

Rosemount Eco-Green Business Park Feasibility Study



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Agenda



Interviewed Development Experts

Content Experts	Affiliation
Ted Gonsior	<i>Colliers</i>
Casey Hankinson	<i>Ryan Companies</i>
Dan Mueller	<i>Ryan Companies</i>
Phil Cattanach	<i>Opus</i>
Peter Carlson	<i>Opus</i>
Tom Fisher	<i>Dean of School of Design</i>
Martin Meyer	<i>MSR Design</i>
Dale Glowa	<i>President of UMORE</i>

Interview Summary

There are two initial questions developers will ask:

- Is it good real estate?
- Do businesses want to be there?

The first tenant and first development will set the stage for the future. Rosemount should actively seek out the first tenant.

From a developer's point of view, sustainable design requires city incentives. Unless the market requires sustainable development, tax credits and TIF may be required for investments in green features.

Rosemount must be clear about their eco-green requirements. Developers avoid projects that are ambiguous. Ambiguity often equals increased costs.

On-going infrastructure maintenance costs could be more than the tax income. Rosemount should take a long-term view of new developments. In 30 years will the tax income fund infrastructure maintenance requirements?

Industrial Symbiosis Overview

Definition:

- The sharing of services, utility, and by-product resources among industries in order to add value, reduce costs and improve the environment.
- Industrial symbiosis is a subset of industrial ecology, with a particular focus on material and energy exchange.

Examples of Eco-Industrial Development:¹

- **Circular Economy:** an industrial economy that is intentionally restorative and allows for biological materials to flow into the environment safely and technical materials to stay contained in the system.
- **Eco-Industrial Network:** involves building relationships between the private sector, government and educational institutions in order to use new and existing resources to improve efficiency, profitability and sustainability. These networks can take many shapes. They can be within a confined physical location, a undefined location or virtual.
- **Networked Eco-Industrial System:** similar to idea of the eco-industrial network, however the system is comprised of macro-level developments with links across various regions.

U.S. Industrial Symbiosis Case Studies

Berks County Eco-Industrial Park (Reading, PA):²

- A state/private project converting landfill and power plant waste into energy system for manufacturing. Plant would also use the methane gas produced there as fuel, excess gas could be run through generators to produce electrical power. Water from the landfill's leachate treatment plants can be used too, leachate being the runoff from landfilled materials. The project never came to full fruition as the landfill company dealt with legal trouble and was ultimately acquired.
- Proposed Projects: First tenant was a plant for a tile-making process that uses fly ash (the residue from coal-fired power plants), as well as low-quality clay and lime – could also use the municipal solid waste incinerator ash. Potential partners may include a wallboard maker or a short-fiber paper mill.
- Development Incentives: financing from Pennsylvania Development Financing Authority

Cabazon Resource Recovery Park (Indio, CA):³

- The Park is a planned mix of ecologically friendly projects that preserve, recycle, or transform waste streams.
- Proposed Projects: metals reclamation, biomass (ties, organics, plastics) gasification, used oil refinery, ethanol or methanol facility, green and food waste composting, metals recycling, construction & demolition recycling, reclaimed glass, plastics and rubber molding, organic prawn farming, soil blending and bagging, paper de-inking, steel production, regional materials recovery facility
- Development incentives: Streamlined permitting, Minimal limitations, Lower fees, Lower costs, Tax incentives, Rural empowerment zone

Shady Side Eco-Business Park (Shady Side, MD):⁴

- This symbiotic community was planned as a renovation of an existing facility in an underemployed and under served community. However, this development was never executed.
- There were several proposed projects for the location. These businesses included a micro brewery, a fish and shellfish aquaculture, a marine exploration and technology firm, an oil recycling business, an ecologically-designed water reclamation system, solar and renewable energy, and a compost business.
- There were no established development incentives.

