The Edmonton Waste Management Centre – Open for Business

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Seminar & Tour - Edmonton Waste Management Centre October 5, 2011

Sponsored by Alberta Plastics Recycling Association,
The Canadian Plastics Industry Association, and the American Chemistry Council
in conjunction with the annual conference of the Recycling Council of Alberta

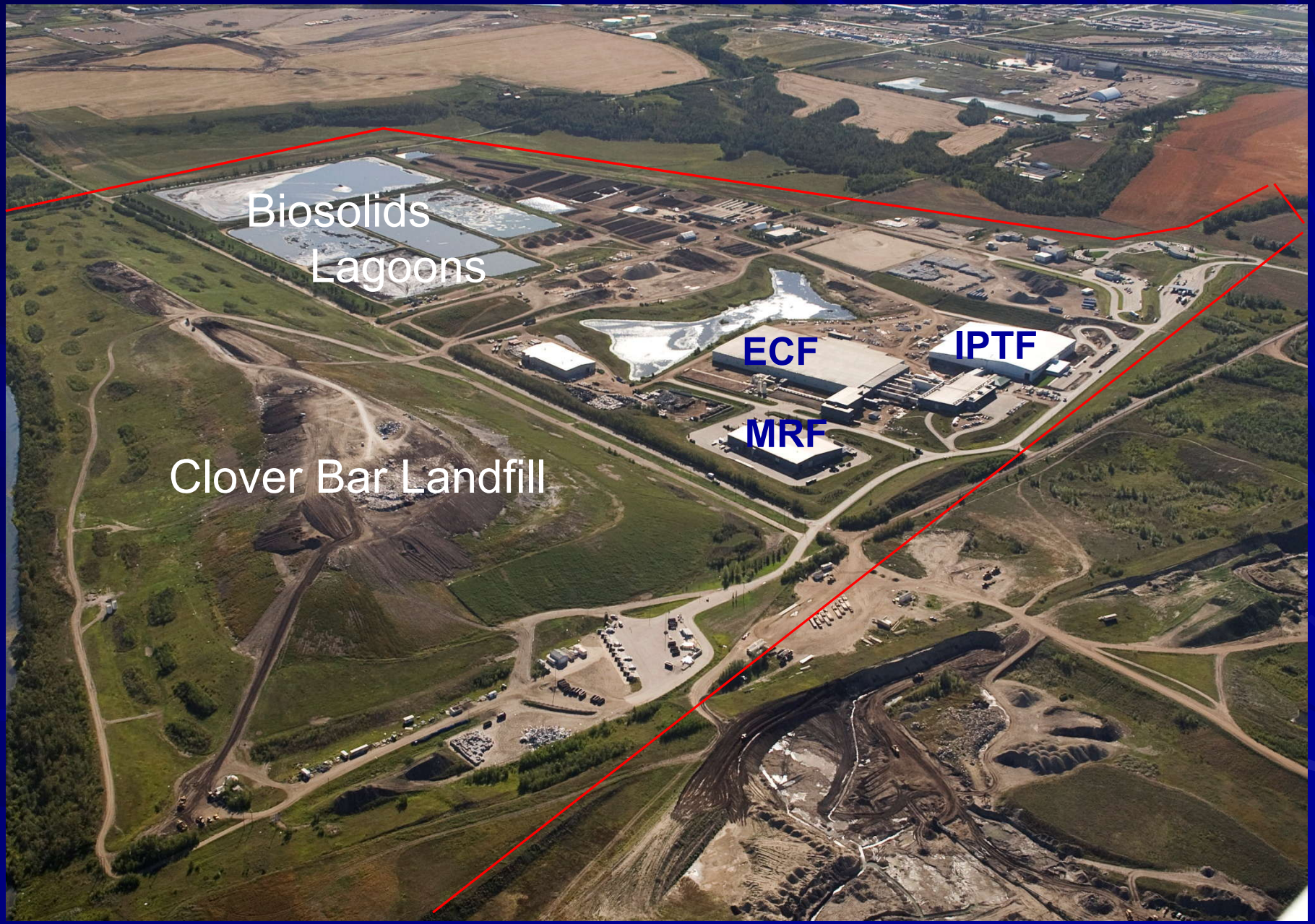
Co-presented by the Edmonton Waste Management Centre of Excellence

