From Oil Sands to a World-Class Eco-Industrial Chemical Cluster for Greater Edmonton

Overview of Cluster Development Study

Alberta Employment, Immigration and Industry

Alberta Energy

The City of Edmonton

Edmonton Economic Development Corporation

Alberta's Industrial Heartland

Draft Final Report

17 October, 2007

eKline and COMPANY

INTELLIGENT INSIGHTS™

Contents

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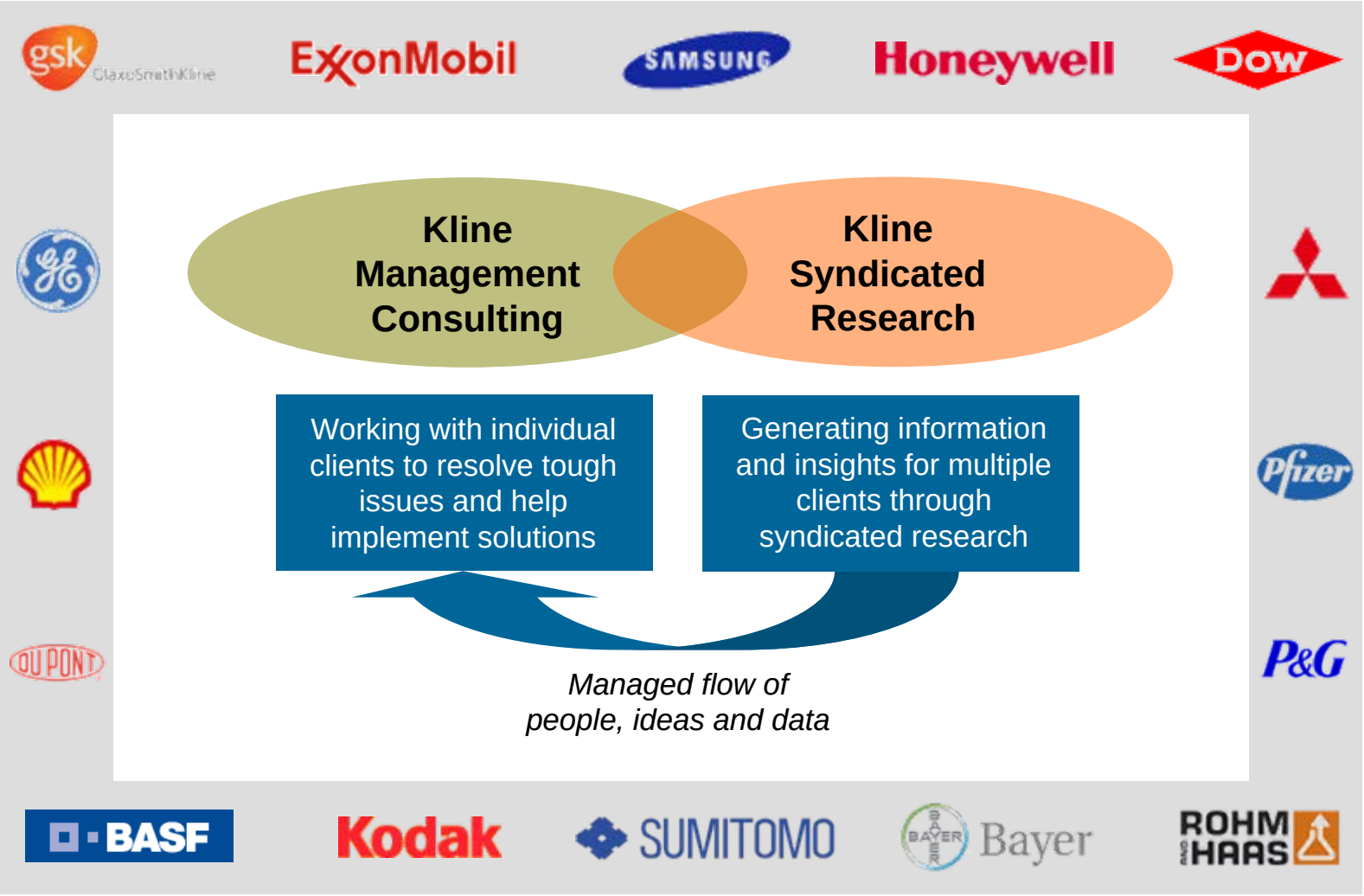
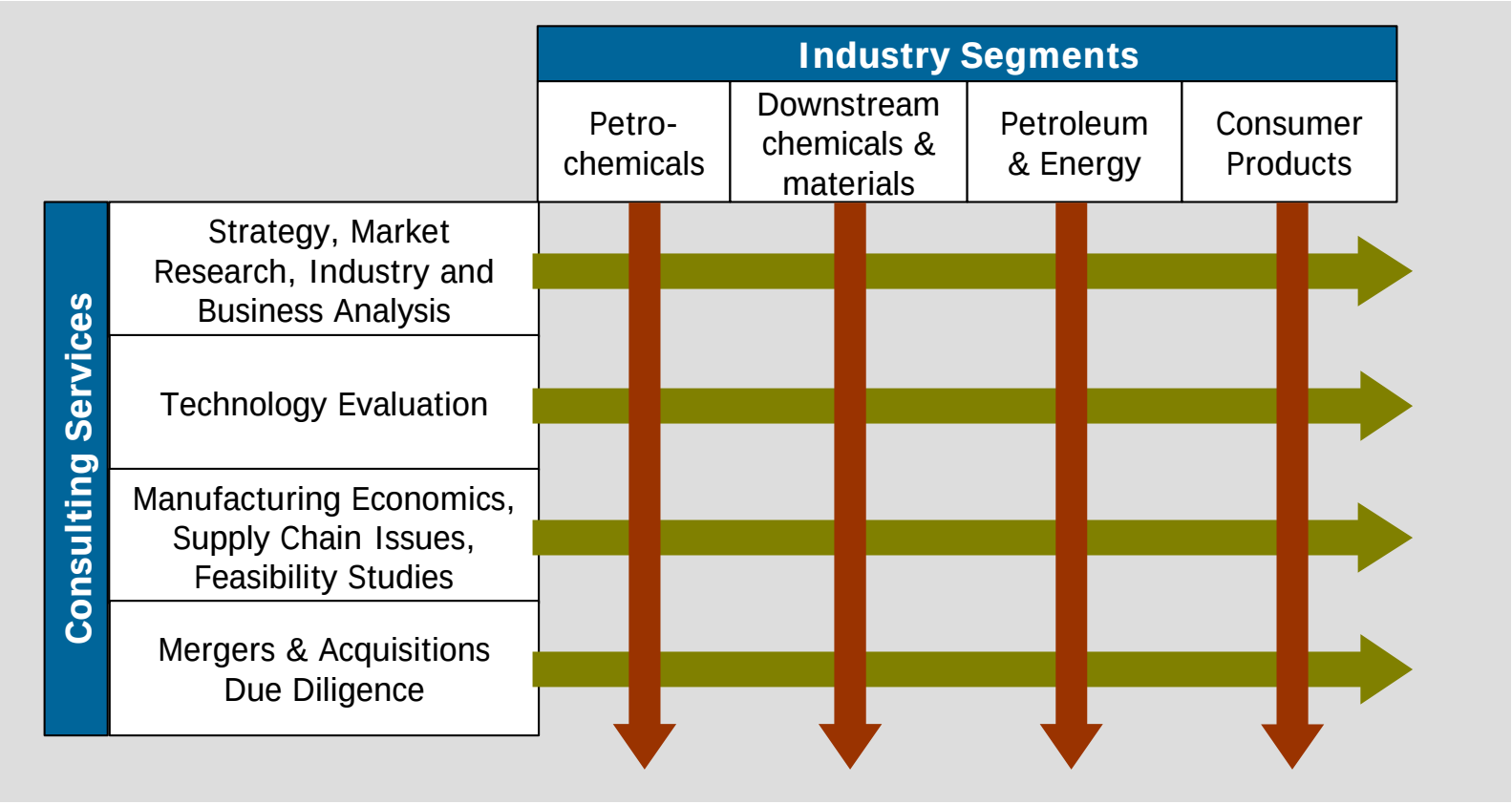