Trenton Eco-Industrial Complex (Trenton, NJ):⁴

- This development was intended to be an eco-network with no confined geographic area. This development planned to have a management structure to help facilitate partnerships between dispersed business. We found no evidence that this complex is in existence today.
- Development Incentives: New Jersey Urban Enterprise Zone grant, US Economic Development Administration grant, US EPA sustainability grant

Denmark Industrial Symbiosis Case Study

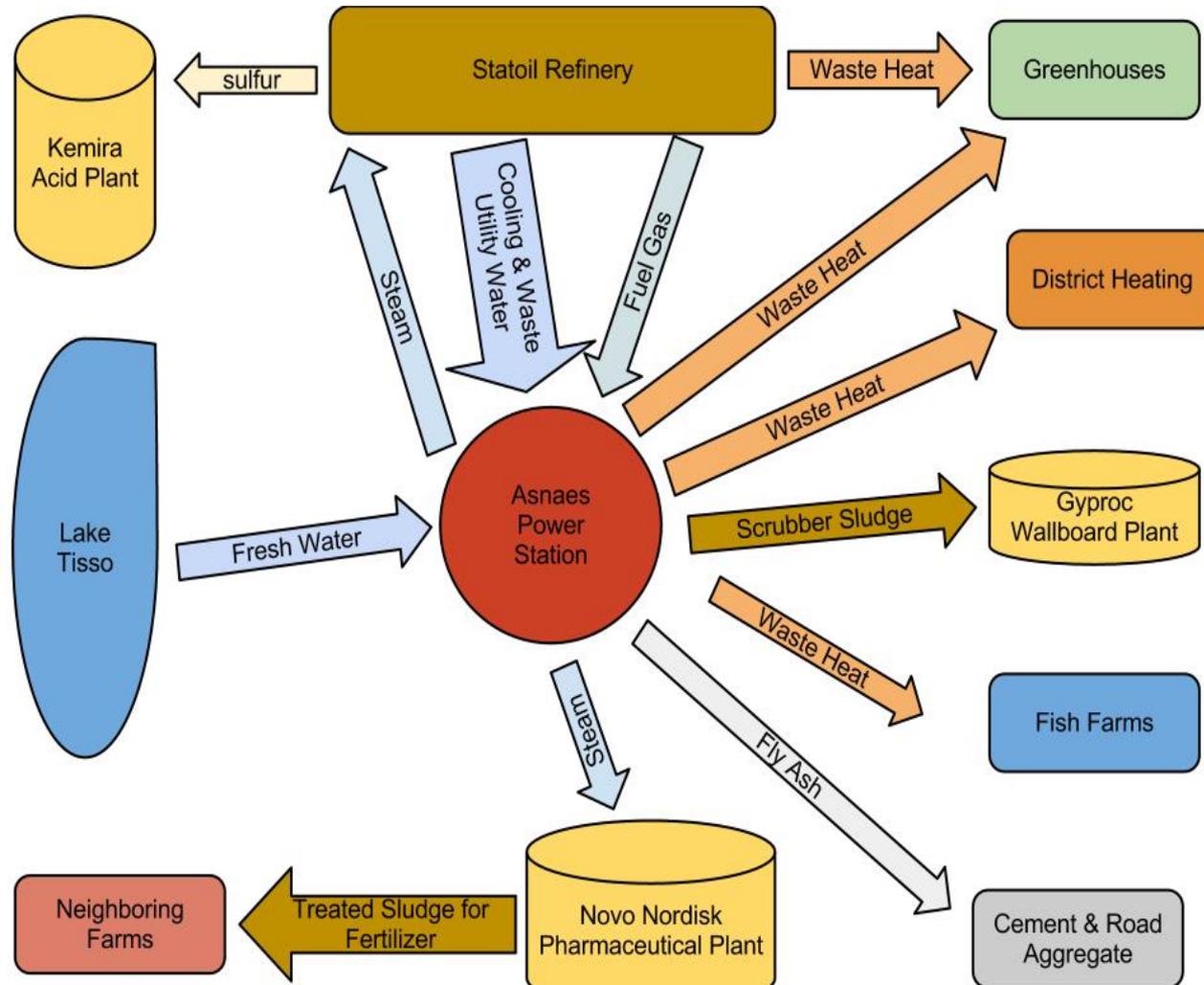
Kalundborg Eco-Industrial Park Overview:⁶