Outline

- Overview of the EWMC
- Edmonton's Journey to Biofuels Production
- The Edmonton Biofuels Project
  - The partnership
  - The components

Edmonton Waste Management Centre

- 550 acres
  - Landfill
  - Sewage biosolids storage lagoons
  - Waste processing facilities
  - Research facilities
- Six private or public sector contractors, partners or tenants
- Over 300 employed
- Investment past 15 years over $200M
- Investment next two years - $120M


Biosolids
Lagoons
ECF
IPTF
MRF
Clover Bar Landfill

15 years of development

1995

2010

The New Day

Life after Landfill

We reduce…

to the ECO Station
Edmonton
Edmonton
Refuse
Blue Bag
Recycling

We compost…

Co-Composting Facility (for MSW & Biosolids)

We recycle…

Materials Recovery Facility (MRF) for recyclables

Electronics Recycling

Greys Recycling

The Missing Piece

What's left is residual material that we can either landfill (which is much more expensive now) or ???

The Journey to Biofuels Production

- There IS a better solution (than landfill or conventional incineration)
- Review of global conversion technologies (2002-2003)
- Enerkem was chosen:
  - Flexible and innovative technology platform
  - Demonstrated ability to produce clean syngas from trash feedstocks
  - Ready for commercialization
- Pilot Project – confirm key performance parameters (2004-2006)
- Grant Support (Alberta Innovates) Announced (2006)

Project Officially Announced! – It's REAL!

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The Journey Continues…

- Contractual Agreements & Environmental Permitting (2007-2008)
- Regulatory approval (2009)
- Construction start - August 2010
- Commissioning anticipated late 2012

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The Journey to Biofuels Production

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10 YEARS!

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Edmonton Waste-to-Biofuels Project

Overview of the New Project – Three Components, Three Partners

Facility	Primary Operator	Primary Functions	Cost
Integrated Processing and Transfer Facility (IPTF)	**City** owns and operates	- Produce RDF for Biofuels - Route organics to ECF - Load non-recoverable for haul to landfill	$ 90 M
Waste-to-Biofuels Production Facility	**Enerkem** owns and operates	- Produce 36M litres of biofuels / year - Market product	$ 80 M
Advanced Energy Research Facility (AERF)	City owns. City & **AIEES** will direct activities	- Ongoing R&D activities - Higher value products - Process optimization	$ 10 M

AIEES = Alberta Innovates Energy and Environment Solutions

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Making fuel from residual trash

- Step 1 – preparing the feedstock – City of Edmonton's job
  - Sort out the most suitable material from the trash
  - Process it to achieve homogeneity, quality, and particle uniformity

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The Integrated Processing and Transfer Facility (IPTF)

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IPTF Functions and Phasing

March 2010

Early 2012

Pre-Processing Plant

RDF Plant

Transfer Station

August 2009

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Pre-Processing – the first separation

