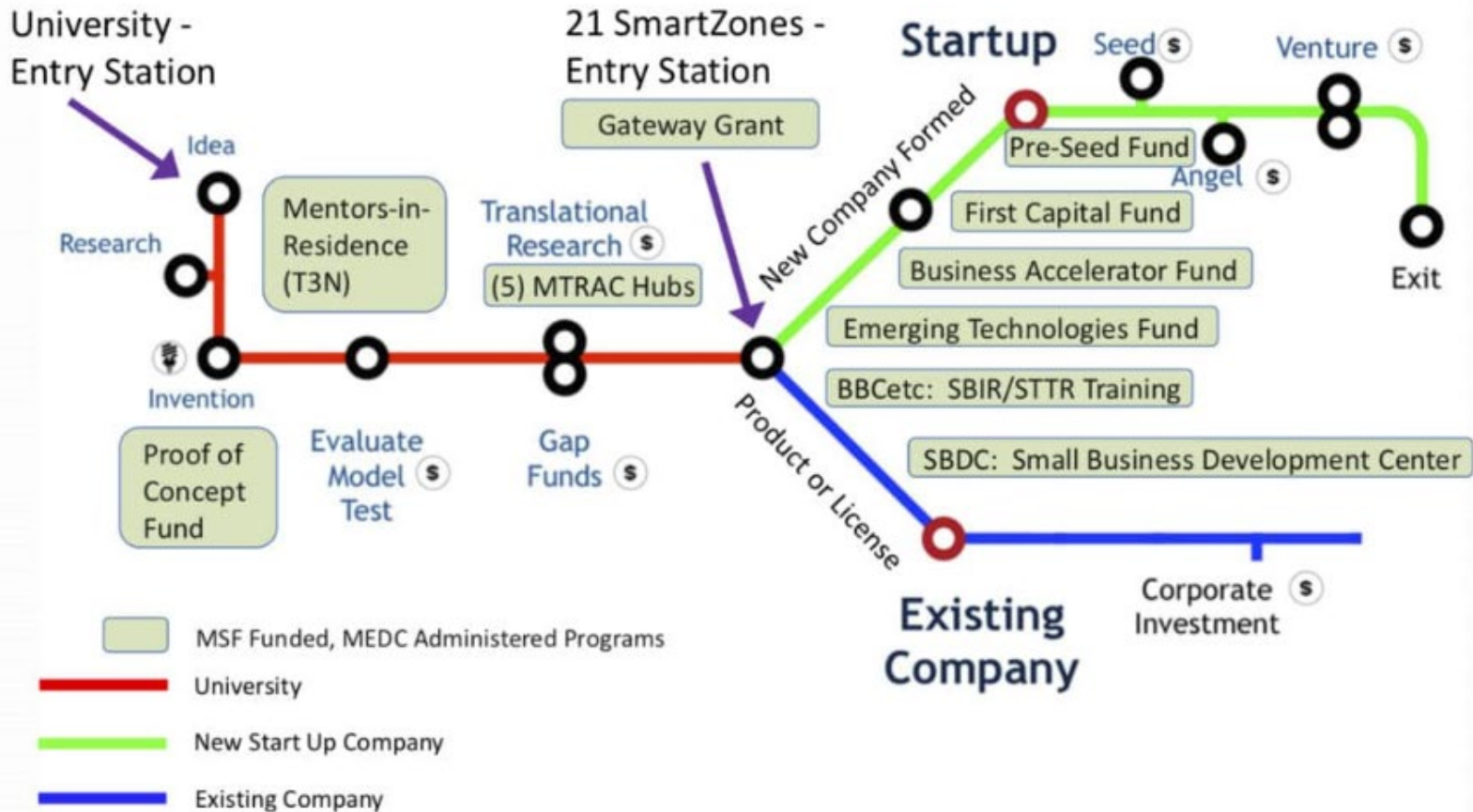
## **Partnerships**

- MSU & MSU Foundation have statewide partnerships
- Conquer Accelerators – mentoring & sponsorship

# Backup

# Michigan's Entrepreneurship Programs

Entrepreneurship and Innovation – “Subway Map” of Current Programs



MICHIGAN ECONOMIC DEVELOPMENT CORPORATION



**BBC Entrepreneurial Training & Consulting (BBCetc)**

BBCetc offers SBIR/STTR training and mentoring for small businesses providing seminars, classes, proposal reviews, and best practices for federal grant writing. Additionally, they provide post-award management and accounting services. SI pays the membership fee for all the companies in its portfolio to leverage these services.