- Industrial symbiosis network in which companies in the region collaborate to use each other's by-products and otherwise share resources.
- The collaboration and its environmental implications arose unintentionally through private initiatives, as opposed to government planning, making it a model for private planning of eco-industrial parks.
- Current state of waste heat and materials sharing developed over a period of 20 years. Early sharing at Kalundborg tended to involve the sale of waste products without significant pretreatment.
- Each further link in the system was negotiated as an independent business deal, and was established only if it was expected to be economically beneficial.
- While Kalundborg does operate using trades between various firms in the vicinity, it itself is not self-sufficient or contained to the industrial park. There are many trades that occur with companies outside of this park region.

Kalundborg Cost and Environmental Savings:^{6,7}

- Based on a 2011 study, the interchanges have shown annual savings of up to \$15 million, with investments around \$78.5 million. The total accumulated savings is estimated around \$310 million.
- Water Savings: overall water consumption reduced by an estimated 30%, at the power plant alone total consumption reduced by 60%.
- Wastes avoided through interchanges annually:
 - 265,000 tons of CO₂ emissions
 - 50,000-70,000 tons of fly ash from power station
 - 2,800 tons of sulfur as hydrogen sulfide in flue gas from oil refinery

Kalundborg Eco-Industrial Park



Comparison of U.S. to Europe

Economic vs. Environment Factors

U.S. projects valued the economic factor more than the environmental factors, leading to a misalignment of incentives.

European projects aimed to improve both the business and environmental performance

Stakeholders must value the environmental impacts for projects to succeed.

Government Participation

Majority of U.S. projects were initiated by the government, who also participated in and paid for the initial planning costs.

European projects were initiated by the business community and then coordinated with the government. Involvement was limited to companies and direct stakeholders.

Forced development and planned parks have systematically failed.

Role of the Project Champion

U.S. projects were not championed or anchored by one local business, they focused solely on material and energy exchange.

European projects had one strong local champion and focused on the establishment of pollution prevention with a utility sharing character.

The most successful developments occurred naturally with one champion at the center.

Port of Cape Charles Sustainable Technologies Industrial Park

Part of the town's strategy to blend job creation with environmental protection:

- Economy focused on fishing, farming, and food processing
- Eco-industrial park intended to create new jobs for residents while limiting environmental footprint

1992: Received a grant from the National Oceanic and Atmospheric Administration to research the ability to balance economic growth and coastal resource protection

Hired sustainable development planner:

- Created volunteer citizen task force to identify “measurable, achievable tasks that build the economy and preserve the assets on which they depend”
- Recommended the creation of a new type of industrial park designed to reduce water and resource use while allowing businesses to take advantage of all the traditional benefits of a park

This innovative approach to economic development set Cape Charles apart from its neighbors, provided uniqueness to the community and gave industries a reason to explore the town

Port of Cape Charles Sustainable Technologies Industrial Park

January of 2000: the first phase of the Cape Charles Sustainable Technologies Industrial Park (STIP) opened:

- First industrial park of its kind in the United States
- 31,000-square-foot manufacturing/office building was complete with solar panels, protected wetlands, low-energy light and water fixtures and native landscaping
- Local water resources were protected through an innovative water recycling system which collects used water from each company, recycles it and then redistributes the water back to businesses

First few years after opening the park leveraged \$8 million from private companies locating within the park and created more than 65 new jobs:

- Some businesses have closed, and the county has struggled to replace them
- Federal and state officials developed a rigorous list of sustainability criteria for how businesses in the park could operate
- These criteria are so stringent that the already small pool of potential green businesses able to locate in the park became even smaller
- County officials attribute miscommunication between state and local leaders over who would lead in recruiting businesses to the park as being a major factor in its downturn

Great River Energy Efficient Facilities

Corporate Headquarters – Maple Grove

- The Maple Grove headquarters of Great River Energy is one of the most energy-efficient and sustainable buildings in Minnesota and holds a Platinum LEED Certification.
- The building utilizes fluorescent and LED lighting, rooftop solar panels, a wind turbine, geothermal heating and cooling, rainwater capture, and multiple atriums to harvest natural daylight.

