

Pennsylvania Sustainable Energy Board  
Annual Meeting – December 7, 2011

## The Sustainable Development Fund in 2011

Roger E. Clark

The Reinvestment Fund



THE REINVESTMENT FUND  
Capital at the point of impact.

# The Reinvestment Fund (TRF)

- **Private, nonprofit community development financial institution**
- **Founded in 1985** - energy lending since 1993
- **\$1 billion** in cumulative investments and loans throughout the mid-Atlantic
- **\$670 million** currently under management
- **800** investors

## Business Lines



**Lending and Investing**



**Policy & Information Services**



**Real Estate Development**



**PolicyMap**

# TRF's History of Energy Finance

- **Nonprofits Energy Savings Investment Program** – \$4.5 million energy revolving loan fund to finance energy efficiency measures for non-profit organizations
  - Seeded with \$2.25 million from The Pew Charitable Trusts
  - Managed by TRF since 1993
- **Sustainable Development Fund** – \$32 million of funding to promote renewable energy and energy efficiency projects and market development
  - Funded by settlements in PECO's restructuring and merger cases
  - Managed by TRF since 1998



# TRF's Energy Loans and Investments

## Financial Support for Clean Energy

- \$25.6MM in loans and equity investments for 63 energy projects (energy efficient buildings and equipment, renewable energy, energy company financing)
- \$20.3MM in grants to 375 energy projects (wind, solar PV and solar hot water, public education, green design and energy modeling, business planning, clean energy technology commercialization)

## Key Accomplishments

- Applied TRF's model of public/private lending to energy
- Supported 7 of the first 8 utility-scale wind farms in PA
- Started the solar PV market in southeast PA with 232 solar PV installations (almost 1 MW) – model for state program
- Demonstrated the soundness of PA energy policy initiatives such as AEPS, Alternative Energy Investment Act and Act 129 (utility conservation programs)



# TRF's Two Building Energy Loan Funds

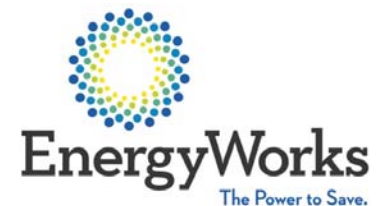
## 1. Pennsylvania Green Energy Loan Fund

For energy projects throughout Pennsylvania  
[www.PAGreenEnergyLoanFund.com](http://www.PAGreenEnergyLoanFund.com)



## 2. EnergyWorks Loan Fund

For energy projects in Bucks, Chester, Delaware and Montgomery counties and the City of Philadelphia  
[www.EnergyWorksNow.com](http://www.EnergyWorksNow.com)



Different sources of capital and different geographic eligibility,  
but otherwise identical.

[www.trfund.com/energyloans](http://www.trfund.com/energyloans)

# Four Types of Eligible Building Projects

**NOTE:** All financed projects must reduce energy use by **25%**  
(different calculation for each type of project)

1. Single or limited energy retrofits or the replacement of a single piece of equipment or system in an existing occupied building
  - Energy analysis must show that replacement equipment/ system will use 25% less energy than existing equipment/system
2. Extensive whole building energy retrofits in an existing occupied building
  - Audit must show ECMs will reduce total building energy consumption by 25%

# Four Types of Energy Projects (continued)

3. Energy efficient gut rehab of an existing building that is either currently unoccupied or will be renovated for a different use
  - Energy modeling must show that rehabbed building will use 25% less energy than similar buildings according to US DOE's Commercial Building Energy Consumption Survey
  
4. Energy efficient new construction of a building or addition
  - Energy modeling must show that new building will use 25% less energy than were it built to the current building energy code

# Financeable Energy Measures

- Building Envelope (air sealing, exterior wall and roof insulation, white and green roofs, windows, exterior doors, other envelope measures)
- HVAC (heating, ventilating and air conditioning equipment and systems, controls, energy recovery systems, other HVAC)
- Lighting (interior and exterior fixtures, occupancy and ambient light sensing controls, daylighting measures)
- Plumbing (DHW heater, low-flow fixtures, grey water systems)
- Plug Loads (production and office equipment, kitchen and laundry appliances)
- Other Energy Measures (solar PV, small wind, geothermal, combined-heat-and-power (CHP), energy storage)



# Key Financing Terms

- Pricing as low as **3.5%** fixed
- Term – up to 15 years – longer amortization possible
- Financing ranges from \$100,000 - \$2,500,000
- Eligible buildings include:
  - commercial
  - nonprofit
  - institutional
  - government
  - industrial
  - multifamily residential