…with almost 50 years experience in chemical industry sectors and functional consulting



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If you require additional information about the contents of this document or the services that Kline provides, please contact:

Fred du Plessis
Senior Vice President
Phone: +44 1865 784 464
Fred_Duplessis@klinegroup.com

Jonathan A Goldhill
Senior Vice President
Phone: +1 215 370 7839
Jonathan_Goldhill@klinegroup.com

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Offices

USA –NY/NJ
Kline & Company, Inc.
Overlook at Great Notch
150 Clove Road, Suite 410
Little Falls, NJ 07424-0410
Phone: +1-973-435-6262
Fax: +1-973-435-6291
consult@klinegroup.com

EUROPE
Kline Consulting Europe Limited
Magdalen Centre
Oxford Science Park
OX 4 4GA, UK
Phone: +44-1865 784 464
Fax: +44-870 928 9837
consult@kline-europe.com

CHINA
Kline Asia
Shui On Plaza, Suite 1111-1112
333 Huai Hai Road (Middle)
Shanghai, PC 200021, China
Phone: +86-21 5382-6677
Fax: +86-21 5383-3889
consult@kline-asia.com

INDIA
Kline India
20/4 Ground Floor, Palm Court
Sukhrali Chowk, Gurgaon-Mehrauli Road, Gurgaon,
122001 Haryana, India
Phone: +91-124 4546-100
consult@kline-india.com

USA – PA/DE
Kline & Company, Inc.
Jenkintown Commons
93 Old York Road, Suite 300
Jenkintown, PA 19046
Phone: +1-215-887-4257
Fax: +1-208-493-1171
consult@klinegroup.com

JAPAN
Kline Japan Ltd.
Sankei Building 27F
1-7-2 Ote-machi, Chiyoda-ku
Tokyo 100-0004, Japan
Phone: +81-3 3242-6277
Fax: +81-3 3242-6278
consult@klinejapan.com

BRAZIL
Factor de Soluçào
Av. São Gabriel, 333 - CJ. 112
Itaim Bibi - São Paulo - SP
01435-011 Brazil
Phone: +55-11 30797843
Fax: +55-11 30796197
srebelo@factordesolucao.com.br

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Alpha Management Consultants, Czech Republic
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Objectives

Project Goals were formulated to address the major issues

- Develop world-class eco-industrial chemical cluster alternatives for Greater Edmonton
- Leverage Kline's understanding of the international chemical industry, chemical markets, and the competitive environment to quantify and qualify the potential in Greater Edmonton
- Develop an objective view of Alberta's potential for the development of a world class chemical cluster in Greater Edmonton
- Benchmark the best in class clusters in order to input key learning's into Greater Edmonton's cluster
- Encourage a coordinated, integrated cluster development strategy for Greater Edmonton
- Evaluate the strategic and economic impact of the cluster alternatives, with a view to eliminating associated risks
- Set a clear path to action and results