Energy Recovery Station – Elk River

- Great River Energy's Elk River facility also received LEED Certification for implementing geothermal heating and cooling and efficient lighting systems and using recycled and local materials for construction.



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Minneapolis Green Homes North

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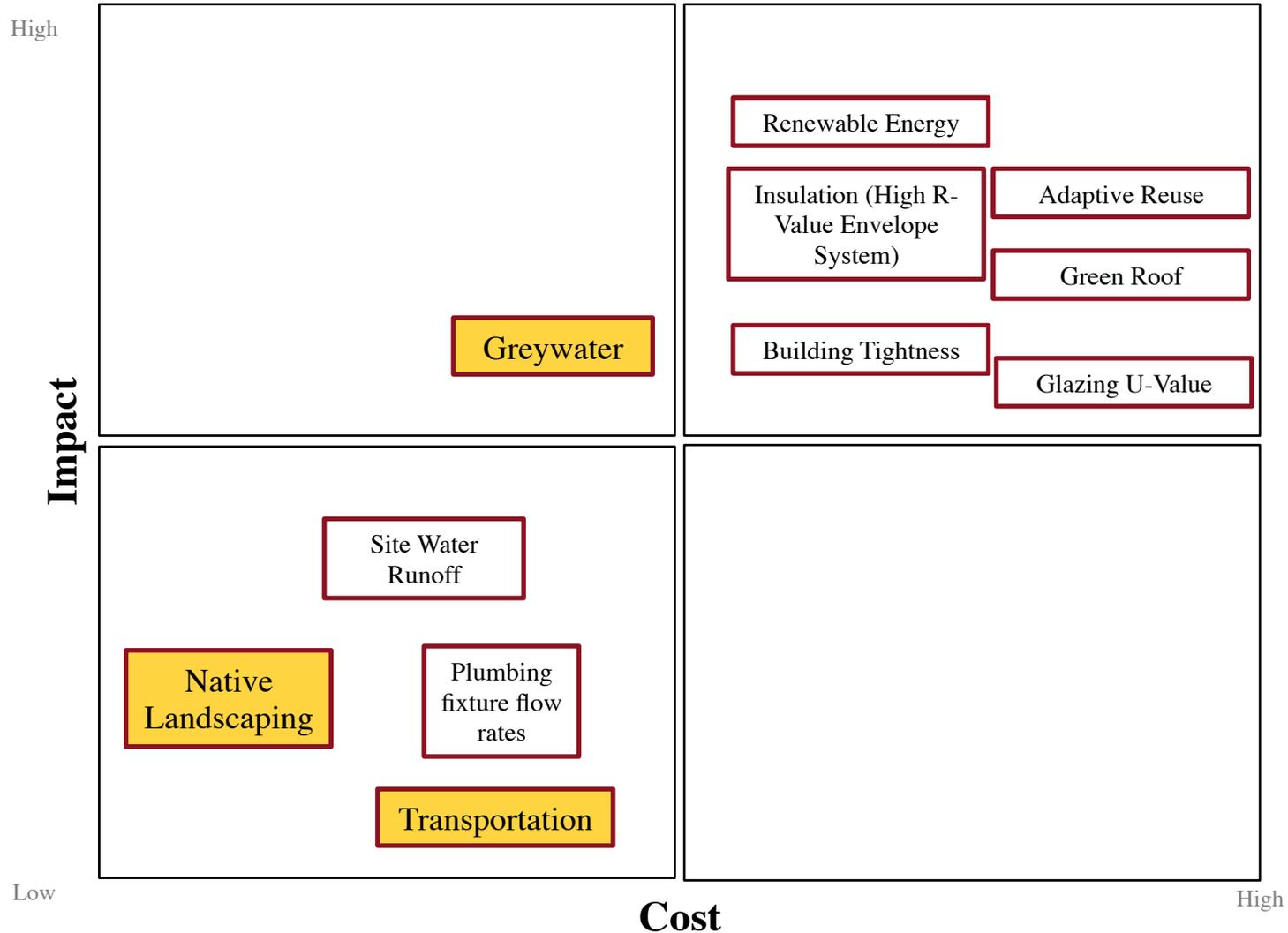