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IPTF Functions and Phasing

March 2010

Early 2012

Pre-Processing Plant

RDF Plant

Transfer Station

August 2009

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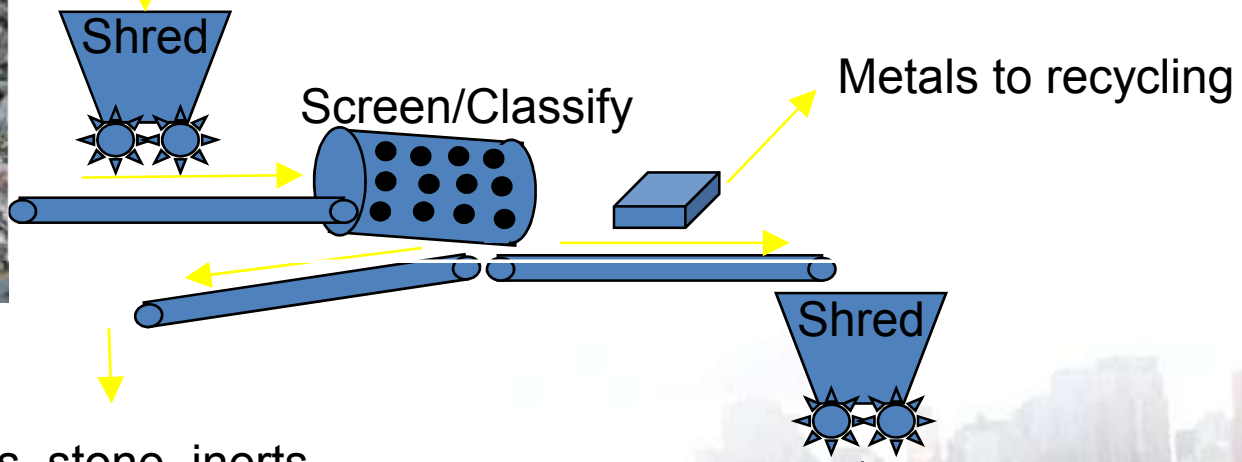
Refuse Derived Fuel (RDF) Process

Residual waste

Primary Shred



Glass, stone, inerts
to roadway aggregate or landfill

Fluff RDF

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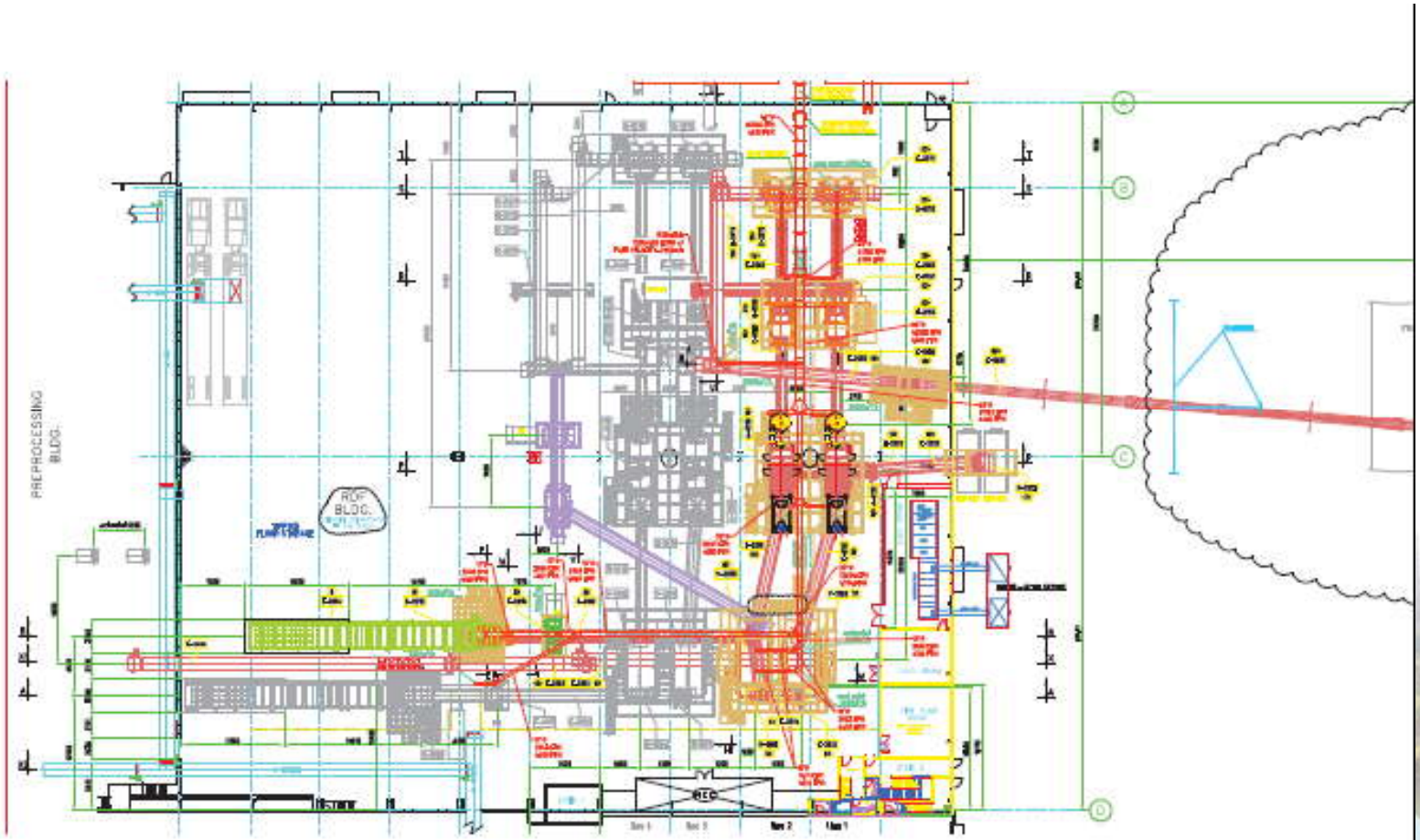
Edmonton Waste-to-Biofuels Project



