Water collected through the greenhouses reconnects broken stream beds.

Water from uphill reservoirs tends to drop into the mine shafts destroying the ecosystem of the Valley. Reconnecting the stream beds through mechanical means will restore water flow into the Susquehanna River and out to the Delaware Water Gap.

Prehistory Subsurface Level

200 to 500' depth

Prehistory

Registration Number P1009

Cash Crops

Organic Waste

Distribution Loop

Prehistory

Soil Loop

Crop 1

Cactus

Avocados

Orchids

Fallow Crop

Bamboo

Crop 2

Tomatoes

Corn

Switchgrass

Crop 3

Lettuce

Peas

Strawberries

Turnips

Potatoes

Level of Production

Bootstrapping Level

Water from uphill reservoirs tends to drop into the mine shafts destroying the ecosystem of the Valley. Reconnecting the stream beds through mechanical means will restore water flow into the Susquehanna River and out to the Delaware Water Gap.
On December 6, 1915 a miner left a lit carbide lamp in the Red Ash Coal Mine in Laurel Run, Pennsylvania causing a fire that burns to this day. The area of the fire is in the south limb of the Wilkes Barre synclinorium which is 4 miles wide and run northeast to southwest along the southern ridge of the Luzerne Valley. The coal deposits in this area run in three layers – the Ross, Bottom and Top Red Ash and were mapped by hand in the 1930’s. Areas of the fire are contained by man-made constructions of barriers made in the 20’s and by the natural anthracite coal deposits that bound the control area. When Interstate 81 was constructed efforts were made to further control the fire in order to prevent the loss of homes and collapses that would jeopardize the road system and adjacent properties.

Anthracite is difficult to ignite due to its density, but fractures in the natural bed formations allow areas to burn when oxygen infiltrates the system. Similar fires in the nearby Centralia region have been known to reach temperatures of over 700° degrees Fahrenheit and cause massive environmental and economic damage. The Laurel Run fires are less extreme than those in Centralia and appear, from previous inspections, to reach subsurface temperatures in the 190 - 300° F range. The introduction of oxygen can increase those temperatures to rates that would make direct source heating and even power generation a possibility at more extreme temperatures.

In the early 1990’s a local non-profit group, The Earth Conservancy, was granted control of over 16,000 acres of former mining properties in order to control local development potential, preserve some of the natural assets of the Luzerne Valley and to steward projects in the area. The EC controls a large tract of land over the fire and potential access to the subsurface mineral resources. Local knowledge and older maps, supplied by engineers associated with the Bureau of Mines in meetings held in Pennsylvania, leads us to believe that approximately 50% of the original coal resources remain. This would indicate that the potential fuel supply would probably last well beyond any forecast for potential sustainable use. However, inspections over the years show that the fire has an unpredictable pattern of movement. While the natural tendency is for the fire to burn up the slope of the hill, similar to an above ground fire, the erratic fissures in the bed formation mean that the fire can jump randomly.

Harnessing the fire’s potential will require further investigation, simulation, technical ingenuity and an outline of a reasonable business plan to move forward.
2007. Existing site conditions including random fire borings.


2010. 20 acres of greenhouses. Red shading shows extent of heating.


Longitudinal section through the greenhouses showing cisterns, sprinklers, heat pipes and new compost/soil.

2012-2013. 20 acres of 4 season greenhouses and 7 acres of 2 season crops.


2015. Accrues of the feedback loop. 20 acres of 4 season greenhouses and 20 acres of 1 season crops utilizing composted soils.
The Luzerne Valley is located in the trucking sweet spot for the United States.

- National trucking to the local farmer's market.
- Locally grown equals fossil fuel savings.

Local farmer's market:
- Added electrical light adds to growing capacity.
- Temperature and percent of possible growth.

Outputs:
- $ = Beauty
- $ = Food
- $ = Biomass

Positive fuel gains:
- National distributor loop.