**Small Business Development Center (SBDC)**

The SBDC offers expert assistance at no cost to entrepreneurs looking to start or grow a business. SI leverages the expertise at SBDC and connects EIRs and founders to resources including business plan development, market research, raising capital, business workshops, technology commercialization, financial management, export strategies, strategic planning, IP management, and human resources.

**Business Accelerator Fund (BAF)**

The BAF enables startups to fund 3<sup>rd</sup> party services up to \$50k. SI serves as BAF reviewers for non-SI applications and SI applicants receive feedback and guidance on their proposals. <https://sbdc-michigan.org/business-accelerator-fund/>

**Emerging Technology Fund (ETF)**

The ETF provides additional dollars for federal SBIR/STTR programs, up to \$25,000 for Phase I and up to \$125,000 for Phase II funded proposals. SI provides the matching funds required for the ETF funding. <https://www.michiganbusiness.org/services/entrepreneurial-opportunity/early-stage-funding/>

**Michigan Translational Research and Commercialization (MTRAC)**

A state funded program that funds translational research within a university setting. This type of research funded has a pathway to commercialization that represents an excellent SBIR/STTR opportunity. SI supports this program by assisting MSU faculty in their preparation for MTRAC applications. <https://www.michiganbusiness.org/services/entrepreneurial-opportunity/university-programs/>

**Advance Grant**

SI provides MSU-derived companies milestone-based funding up to \$50k with a strong focus on SBIR/STTR opportunities. The program includes a \$10k milestone for submitting an SBIR/STTR and a \$20k milestone for being awarded an SBIR/STTR.

<https://www.michiganbusiness.org/services/entrepreneurial-opportunity/university-programs/>



Designed to help both start-ups and established companies overcome business hurdles, Conquer emphasizes smart planning and growth, extensive mentorship from an experienced bench of professionals, and educational components over an intensive 10 weeks.

### The Elements

- Space to innovate and work collaboratively
- Mentorship from experts in marketing, sales supply chain, manufacturing, and more
- Resources including legal advice, access to a broad MSU alumni network, market data, and development assistance

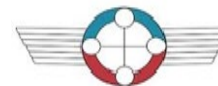
### Facts about Conquer Accelerator

- Started 2015 in East Lansing
- 25% of the companies are tenants in UCRP properties, 9/15 still in local area (Lansing/East Lansing)
- 3-day SBIR/STTR training

**2020 Cohort**



protection



## New Spaces for Startups and Commercialization

The University Corporate Research Park (UCRP) provides spaces so the advancement of research, technology, and commercialization of intellectual property occur.

### McLaren Hospital

UCRP was pivotal in bringing new \$450M McLaren / MSU Hospital to Lansing. This will transform health care delivery to support a world-class medical experience. Researchers and entrepreneurs from MSU will be enabled to leverage the new hospital in support of advanced, pioneering medical research. The hospital can serve as a medical innovation partner for companies – partially funded through SBIR/STTR grants – entering clinical trials.



### Van Camp Incubator & Accelerator

In September of 2019, UCRP opened the Van Camp Incubator/Accelerator and Research Labs building. This \$3M facility has 20,000 sq. ft of rentable space with wet laboratories, chemistry hoods, tissue culture facility and common equipment for molecular biology companies. The facility is 65% occupied, independent of the university, and has 8 companies that have received SBIR awards.



### Technology Innovation Center

The Technology Innovation Center (TIC) is an 8,000 square foot incubator located across the street from Michigan State University on East Grand River Avenue within the MSU Innovation Center. The TIC features 20 small office spaces, shared conference rooms, shared kitchen and shared office services. Our goal is to help startup companies succeed by co-locating under the same roof as Spartan Innovations, Red Cedar Ventures, The Hatch and the MSU Innovation Center.