Definition of Eco-Industrial Complex

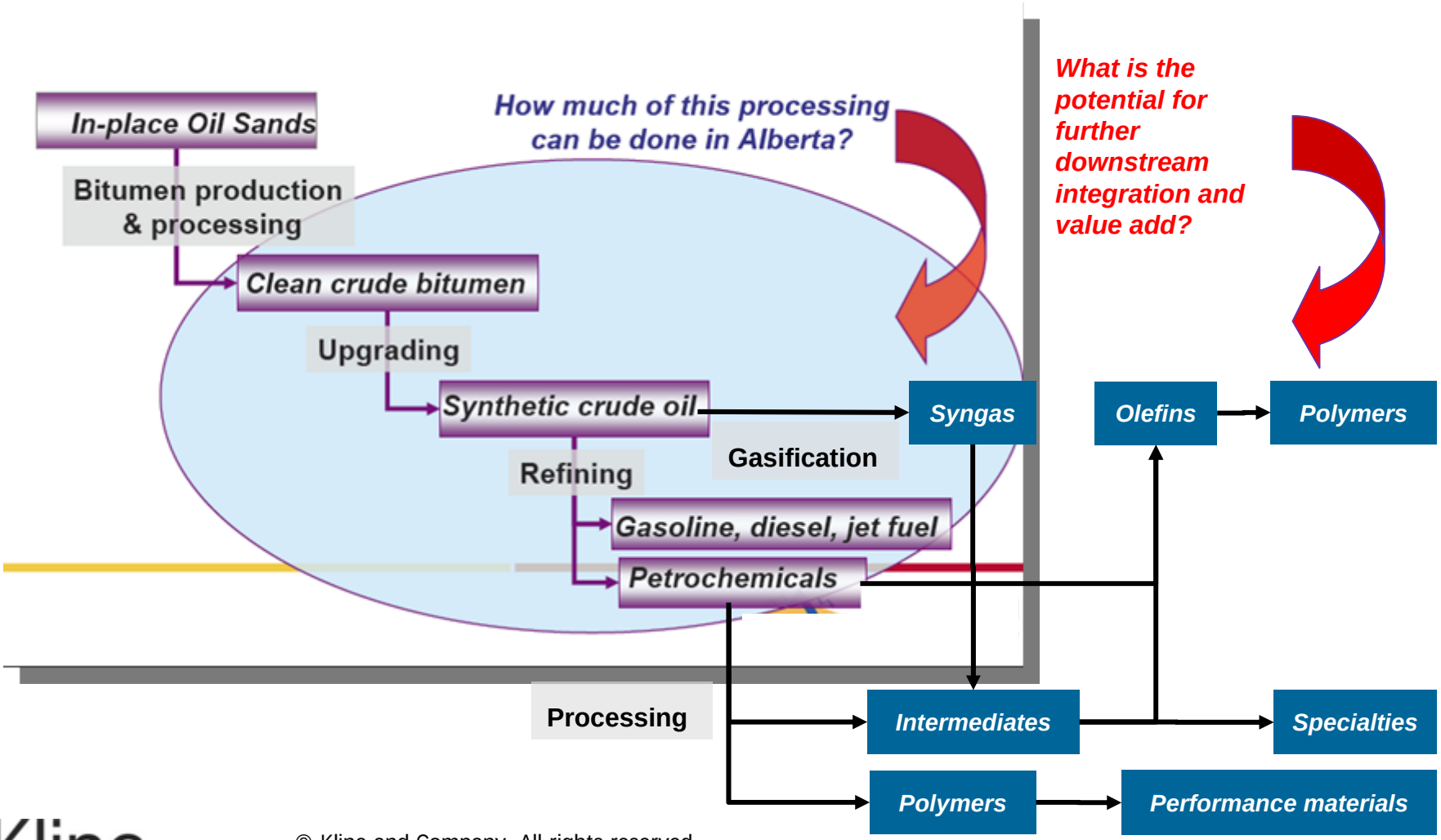
A community of businesses that cooperate with each other to efficiently share resources (information, materials, energy, infrastructure and natural habitat), leading to economic gains, improvements in environmental quality and equitable enhancement of human resources for business and the local community.

-- U.S. President's Council on Sustainable Development

This Study has been developed to provide:

- **Global perspectives** on the potential for the development of a world-class eco-industrial chemical cluster for Greater Edmonton. This will include an examination of other **major international chemical clusters** and the issues relevant to Greater Edmonton.
- An overview of the current **raw-material processing approaches** and how these lead to the spectrum of base chemicals, intermediates, specialty chemicals and materials produced world-wide
- An overview of the approach for **selecting the most viable product clusters** for Greater Edmonton including:
  - Market analysis
  - Economic viability
  - Eco-industrial factors

Convincing the international oil refining and chemical industry to invest downstream is the key challenge



Adding Value Downstream

Key focus of Kline study is complementary to other studies as it looks much further downstream

Accelerating Downstream Development

Previous Studies

- Upgrading Technology
- Exploration Opportunities
- Infrastructure Requirements
- Upgrading Financial Analysis
- Logistics and Transportation
- Key Success Factors

Kline Study

- Global Competitive Context
- Market Opportunities
- Role of Government
- Cluster Integration Value
- Stakeholder Strategy Input

