

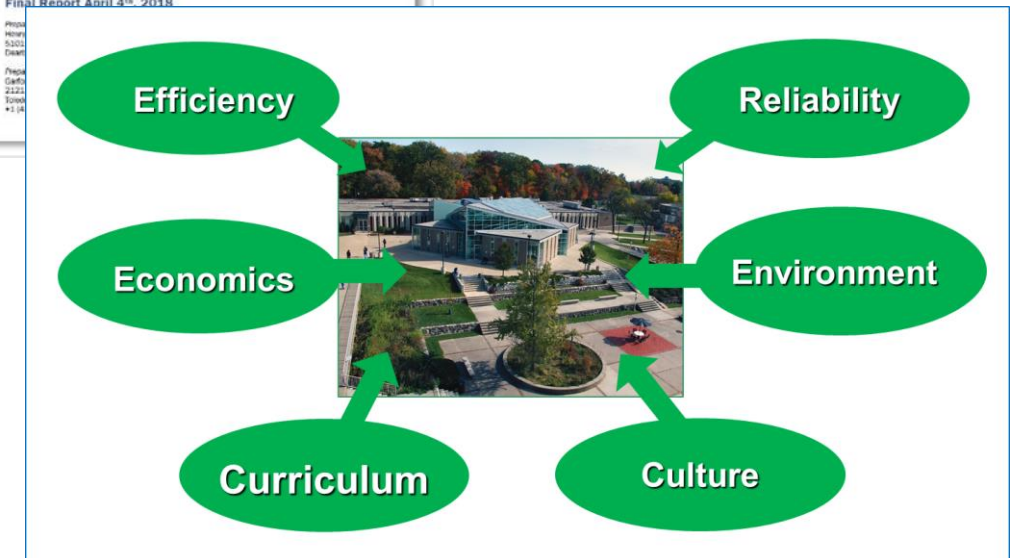
Integrated Energy Master Plan

Campus as a Living Classroom
Energy Learning Center



Integrated Energy Master Plan Goals

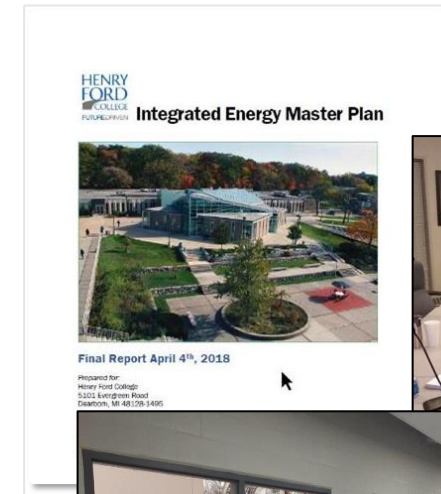
- ❑ Global best practice energy education
- ❑ Efficiency Gains
 - ❑ 60% Source Energy
 - ❑ 40% Potable Water
- ❑ Greenhouse Gas Emissions(GHG) Reduction
 - ❑ 50% within 7 years
 - ❑ Pathway to zero emissions “neighborhood”



Part 1: 2017 to 2023 - Committed (\$29.7M)

Building the “Living Classroom”

- ❑ IEMP approved and resourced
- ❑ Performance Partnership with Johnson Controls International (JCI)
- ❑ Infrastructure Transformation
 - ❑ *Energy Learning Center (ELC) (Part 1)*
 - ❑ *Campus-wide metering and control*
 - ❑ *LED lighting throughout*
 - ❑ *High efficiency boilers / chillers / Co-Generation*
- ❑ Educational / Engagement
 - ❑ *Featured as Successful Case Study*
 - ❑ *World Federation of Colleges and Polytechnics*
 - ❑ *Association Energy Engineers World Congress*



Part 2: 2023 – US Dept Education Grant (\$3.1M) Developing “Transformative Energy Education”

- ❑ Senator Stabenow awarded grant – April 2023
- ❑ Partnership with JCI
- ❑ Educational Resources
 - ❑ *New faculty focused on energy transition*
 - ❑ *Curriculum and workforce development for K-12 “Living Classroom” enhancements*
 - ❑ *1 MG Solar PV Array*
- ❑ Expected outcomes
 - ❑ *Workforce for global energy transition*
 - ❑ *Further reductions in emissions*



Part 3: 2023 – Michigan Major Project Request (\$11.6M)

Completing “Living Classroom”

❑ Control and Engagement (\$1M)

- ❑ *Interactive educational capability for campus and buildings*
- ❑ *Enhanced capability including AI to optimize energy & emission reductions*

❑ Buildings (\$8.2M)

- ❑ *Complete envelope efficiency retrofitting to global best practice levels*
- ❑ *Renovation of classrooms*
- ❑ *Energy Learning Center enhancements – Part 2*

❑ Clean and Renewable Supply and Equipment (\$2.15M)

- ❑ *Large battery storage*
- ❑ *Absorption chiller in Energy Learning Center to optimize summer use of heat*
- ❑ *Expanded heating and cooling storage to optimize operational performance and costs*
- ❑ *Training equipment (K-12)*

Part 3: 2023 – Michigan Major Project Request (\$11.6M)

Expected Outcomes

- ❑ Campus is an operating example of a “Near-Net Zero Neighborhood”
- ❑ Further reduces GHG emissions, improves energy reliability and minimizes energy cost risks
- ❑ Dearborn Public Schools and the City of Dearborn pathway to reduced costs and GHG emissions and an educational and engagement resource
- ❑ Projects serve as pilots for other communities and school districts (Education and Training)

Integrated Energy Master Plan

Resource Overview

IEMP "Building the Living Classroom"	Part 1 HFC Committed Funds	Part 2 US Dept of Education	Part 3 State ELC Request
College-wide Metering, Control & Active Engagement	\$ 2,669,300	\$ 70,117	\$ 1,024,186
Building Deep Energy Efficiency Retrofits (Renovations)	\$ 11,548,496		\$ 8,190,814
Xeriscaping - Native Planting & Water Efficiency	\$ 413,350		\$ -
Global Best-Practice District Heating	\$ 6,570,000		\$ -
On-site Clean & Renewable Energy Supply	\$ 8,500,000	\$ 1,088,999	\$ 1,910,000
Totals - Living Classroom	\$ 29,701,146	\$ 1,159,116	\$ 11,125,000

IEMP "Transformative Energy Education"	Part 1 Committed	Part 2 US Dept of Education	Part 3 Major Project Request
Energy and Climate Education - staffing	\$ -	\$ 1,750,349	\$ -
K-12 - Curriculum Design / Pilot	\$ -	\$ 100,000	\$ -
Community Energy Transition - Curriculum Equipment	\$ -	\$ 100,000	\$ 50,000
Dearborn Public Schools IEMP Equipment	\$ -	\$ -	\$ 150,000
City of Dearborn Community Equipment	\$ -	\$ -	\$ 200,000
Neighborhood IEMP	\$ -	\$ -	\$ 75,000
Totals - Energy Education	\$ -	\$ 1,950,349	\$ 475,000

Totals	\$ 29,701,146	\$ 3,109,465	\$ 11,600,000
---------------	----------------------	---------------------	----------------------

Thank You