Green Homes North is an initiative of the City of Minneapolis to construct 100 energy efficient homes over the next five years to revitalize North Minneapolis neighborhoods

Homes will be constructed in accordance with the Minnesota Green Communities Standards or LEED certified and 65% of construction waste will be recycled

Energy efficient plumbing, compact fluorescent light bulbs, insulated concrete form foundations, efficient furnaces and water heaters, programmable thermostats, and continuously active ventilation systems

Green Option Cost-Benefit Summary



There does not appear to be a clear market for a distinct, eco-business park. This type of development would either require a mission aligned tenant or tax incentives.

You can move the city towards an environmentally progressive strategy by requiring that the next business development include:

- Native Landscaping
- Sustainable Transportation
- Greywater Reuse and Capture

Native Landscaping

Native grasses and wildflowers can protect soil due to deep root systems, which helps prevent erosion. Areas with diverse perennial native plantings have less water runoff than ground covers composed of one non-native species such as bluegrass.

Rain gardens are depressed areas filled with native plants as a way to help water infiltrate into the ground rather than run off into storm sewers.



Native plants are adapted to local climate and soil conditions. They need very little watering, mulching, mowing, or protection from frost. They also provide nectar, pollen, and seeds that serve as food for native butterflies, birds, and other animals.

This improves **air and water quality** through a reduction in landscaping machinery and pesticide usage while allowing future tenants the ability to realize approximately **\$1,000 in savings per acre** in maintenance costs.

Sustainable Transportation

Provide **convenient and secure bike storage** to make it easy for employees to bike to the building, as well as **clean and safe shower and changing facilities**.



EV charging stations in the parking lot to encourage employee carpooling.

