

Planning Tools to Make Eco-Industrial Parks a Reality

10th Canadian Pollution Prevention Roundtable

Tracy Casavant, MES, P.Eng

President

Eco-Industrial Solutions Ltd

tracy@ecoindustrial.ca

Outline

- ❖ Eco-Industrial Networking & Eco-Industrial Parks
- ❖ Policy Toolbox for EIPs
- ❖ Hinton EIP – Innovative Policy & Planning Tools Bringing a Concept to Reality!
- ❖ Concluding Remarks

Eco-Industrial Networking & Eco-Industrial Parks

What is Eco-Industrial Networking (EIN)?



- ❖ The **practical** application of industrial ecology:
 - Nature is our model
 - A systems approach is essential
- ❖ **MUCH** more than by-product synergy!
- ❖ Helps businesses & communities meet **sustainability** objectives.

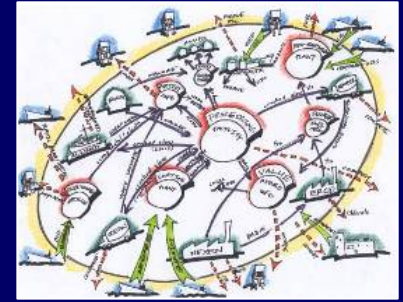
EIN – Some Definitions

- ❖ **Eco** - ecology *and* economy.
- ❖ **Industrial** - any system in which materials, water, and energy are flowing in and out
- ❖ **Networking** –physical (e.g. pipes or trucks) or virtual (e.g. common training)
- ❖ **Resources** - materials, energy, water, buildings, infrastructure, land, and people

EIN practiced in a geographically defined area* with significant business activity =
Eco-Industrial Park (EIP)

* Such as industrial park, industrial estate, business park, science park, enterprise zone

EIN in Action



- ❖ Business synergies (by-product, energy, water, transportation, management)
- ❖ Integrated, multi-objective approach
- ❖ Green (eco-) buildings, site design, processes & operations
- ❖ Efficiency & ecological infrastructure & utilities
- ❖ Niche business opportunities

How Do EIPs Prevent Pollution?

- ❖ Businesses processes maximize eco-efficiency and P2 strategies
- ❖ Businesses collaborate to green supply chains, logistics, other services
- ❖ Green infrastructure loops scarce resources, and cascades energy flows through multiple end uses
- ❖ Green buildings use less resources

The Eco-Industrial Park Policy Toolbox

Policy Toolbox for EIPs

- ❖ Land Use Plans
- ❖ Development Regulations & Standards
- ❖ Strategic & Operational Plans
- ❖ Public & Staff Education & Outreach Programs
- ❖ Terms of Reference for professional services
- ❖ Other Regulations

Land Use Plans

Community Plans ♦ MDPs ♦ Master Plans ♦
Concept Plans

- ❖ Explicitly state support for EIPs
- ❖ Create site & community plans that facilitate synergies
- ❖ Integrate ecological features

Development Regs & Standards

Zoning Bylaws ◆ Development Guidelines ◆
Design Standards ◆ Building Codes

- ❖ Flexibility (uses and requirements)
- ❖ Market driven – use development guidelines to *encourage*
- ❖ Modernize design standards

Strategic & Operational Plans

Ec Dev Strategy ♦ Transport Plan ♦ Community Energy Plan ♦ Solid Waste Mgmt Plan, etc

- ❖ Ec Dev Strategy calls for transformation of industrial parks into EIPs
 - retain, expand, and attract business
- ❖ Community Energy Plan supports industrial waste heat use
- ❖ Solid Waste Mgmt Plan supports BPS

Hinton Eco-Industrial Park – Policy Case Study



www.eip.hinton.ca

Hinton Eco-Industrial Park – Concept Plan

- ❖ By-product synergies
- ❖ Efficient roads (40% less)
- ❖ Roads move by-products
- ❖ District & renewable energy
- ❖ Green bldgs & operations
- ❖ Multiple parcel sizes → diversity creates opportunity



Hinton Eco-Industrial Park – **Concept Plan**

- ❖ Integrate community
- ❖ Ecological storm & wastewater mgmt
- ❖ Green buildings & operations
- ❖ Parks & trails
- ❖ Incorporate ecological features



Hinton EIP - Concept to Reality

- ❖ Zoning does not permit energy generation
- ❖ Road paved area does not meet standards
- ❖ Normal utility corridors not designed to move reclaimed wastewater, hot water, or waste materials
- ❖ Setbacks and parking req's could reduce opps for green building
- ❖ Must balance innovation and marketability!