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Edmonton Waste-to-Biofuels Project

Primary Residuals

IPTF 5” Overs

Secondary Residuals

MRF-Residuals

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Edmonton Waste-to-Biofuels Project

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Making fuel from residual trash

- Step 1 – preparing the feedstock
  - Sort out the most suitable material from the trash
  - Process it to achieve homogeneity, quality, and particle uniformity
- Step 2 – Conversion
  - Thermal gasification
  - Catalytic reformation

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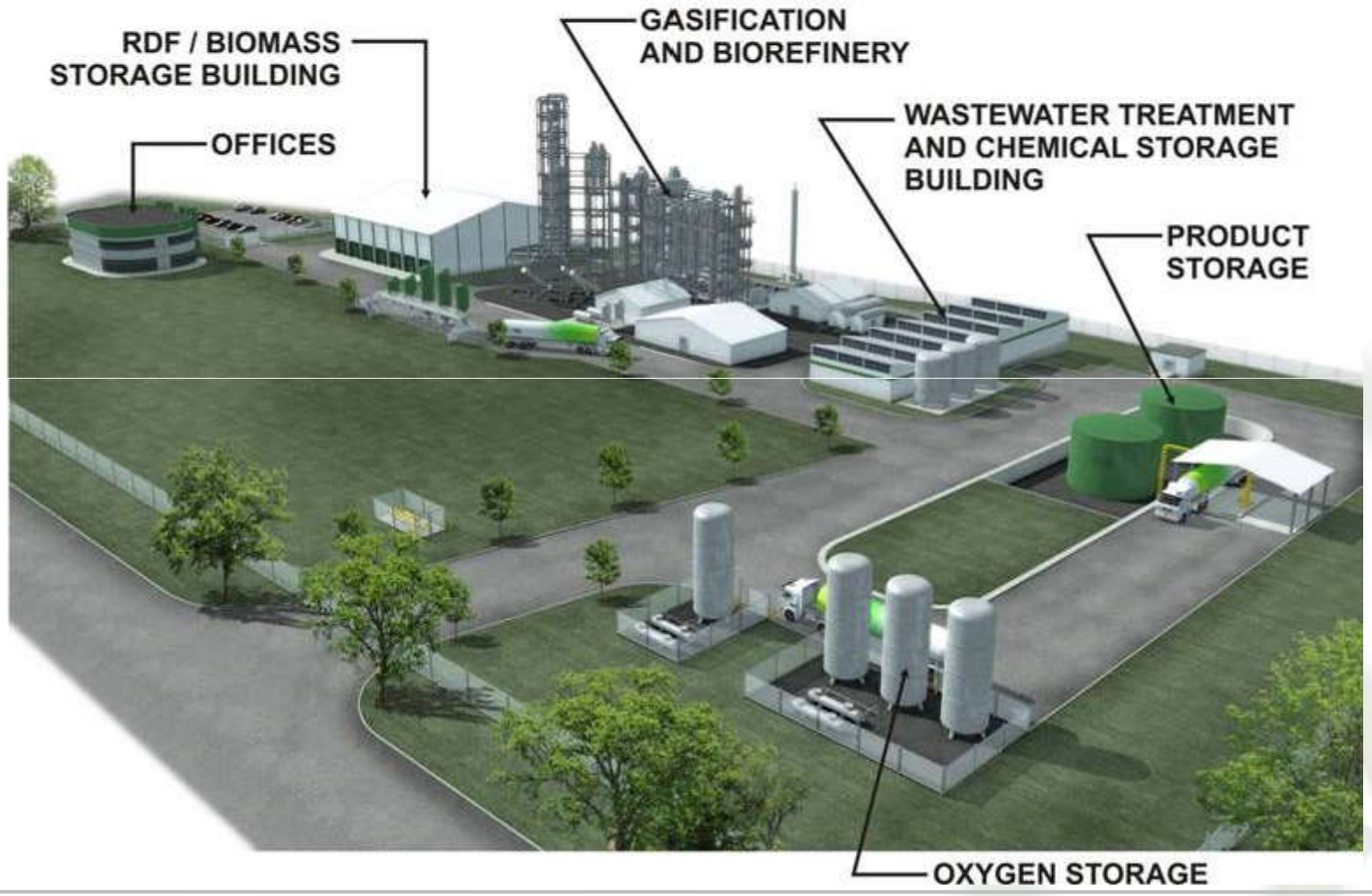
Edmonton Waste-to-Biofuels Project