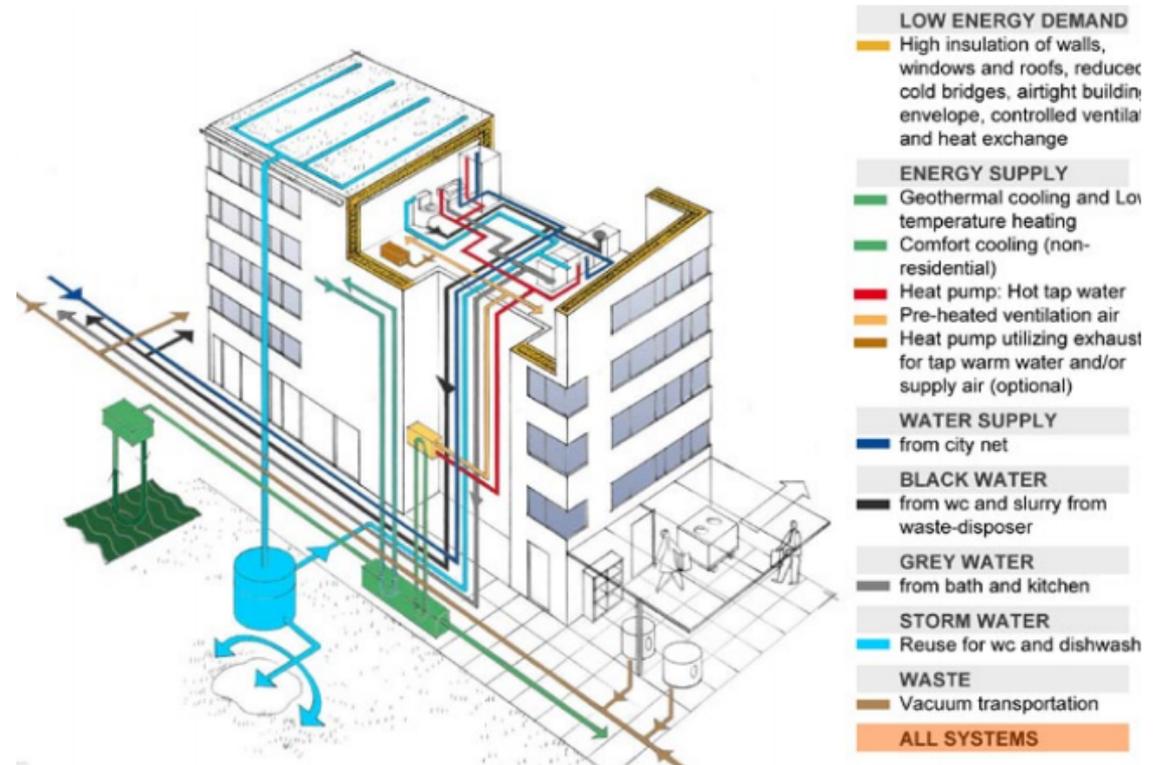


Greywater Reuse and Capture

Greywater is gently used water from bathroom sinks, showers, tubs, washing machines, and other non-harmful water uses. A commercial system is typically going to collect greywater in a large, temporary tank, filter, disinfect, and pump back to either flush toilets, or supply irrigation for the landscape.

Industry Example:

- Greywater can account for 30-50% of wash water. A Paul Mitchell company campus saves 400,000 gallons of water annually.
- This could represent drastic savings for a light manufacturing tenant that uses water as part of their process.



Conclusion & Next Steps

1

- Rosemount could be an attractive location for particular types of light manufacturing businesses

2

- The market likely will not produce an eco-business park without incentives from the city or a specific mission aligned tenant

3

- Industrial Symbiosis is not a likely solution for Rosemount

4

- Start small, attract the first mover, set a precedent, and find key partners invested in the idea of an eco-business park for their own reasons

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Appendix I – Green Homes North

Funding for Developers

The program provides development gap financing for developers and is funded through the Minnesota Housing Finance Agency, the City of Minneapolis, and the Family Housing Fund with 4% loans available from the Twin Cities Community Land Bank. During the first three rounds of funding, CPED offered over three million dollars in funding for 47 new green homes; and CPED will offer approximately one million in funding for the fourth round.

More information: <http://www.ci.minneapolis.mn.us/cped/housing/GreenHomesNorthDeveloperResources>

Funding for Homeowners

Qualified homebuyers are eligible for up to \$10,000 of assistance through the Minneapolis Advantage program.

More information: <http://www.ci.minneapolis.mn.us/cped/housing/GreenHomesNorth>

Appendix II – Cabazons’ Definitions

Information on the streamlined permitting at Cabazon Resource Recovery Park:

Streamlined permitting. The Cabazons’ Planning Department handles approvals, plan checks, building permits, zoning, and inspections. While the Cabazon tribe chooses to maintain high standards for environmental quality, a project proponent need not go through lengthy and costly approval processes typical in other areas.

A recently-approved U.S. Environmental Protection Agency programmatic environmental impact statement (EIS) included about 50 potential projects. Those named in the EIS would be good candidates to tackle first; larger or different projects would require a modification of the EIS. Regardless of the options chosen, the bulk of the environmental review will still have been completed.

Information on the rural empowerment zone at Cabazon Resource Recovery Park:

Rural Empowerment Zone. The Cabazon Resource Recovery Park is also located in an area that was designated a “rural empowerment zone” in 1999. The Desert Communities Empowerment Zone is one of five federally-designated zones in the nation. The tribe will received an initial \$2 million grant and an additional \$2 million in 2000. Cabazon Second Vice Chairman Marc Benitez was recently named president of the Desert Alliance for Community Empowerment, a nonprofit board responsible for implementation of the strategic plan for the empowerment zone. Empowerment zone status provides additional tax breaks and incentives.