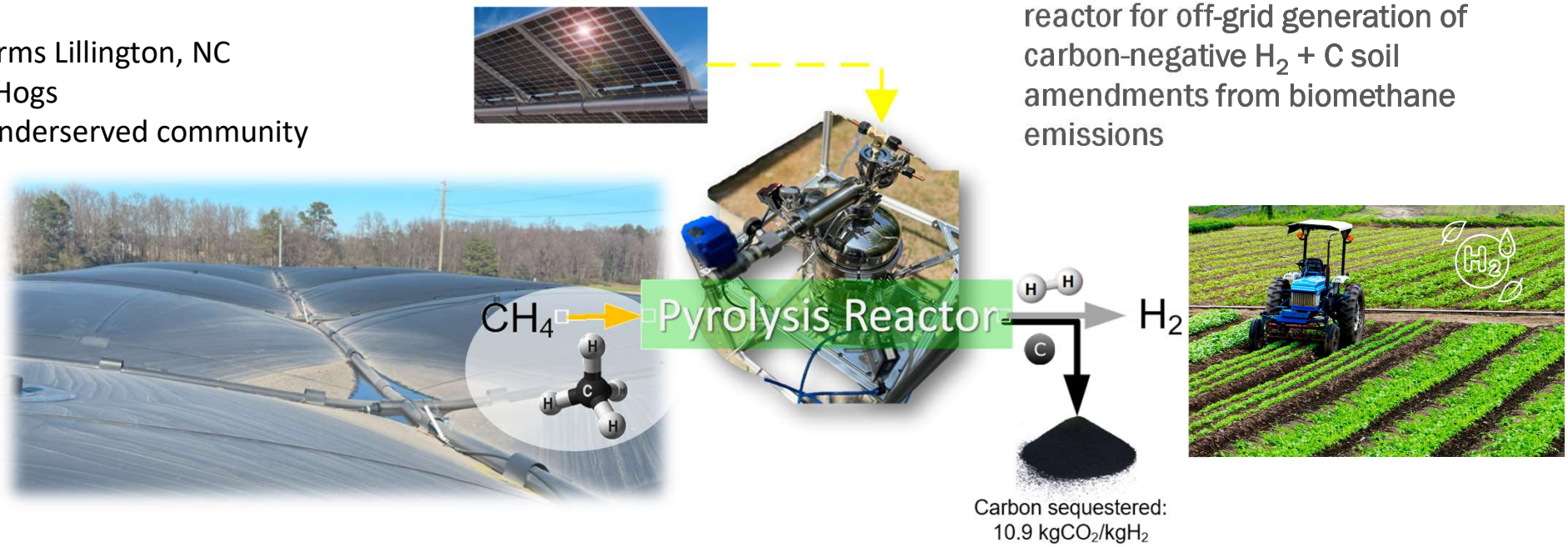
Carbon-Negative Solar H_2 Farm: PV-pyrolysis

Pilot Test Site:

Butler Farms Lillington, NC
- 6700 Hogs
- JEDI underserved community

PV powered modular CH_4 pyrolysis reactor for off-grid generation of carbon-negative H_2 + C soil amendments from biomethane emissions



			Carbon Intensity ($kgCO_2/kgH_2$)					Land-use	Revenue ($/kgH2)		Cost ($/kgH2)		
			stored land		atmosphere								
H2 generation	feedstock	electric source	fossil CH_4 consumed	sequested in soil	CH_4 emission	net global	relative to SMR	normalized PV	Gov. IRA 45v	Commercial	cost CH_4 $/MMBTU	LCOE (PV or NGCC) $/kWhe	LCOH2_OpEx
SMR	NG	NGCC	5.81	0.00	0.00	10.66	0.00	0.00	0	3	1.98	0.08	0.42
Electrolysis	H2O	PV	0.00	0.00	0.00	5.07	-5.59	6.07	3	3	1.98	0.09	5.40
Pyrolysis	NG	PV	10.92	10.92	0.00	1.05	-9.62	1.00	3	3	1.98	0.09	1.25
Pyrolysis	bioCH4	PV	0.00	10.92	-111.33	-121.41	-132.07	1.00	3	3	8.00	0.09	2.38