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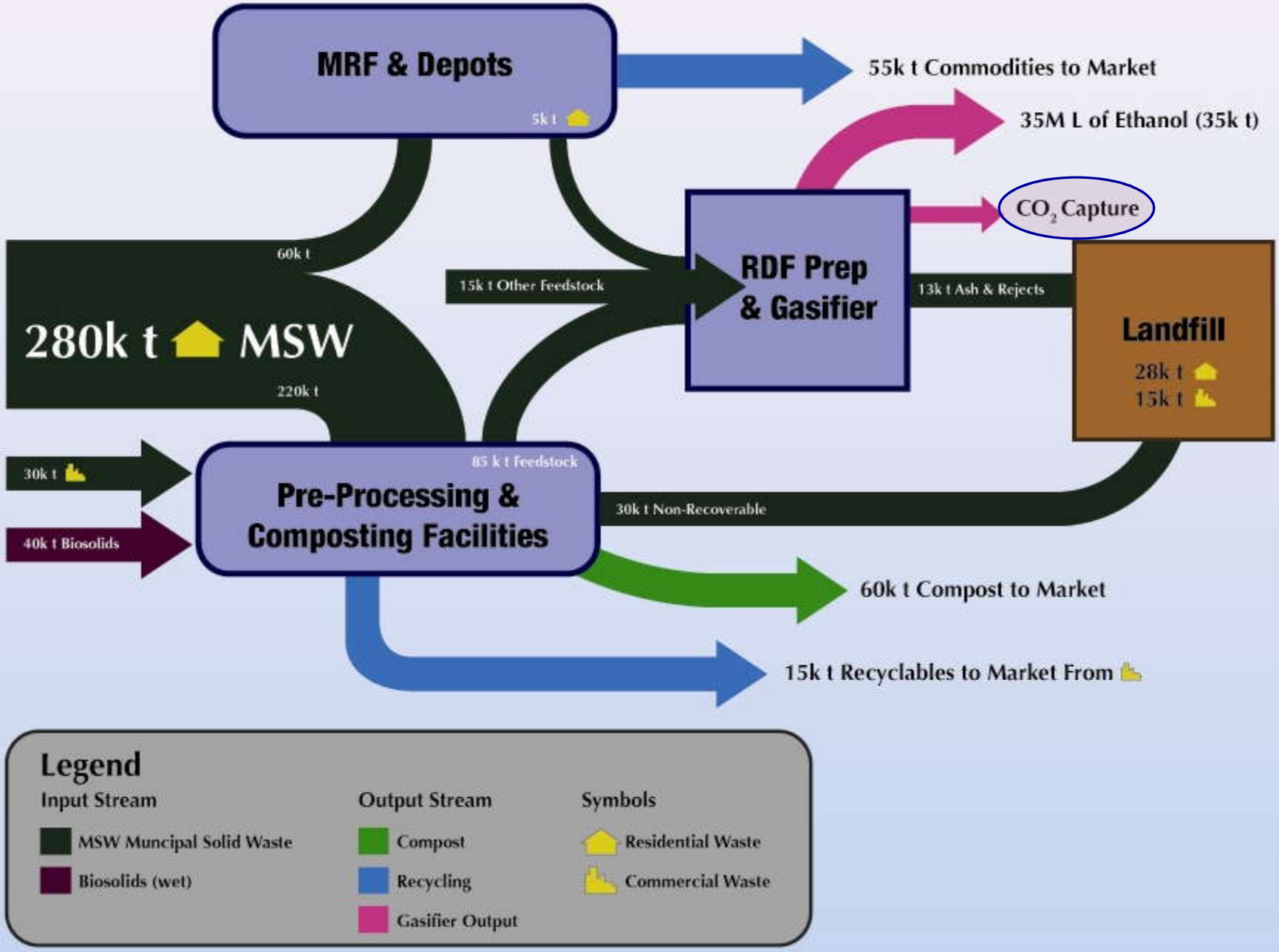
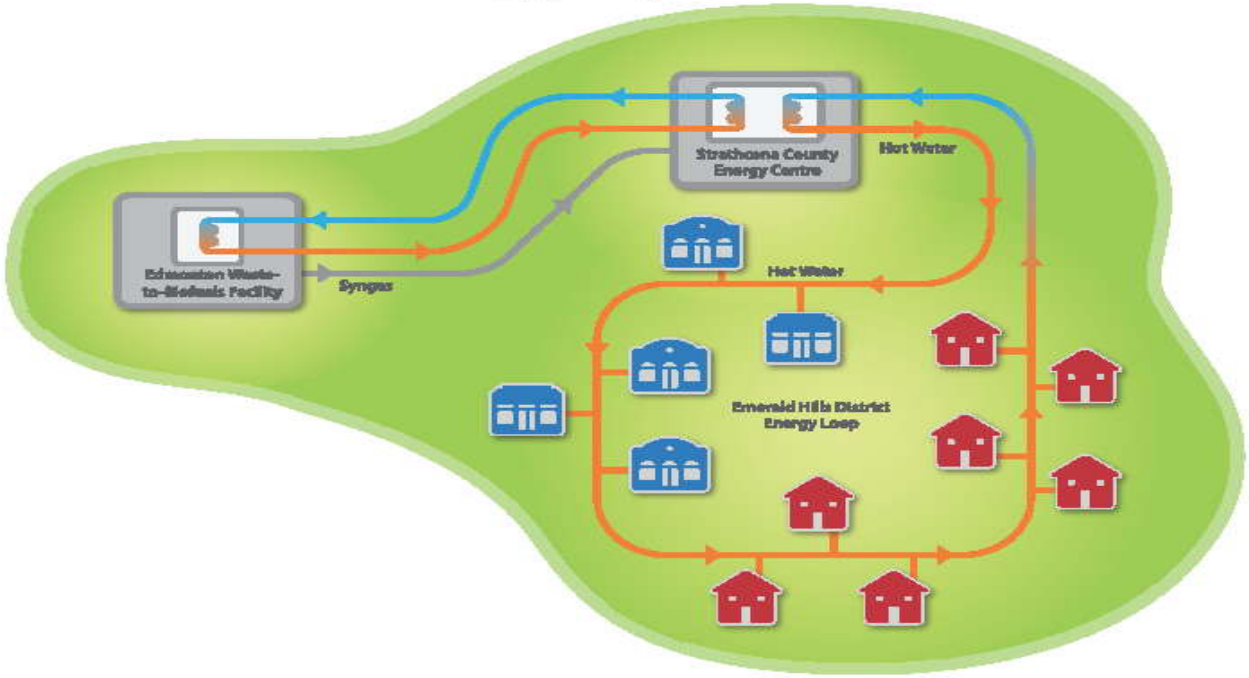
90% Diversion of Residential Waste Stream



Intra-Municipal Energy Transfer and District Energy System



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THE END
(for now)

Questions?