Benefits of this Study to Greater Edmonton

- Review of **leading global practices and trends**
- Enhance Greater Edmonton's existing upgrading, refining and petrochemical cluster to take **advantage of global opportunities and challenges**
- Recommend specific **product clusters**
- Promote ongoing **partnership for development** of existing industry expansion plans
- Develop the **foundation for a coordinated investment attraction strategy**

Contents

We proposed a two-staged study with clear objectives

To be covered in a future proposal

	Stage 1: Developing the Cluster Alternatives		Stage 2: Selection, Promotion and Acquisition Strategies	
Phase	1 June 7 Seminar: Lay the Groundwork	2 This Study: Define the Context and Develop Concept	3 Cluster Marketing Strategy	4 Investment Acquisition Support

Objectives	■ Build understanding of the potential with the regional players at Stakeholder leader and working group levels
	■ Lay a solid foundation for the project in terms of process, team interactions, communications and knowledge base
		■ Develop the integration opportunities based on Value Chain analysis
		■ Evaluate the Market opportunities
		■ Benchmark against best practice clusters
		■ Develop alternative cluster concepts
		■ Review cluster alternatives with Steering Group and Stakeholder groups
		■ Recommend cluster alternative
			■ Select cluster alternative
			■ Prioritize Products for investment
			■ Identify target investor groups
			■ Develop promotional strategy
			■ Develop investment acquisition strategy
				■ Develop a comprehensive investment acquisition support program to enable Greater Edmonton to implement the Cluster marketing strategy in:
				  ■ Pre-Start Up Phase
				  ■ Start Up Phase
				  ■ Post Start Up Phase
				■ Recommend Additional expertise required to fully implement the investment acquisition strategy

The development of the Cluster Alternatives are based on several Key Underlying Assumptions (1/2)

- Bitumen Upgrading will exceed **3.0 million BBL/day by 2025** and **Upgrader bottoms production** will exceed demand for:
  - **Energy generation** in the region (as bottoms or coke)
  - **Coke** for energy generation in export markets

Outcome: this will result in a significant quantity of "Stranded Upgrader Bottoms" in Alberta

Whilst this appears to be a problem – this is the key opportunity for Alberta to become the leading Syngas production region in the world

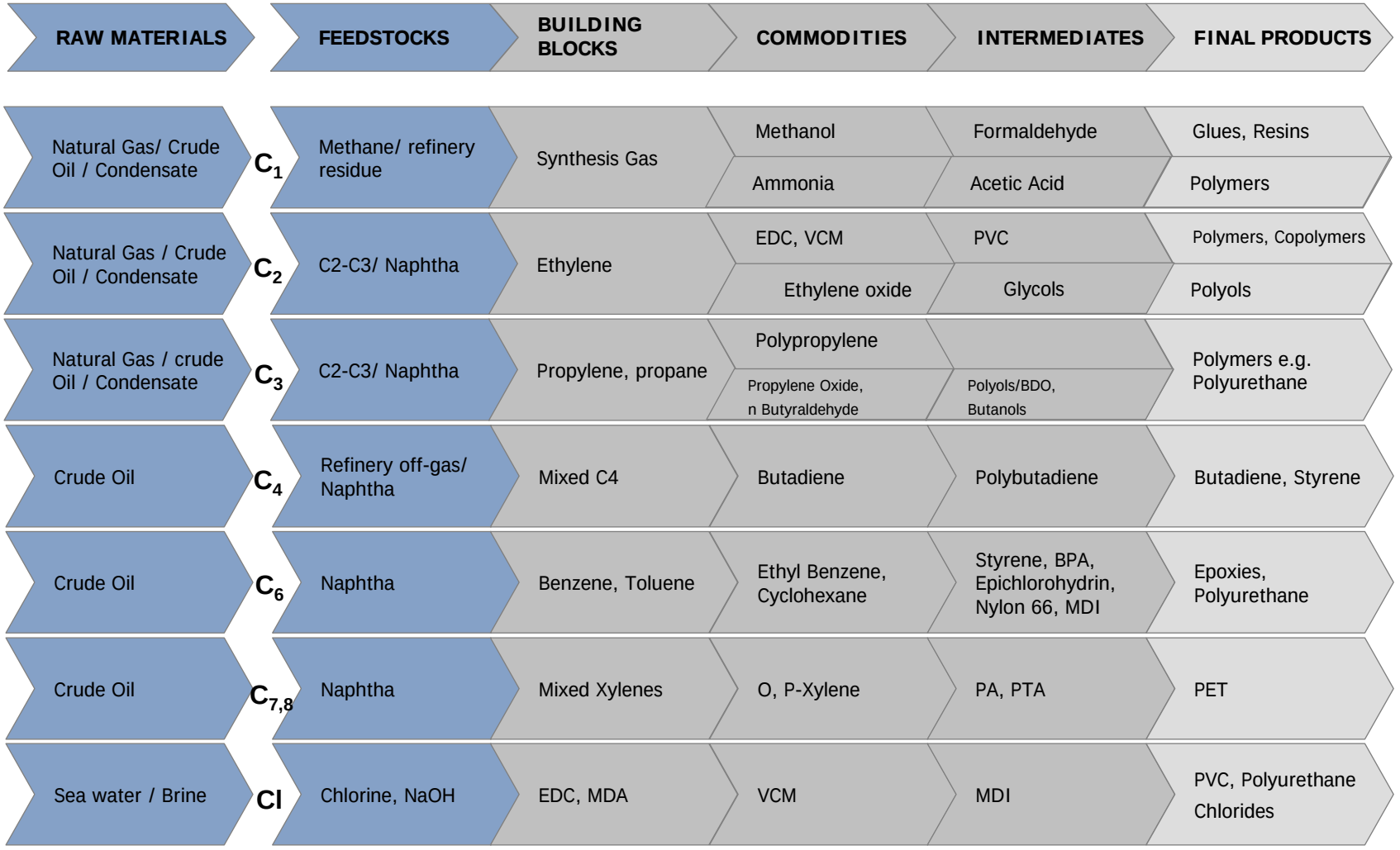
This is the underlying opportunity

The development of the Cluster Alternatives are based on several Key Underlying Assumptions (2/2)