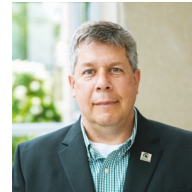
# Leadership Team



**David Washburn (CEO & Executive Director)** leads MSUF and its wholly owned subsidiary companies SI, RCV and the UCRP. Dave served as President and CEO of the University of Tennessee Research Foundation and spent 10 years at the University of Illinois where he spun out 25 startups that raised over \$100M in venture financing. Dave held leadership roles in venture-backed software companies from 1988-2000 including Wolfram Research, Kuck & Associates (acquired by Intel), InstallShield Software Corporation (acquired by Macrovision), and Argus Systems Group (acquired by General Dynamics). He holds a BA and MBA from the Gies College of Business at University of Illinois.



**Beka Skrzyniarz (Director of Finance, MSU Foundation)** oversees and manages all finance and administrative functions for the MSU Foundation and its subsidiaries. Beka has experience in public accounting and internal auditing. She has a B.S in Business Administration from Western Michigan University.



**Frank Urban (Director, Spartan Innovations)** manages the life sciences startup portfolio. He spent his career in drug discovery and diagnostics at Parke Davis-Warner Lambert, Pfizer, University of Michigan Medical School, Molecular Imaging Research, and Charles River Laboratories. He holds a BS in Biology and Masters in Molecular Biology.



**Jeff Wesley (Executive Director, Red Cedar Ventures)** manages RCV and its portfolio. Mr Wesley was the CEO of Two Men and a Truck International in addition to leading and scaling private startups to record success. He has been an angel investor for over 15 years and has served on economic, corporate, and community boards.



**Dr. Bradley Fingland (Director, Spartan Innovations)** manages the physical sciences startup portfolio. He spent his career commercializing early technologies, including at several startup companies, ExxonMobil, and Tenneco Automotive. He has a B.S and PhD in Chemical Engineering; 17 patents; and 26 patent applications.



**Prem Bodagala (Director, Red Cedar Ventures)** leverages over eight years of experience in venture capital, investment banking, valuation, and economic development at Invest Michigan, Michigan Economic Development Corporation, and Charter Capital Partners.



**Jeff Smith (Director, University Corp. Research Park)** manages UCRP and leverages over 20 years experience he connects MSU and MSUF with corporate partners and channels to and from the industry. He serves as a liaison to the Greater Lansing Region, managing the creation and expansion of the properties.



**Making the Most of Michigan's Energy Future**

# **Energy Programs & Technology Pilots Staff Report Timeline & Outline**

Stakeholder Meeting 6

June 11, 2020



**MPSC**

**Michigan Public Service Commission**

# Staff Report Timeline

- Original report deadline: June 30, 2020
- Current report deadline: September 30, 2020
  
- Draft report posted for comment: July 31
- Deadline for comments on draft report: August 17
- Final report posted: By September 30

# Staff Report Outline

- Executive Summary
  - High level summary of staff findings and recommendations
- Introduction
  - Introduce MI Power Grid and workgroup initiative
- Background
  - Describe need for effort
- Summary of Stakeholder Process
  - Describe process & meeting content

# Staff Report Outline

- Staff Reviews and Utility Survey
  - Methodology, results, & discussion
- Staff Recommendations
  - Objective criteria for pilot best practices
  - Future pilot areas
  - Any other recommendations from the process
- Conclusions
- Appendices
  - Stakeholder meeting agendas & presentations
  - Utility survey





**Making the Most of Michigan's Energy Future**

# **Energy Programs & Technology Pilots Closing Comments**

Stakeholder Meeting 6

June 11, 2020



**MPSC**

**Michigan Public Service Commission**

# Thank You and Please Stay Engaged

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- Thank you for your participation.
- Please stay engaged:
  - Sign up for the listserv if you have not already
    - Go to [www.michigan.gov/MIPowerGrid](http://www.michigan.gov/MIPowerGrid) → Customer Engagement  
→ Energy Programs and Technology Pilots → Scroll to bottom to add email
  - Attend future meetings
    - Final Meeting
      - June 25: Time likely 1:00-4:00 PM

**Thank you!**