



02 October 2014

To Whom it May Concern:

In 2014, Colorado State University opened the Powerhouse Energy Campus to house the Energy Institute.

The Powerhouse Energy Campus project has transformed the 1930's Municipal Power Plant, into a 5-acre site housing the CSU Energy Institute. The expansion to the existing EECL facility created a dedicated energy campus for CSU – 100,000 square foot of innovative laboratory, office, meeting, classroom and business incubator space, distributed over four stories. The new addition is certified LEED Platinum, with geothermal caissons, active daylight harvesting, 100% solid state lighting, a 24V DC microgrid, advanced metering, advanced controls with weather prediction, high thermal mass, high efficiency skin (windows, insulation and exterior cladding), hydronic heating and cooling, as well as solar/wind/combined heat and power energy generation.

Colorado State University has long recognized the crucial role energy plays around the globe and pioneered research in this area – from developing better combustion engines that emit fewer pollutants to testing new smart grid technologies. Today, more than 160 faculty members across CSU are developing new technologies, exploring the economics, environmental, and sociological impacts of energy use, and proposing energy policy solutions. CSU created the Energy Institute in 2013 to consolidate its vast energy research under one organization. Through its 13 affiliated centers, the Institute aims to increase collaboration with industry and governmental partners to solve real-world energy problems and create new research and educational opportunities for CSU faculty and students.

Some of the successes of the Energy Institute at the Powerhouse to date include:

- Colorado State University is also currently engaged in several groundbreaking studies aimed at quantifying total methane emissions (fugitive, vented, combustion) from various sectors of the U.S. natural gas supply chain, including gathering facilities, processing plants, transmission stations, storage facilities and distribution networks. Sponsors of the \$1.9 million study include the Environmental Defense Fund (EDF); Access Midstream; Anadarko Petroleum Corp.; Hess Corp.; Southwestern Energy Co.; and Williams.
- The Bill & Melinda Gates Foundation created the *Reinvent the Toilet Challenge* to promote the development of radically new innovations to address the sanitation challenge on a large-scale. The RTTC is premised on the fact that groundbreaking

improvements are required in toilet design and fecal sludge management to close the urban sanitation gap. The RTTC is focused on reinventing the flush toilet, a break-through public health invention that has not changed substantially since the first flush toilet patent was issued in 1775. CSU is partnering with the Research Triangle International to develop a combustion chamber that will burn solid waste.

- CSU continues our global leadership in the field of clean cookstoves. The Powerhouse houses the most advanced clean cookstoves laboratory in the world. Cookstoves developed at the Powerhouse – soon to be over 1,000,000 stoves sold – lower smoke and toxic fumes up to 80% while reducing costs, fuel use, and CO2 emissions by over 60%.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Morgan DeFoort', with a stylized flourish at the end.

Morgan DeFoort, Ph.D.
Managing Director, Energy Institute