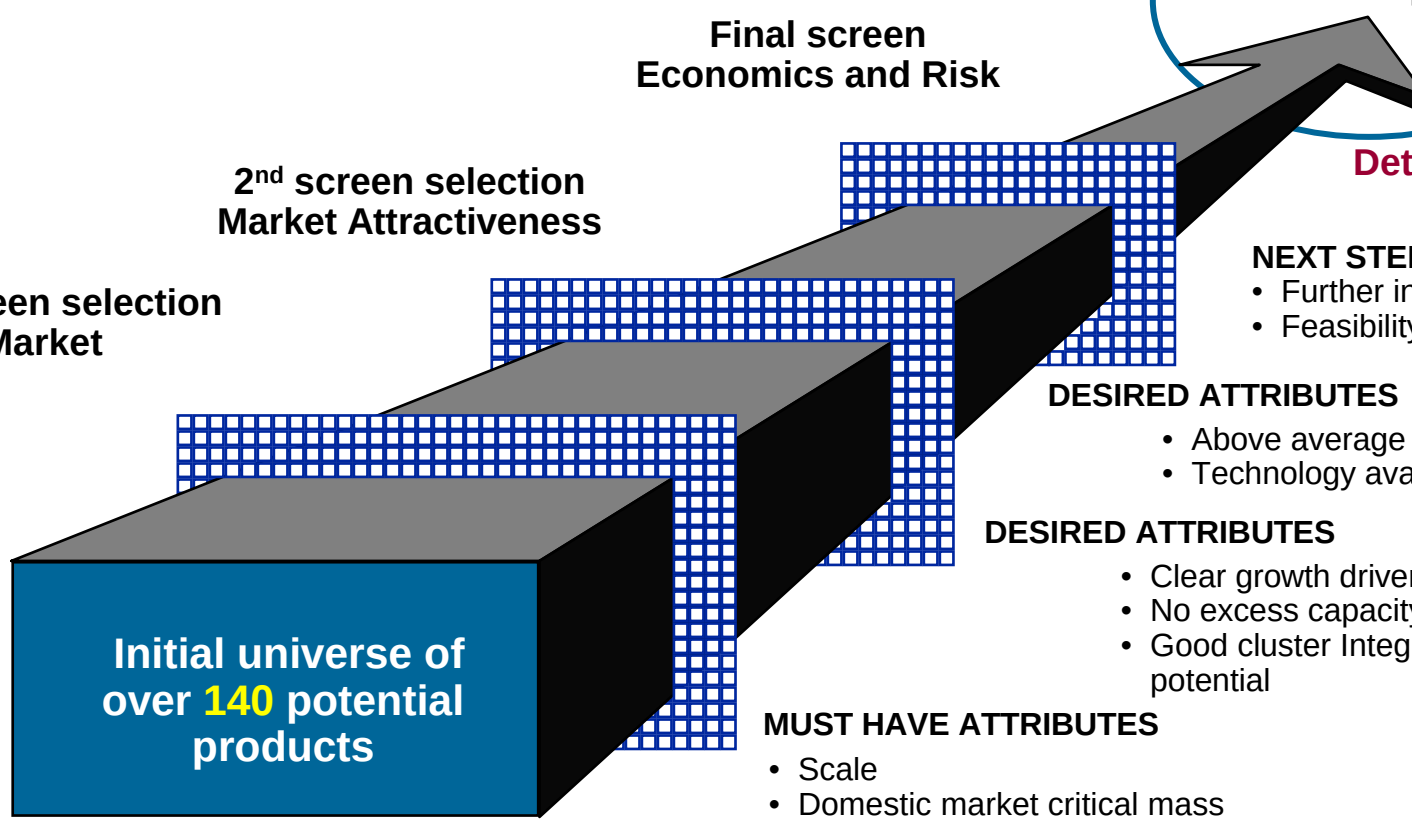
- **Additional refinery capacity** will be added in Alberta, serving **export markets**
- **Pipeline infrastructure will be expanded** to include **clean products** and possibly olefins
- **Upgrader and refinery off-gases** will become increasingly important sources of **petrochemical feedstock**
- **Gasoil and possibly Naphtha** will become **feedstocks of choice for crackers** in North America due to dwindling economic supplies of Ethane
- **Methane** will be an increasingly uneconomic source of **hydrogen** for Upgraders, Refineries and Petrochemical producers

Unlocking Alberta's Downstream chemical potential requires the industry to recognize the opportunities that "unconventional" raw materials and feedstocks provide

Product Flows from Primary Raw Materials (generic)



The Potential Products for Cluster Development were obtained through systematic screening



Detailed product analysis

NEXT STEPS
- Further investigation
- Feasibility studies

DESIRED ATTRIBUTES
- Above average profitability
- Technology available

DESIRED ATTRIBUTES
- Clear growth drivers
- No excess capacity in the US
- Good cluster Integration potential

