EROEI

Energy Returned On Energy Invested

January 15, 2013
Waterbury, Vermont
Generalized Energy Production Profile

$E_{produced}$

Project lifespan
Generalized Energy Production Profile

$E_{\text{returned}}$

Pre | Production | Post
Generalized Energy Production Profile

Pre-Production Energy Expenses
- Mining
- Manufacturing
- Transportation
- Design
- Regulatory
- Installation
- Supporting Infrastructure

$E_{construction}$

$E_{returned}$
Generalized Energy Production Profile

Production Energy Expenses
- Fuel
- Maintenance
- Supporting Infrastructure
Generalized Energy Production Profile

Post-Production Energy Expenses
- Deconstruction
- Environmental remediation
- Security
Generalized Energy Production Profile

$E_{\text{construction}}$

$E_{\text{operation}}$

$E_{\text{decommissioning}}$

$E_{\text{returned}}$
Generalized Energy Production Profile

- $E_{construction}$
- $E_{operation}$
- $E_{decommissioning}$
- $E_{returned}$

Pre - Production - Post
Generalized Energy Production Profile

Pre

$E_{\text{construction}}$

Production

$E_{\text{operation}}$

Post

$E_{\text{decommissioning}}$

$E_{\text{returned}}$

$E_{\text{net}}$
Generalized Energy Production Profile

$E_{\text{returned}}$

$E_{\text{invested}}$

$E_{\text{net}}$

Pre

Production

Post
Generalized Energy Production Profile

$$E_{net} = E_{returned} - E_{invested}$$
Generalized Energy Production Profile

\[ E_{\text{net}} = E_{\text{returned}} - E_{\text{invested}} \]

\[ \text{EROI} = \frac{E_{\text{returned}}}{E_{\text{invested}}} \]