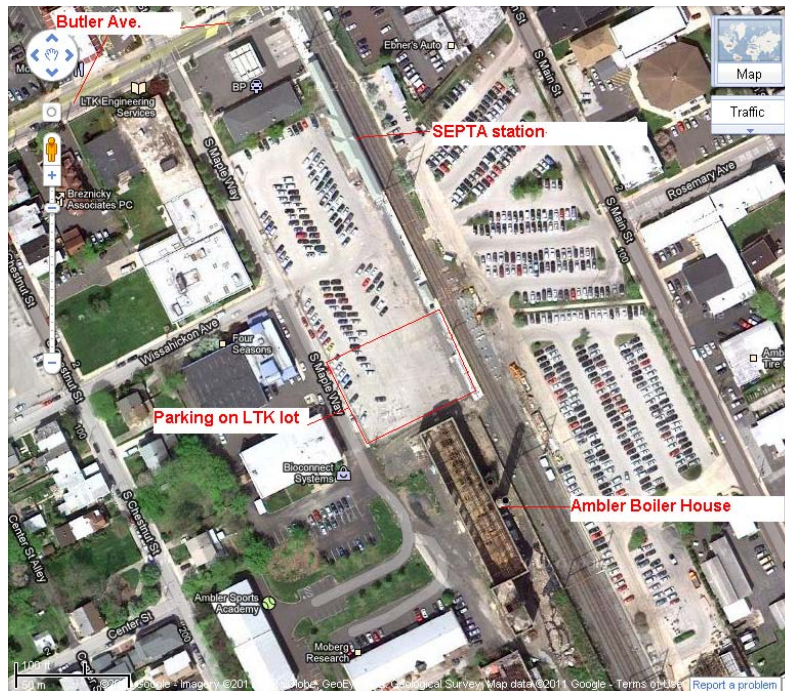
# Financing Terms (continued)

- Financial products include:
  - construction loans
  - term loans
  - lease financing (TRF Leasing)
- Applications accepted from owners, developers and tenants
- Security for loans determined on a case-by-case basis
- Loans are subject to various federal and state regulatory provisions (Davis-Bacon Act, NEPA, Historical Preservation, etc.)



# Case Study - Ambler Boiler House

A gut rehab of a polluted industrial building into 42,000 square feet of prime office space next to the Ambler train station, with energy use predicted to be 44% lower than average office building in the mid-Atlantic.



# Case Study - Ambler Boiler House

## Building Envelope

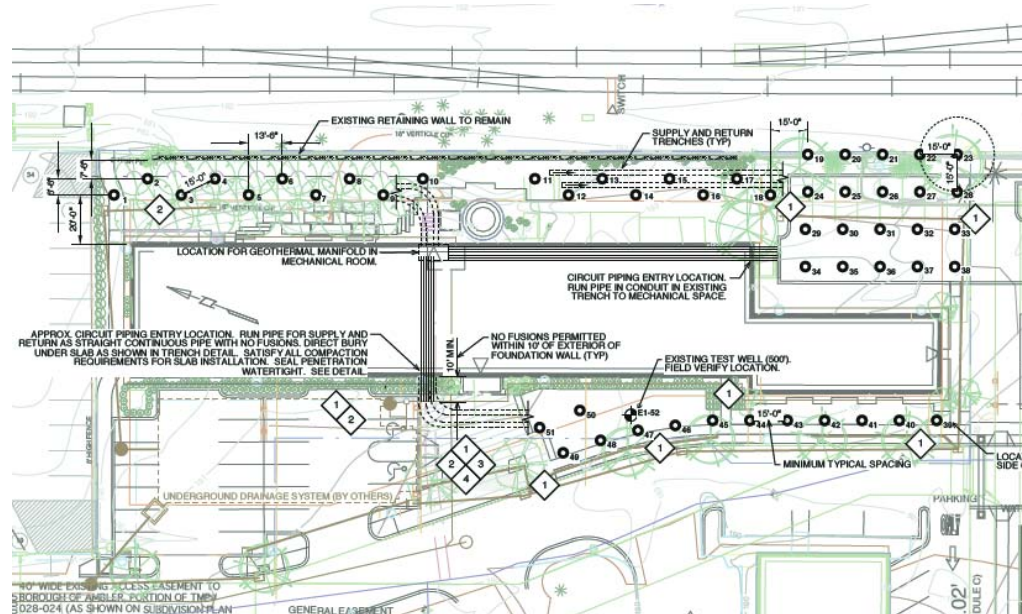
- An ENERGY STAR reflective, single-ply EPDM roof - an ENERGY STAR standing seam metal roof.
- The roof deck will have 5" of rigid foam insulation (R-35).
- The new windows will be double-paned, low-e, thermal break PPG Solarban glazing. The overall u-value is 0.28, the Solar Heat Gain Coefficient is 0.27, the Shading Coefficient is 0.31 and the visible light transmittance is 64%.
- High-performance glazing with high light diffusing properties in the clerestory.
- An aluminum, thermally-broken vestibule (Kawneer Trifab).
- Exterior door will have low air-infiltration rates and good u-values.
- An automatic shading system will control natural light.



# Case Study - Ambler Boiler House

## HVAC

- A geothermal field of 52 wells (each 550 feet deep) will provide tempered water to a geothermal system of approximately 30 water-loop heat pumps (high-efficiency ClimateMaster units with an EER between 17.5 and 18.5) throughout the building.
- A heat recovery system to recapture heat or cooling from the exhaust air.
- Direct digital control system, programmable thermostats in 30 zones.