MUST HAVE ATTRIBUTES
- Scale
- Domestic market critical mass
- Demand Growth rate
- Import substitution potential US

A "Product Universe" was developed which would provide the best fit for Greater Edmonton

- Using **value chains** a list of chemical products was compiled containing **140 potential products.**
- In developing the **Product Universe** the following were also considered:
  - Product portfolio's of the **successful chemical clusters**
  - **Stakeholder interview** feedback
- **End User products** cover applications in many sectors such as adhesives, agriculture, automotive, coatings, cosmetics, detergents, dyestuff, fuels, packaging, pharmaceuticals, plasticizers, plastics, resins, solvents, textiles, etc.
- **A detailed database** covering feedstock, market size, growth, technology, trade, profitability etc. was constructed to allow detailed screening and analysis.

The Chemical Universe – 140 key products

RAW MATERIALS		FEEDSTOCKS	BUILDING BLOCKS	COMMODITIES	INTERMEDIATES	FINAL PRODUCTS	
Natural Gas/ Crude Oil / Condensate	C_1	Methane/ refinery residue	1	1	14	7	23
Natural Gas / Crude Oil / Condensate	C_2	C2-C3/ Naphtha	2	2	14	5	23
Natural Gas / crude Oil / Condensate	C_3	C2-C3/ Naphtha	1	2	16	6	25
Crude Oil	C_4	Refinery off-gas/ Naphtha	2	2	12	10	26
Crude Oil	C_6	Naphtha	1	4	12	7	24
Crude Oil	$C_{7,8}$	Naphtha	1	3	6	4	14

Excludes N and Cl Value Chains

Total: 135

The 1st Stage "Market Screen" focused on North American Imports

- Is the market large enough?
- Is there a net import requirement in North America?
- Is the market growing world-wide?
- Are there any immediate threats?
- Is there sufficient capacity in the US for their domestic market?

The expectation was that a significant percentage of the candidate products selected for the Product Universe would be eliminated in the first screening stage

"1st Screen" – North American Market Net Imports

RAW MATERIALS		FEEDSTOCKS	BUILDING BLOCKS	COMMODITIES	INTERMEDIATES	FINAL PRODUCTS	
Natural Gas/ Crude Oil / Condensate	C_1	Methane/ refinery residue	1	1	7	7	16
Natural Gas / Crude Oil / Condensate	C_2	C2-C3/ Naphtha	2	1	11	4	18
Natural Gas / crude Oil / Condensate	C_3	C2-C3/ Naphtha	1	2	11	4	18
Crude Oil	C_4	Refinery off-gas/ Naphtha	2	2	11	9	24
Crude Oil	C_6	Naphtha	1	4	10	6	21
Crude Oil	$C_{7,8}$	Naphtha		3	6	3	12

Excludes N and Cl Value Chains

Total: 109

The 2nd screen selection process focused on Market Attractiveness

- The outcome of the first screen was primarily based on **numerical analysis**
- The 2nd screen provided a **qualitative assessment** of the overall **market attractiveness** using the same data collected for the 1st screen selection.
- This ensured that only products with **sufficient market attractiveness** were kept in the selection so that further screening was focused on those **products with the best potential and fit in the cluster**.
- In the 2nd screen a further **20 chemicals** where eliminated.
- The **reasons for elimination** vary, but are mainly related to:
  - Regional capacity distribution (e.g. overcapacity)
  - Poor growth rates in N.A.
  - Low capacity utilization combined with growth below GDP

"2nd Screen" - North American Market Attractiveness

RAW MATERIALS		FEEDSTOCKS	BUILDING BLOCKS	COMMODITIES	INTERMEDIATES	FINAL PRODUCTS	
Natural Gas/ Crude Oil / Condensate	C_1	Methane/ refinery residue	0	1	7	6	14
Natural Gas / Crude Oil / Condensate	C_2	C2-C3/ Naphtha	2	1	9	3	15
Natural Gas / crude Oil / Condensate	C_3	C2-C3/ Naphtha	1	1	10	3	15
Crude Oil	C_4	Refinery off-gas/ Naphtha	1	3	9	5	18
Crude Oil	C_6	Naphtha	1	4	9	3	17
Crude Oil	$C_{7,8}$	Naphtha	1	2	5	3	11

Excludes N and Cl Value Chains

Total: 90

The Final screen focused on Economics and Risk

- "**Economics**" screen - final product selection and Kline recommendation
  - Are there any logistical or environmental issues?
  - Are the product margins attractive?
  - Is there sufficient cluster integration potential?
- A total of 77 chemicals were selected from the 90 chemicals remaining after the 1st and 2nd screen selection.
- The cluster of 77 chemicals include 18 products which are **currently manufactured in Alberta**.
- The **selected chemicals** cover several product clusters which are key to a number of **growing industries**:
  - PET
  - Acrylics
  - Fertilizers
  - Polyurethane
  - Polycarbonate
  - High performance Plasticizers
  - Barrier resins for packaging materials (EVOH, PVOH)

Final screen selection

"Final screen"- Economics and Risk

RAW MATERIALS		FEEDSTOCKS	BUILDING BLOCKS	COMMODITIES	INTERMEDIATES	FINAL PRODUCTS	
Natural Gas/ Crude Oil / Condensate	C_1	Methane/ refinery residue	1	2	6	6	15
Natural Gas / Crude Oil / Condensate	C_2	C2-C3/ Naphtha	1	1	5	5	12
Natural Gas / crude Oil / Condensate	C_3	C2-C3/ Naphtha	1	1	7	5	14
Crude Oil	C_4	Refinery off-gas/ Naphtha	2	1	5	5	13
Crude Oil	C_6	Naphtha	1	3	8	4	16
Crude Oil	$C_{7,8}$	Naphtha	1	2	2	2	7