Hinton EIP - Concept to Reality

❖ Zoning (Eco-Industrial District) and Development Guidelines



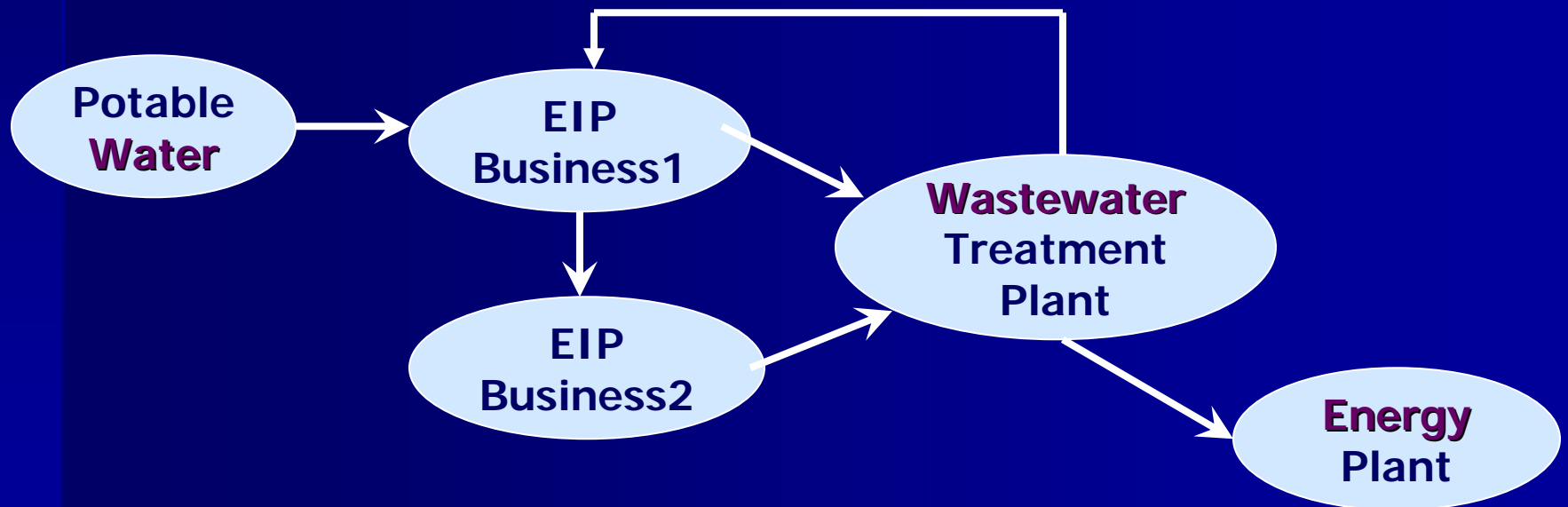
- Pre-development planning, parcel layout, landscaping, access, utilities

- Encourage green buildings, distributed energy, wastewater cascading, by-product synergy, etc.

- Checklist format; points-based

Hinton EIP - Concept to Reality

- ❖ Single **integrated infrastructure** design contract
- ❖ Commitment to update design standards



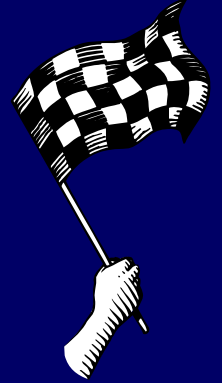
Hinton EIP - Concept to Reality

❖ Education & Outreach

- Native landscaping guide
- Developers' resource guide
- Interpretative trail signage
- Green design professionals roster
- Website
- Public info / update sessions



Concluding Remarks



- ❖ Developing a vision and principles is just the START → implementation requires practical & innovative policy
- ❖ Most policy changes are small, but can have a deep effect
- ❖ Local govs have a full toolbox to support EIPs
- ❖ No policy should exist in isolation e.g., land use should link to energy planning which should link to economic development