# Case Study - Ambler Boiler House

## Lighting

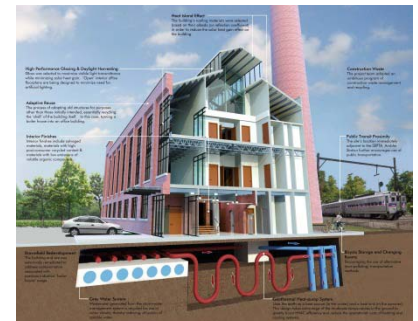
- Energy-efficient lights will be combined with daylighting strategies to provide proper light level throughout the building.

## Equipment and Appliances

- Domestic hot water for the restrooms will be supplied by high-efficiency electric instantaneous water heaters.
- All refrigerators in the snack rooms will be ENERGY STAR rated.
- All plumbing appliances and fixtures in the rest rooms and the building locker room will be “low flow.”

## Other

- A 11.5 kW solar photovoltaic system will offset a modest portion of the building’s electricity consumption
- The building will have a graywater supply system that filters collected stormwater and uses it for the toilets and landscaping.



# Case Study - Ambler Boiler House

## Lending Issues

- Site remediation is being done first – DEP brownfield grant.
- Pa Historical and Museum Commission found no threat to archaeological resources from geothermal wells
- Some energy measures could not be funded because they did not pass historical standards (windows, exterior doors, clerestory roof)
- Need US DOE clearance for geothermal system and for two white roofs – not measures Categorical-Excluded from NEPA review
- Other public money in project includes DEP grant, RACP grant, HUD 108 loan and DCED grant. Because of these grants, prevailing wages were already required.



# Pennsylvania's Energy Issues

## **(1) Act 129 of 2008**

- How did/will EDC conservation programs do in 2011/2013?
- Will the Commission increase the energy savings goals past 2013?
- When will this happen?



# Pennsylvania's Energy Issues

## **(2) Pennsylvania Alternative Energy Portfolio Standard Act** (Act 213 of 2004 / Act 35 of 2007)

- What will happen to the value of AECs and SAECs?
- Will the Alternative Energy Portfolio Standards Act percentages be increased for solar? For other Type I technologies?

# Pennsylvania's Energy Issues

## **(3) Electric Generation and Customer Choice Act** (Act No. 138 of 1996)

- How many EGSs will continue to be active in PA?
- How many PA customers will be shopping?
- What will be the availability and pricing for clean energy in the shopping market? How will those products sell?

# Pennsylvania's Energy Issues

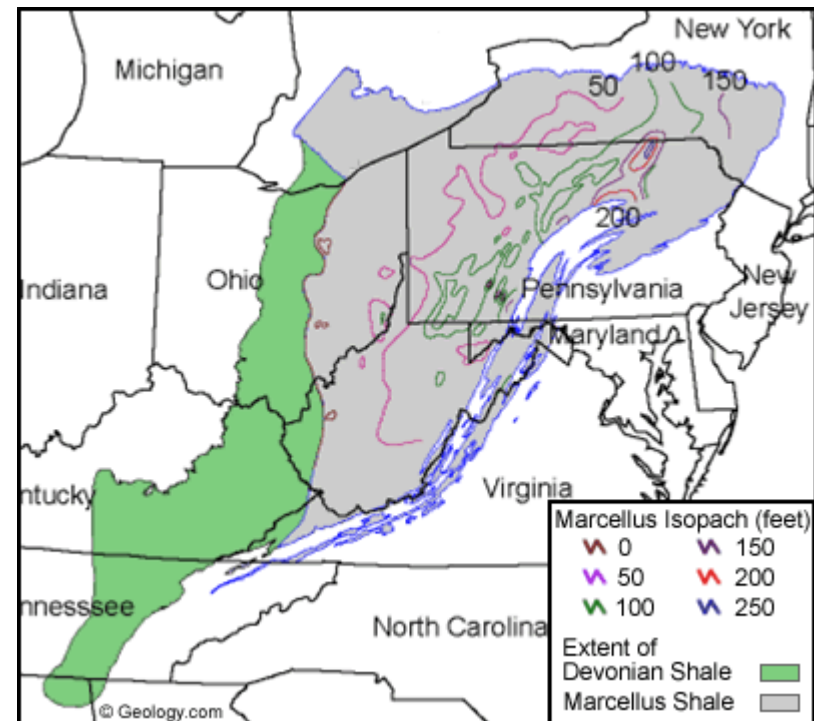
## **(4) American Recovery and Reinvestment Act**

- What capital will be available in Pennsylvania for homeowners, businesses and energy producers to replace the federal energy incentives through ARRA?

# Pennsylvania's Energy Issues

## (5) Marcellus Shale

- Big money - big political impact
- How does it change thinking about energy and clean energy?



# SDF Contact Information



TRF Sustainable Development Fund  
1700 Market Street - 19<sup>th</sup> Floor  
Philadelphia, PA 19103

Roger E. Clark, Manager  
215-574-5814  
[roger.clark@trfund.com](mailto:roger.clark@trfund.com)