*Of 77 chemicals selected, 18 are already made in Alberta

Excludes N and Cl Value Chains

Total: 77*

Selected products – alphabetical order (1/2)

1. Acetic Acid
2. Acetone
3. Acrolein
4. Acrylic Acid
5. Acrylic acid esters
6. Acrylate polymers
7. Adipic Acid
8. Adiponitrile
9. **Ammonia**
10. **Ammonium Nitrate**
11. Aniline
12. Benzene
13. Bisphenol A
14. Butanediol (BDO)
15. Butene -1 / Isobutene
16. Butyraldehyde
17. Caprolactam
18. Cumene
19. Cyclohexane
20. Di-isooctyl phthalate (DIOP)
21. Dimethyl carbonate (DMC)
22. Dimethyl ether (DME)
23. dioctyl phthalate (DOP)
24. DPC
25. 2-Ethyl Hexanol (2-EH)
26. **Ethoxylates**
27. **Ethylene**
28. **Ethylene Glycol**
29. Ethylene Glycol Ethers
30. Ethylene oxide
31. **EVA Copolymers**
32. EVOH (Ethylene-Vinyl Alcohol Copolymer)
33. Formaldehyde
34. Gamma-Butyrolactone (GBL)
35. **IPA (isopropanol)**
36. **Isooctane**
37. iso-butene / Butene-1
38. **Linear Alpha Olefins (LAOs)**
39. **MEG**
40. Maleic Anhydride
41. MDI -- Methylene di-p-phenylene isocyanate
42. Melamine
43. Melamine resins
44. Methanol
45. Mixed C4 / Butane
46. MMA
47. Nitrobenzene
48. N-Methylpyrrolidone (NMP)
49. Nylon-6 (PA -6)
50. Nylon-6,6 (PA- 66)
51. o-Xylene

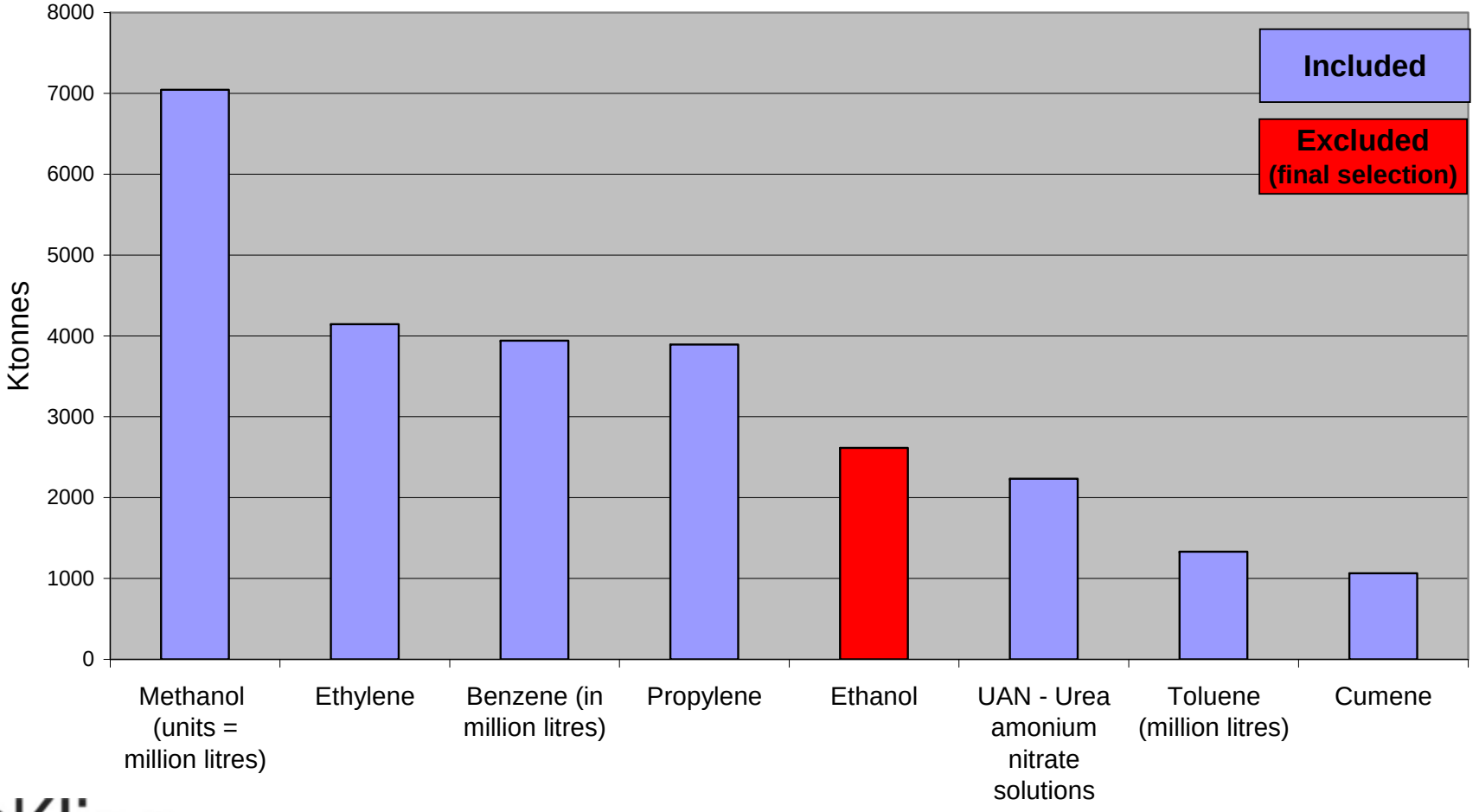
Currently manufactured and marketed in Alberta

Selected products – alphabetical order (2/2)

52.PE-HDPE	65. PTA (Purified Teraphthalic Acid)
53.PE-LDPE	66. Pthalic Anhydride
54.PE-LLDPE	**67.PTMEG - polytetramethylene ether glycol**
55. PET	68. PVA (PVOH)
56. Phenol	69. p-Xylene
57. PMMA - polymethyl methacrylate	70. SAP's – Super Absorbent polymers
58. Polybutylene terephthalate - (PBT)	**71.TBA -- tert-butyl alcohol / tert-butanol**
59. Polycarbonate	72. Tetrahydrofuran (THF)
60. Polyurethanes	**73.Toluene**
61. Propylene	**74.UAN - Urea amonium nitrate solutions**
62. Propylene Oxide (PO)	**75.UREA**
63. Propylene glycols	76. UPR's
64. PPG	77. VAM
	Currently manufactured and marketed in Alberta

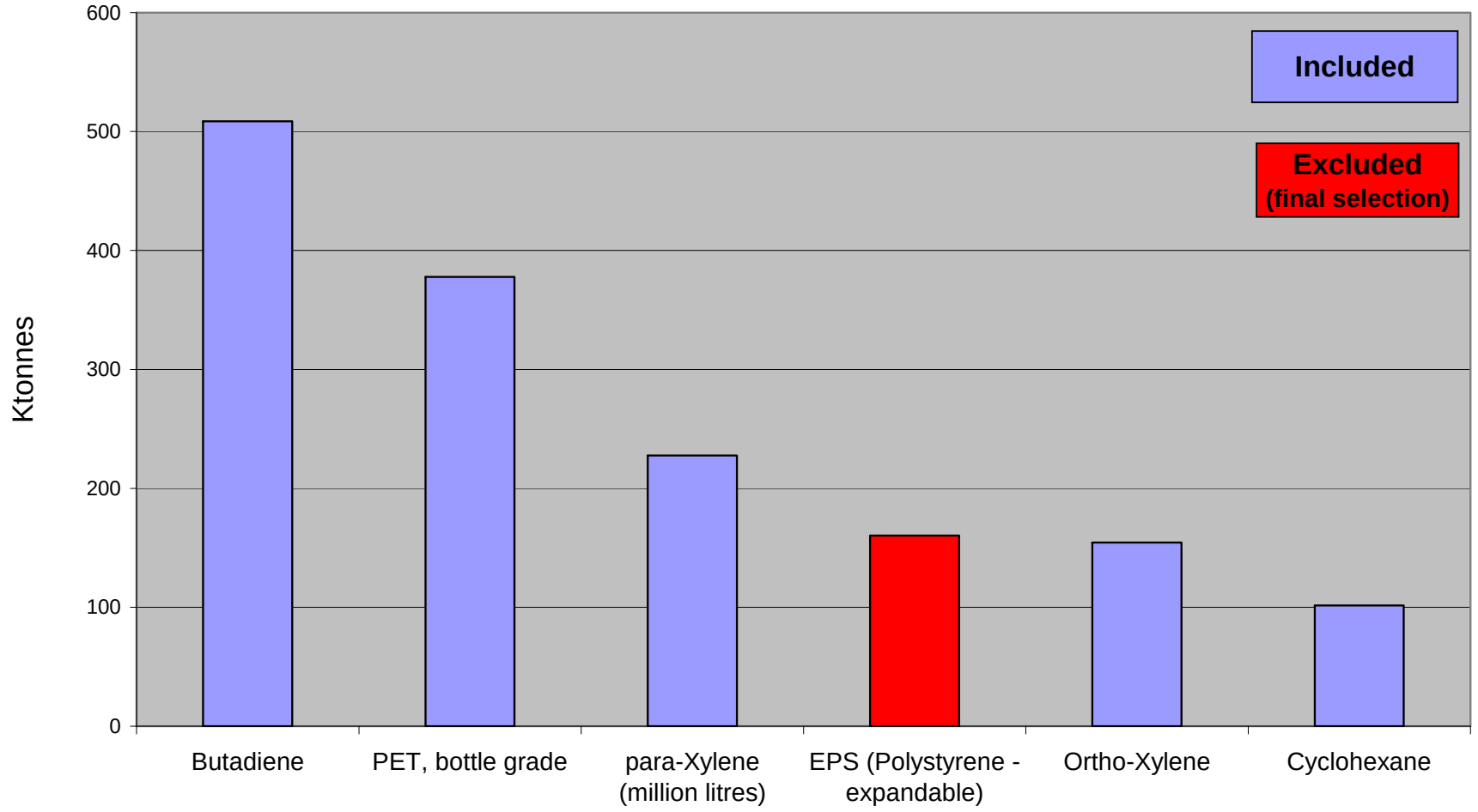
US net imports: a measure for the potential in regional petrochemical markets

US net imports 2006 - products > 1 million KTa
(excludes trade with Canada)



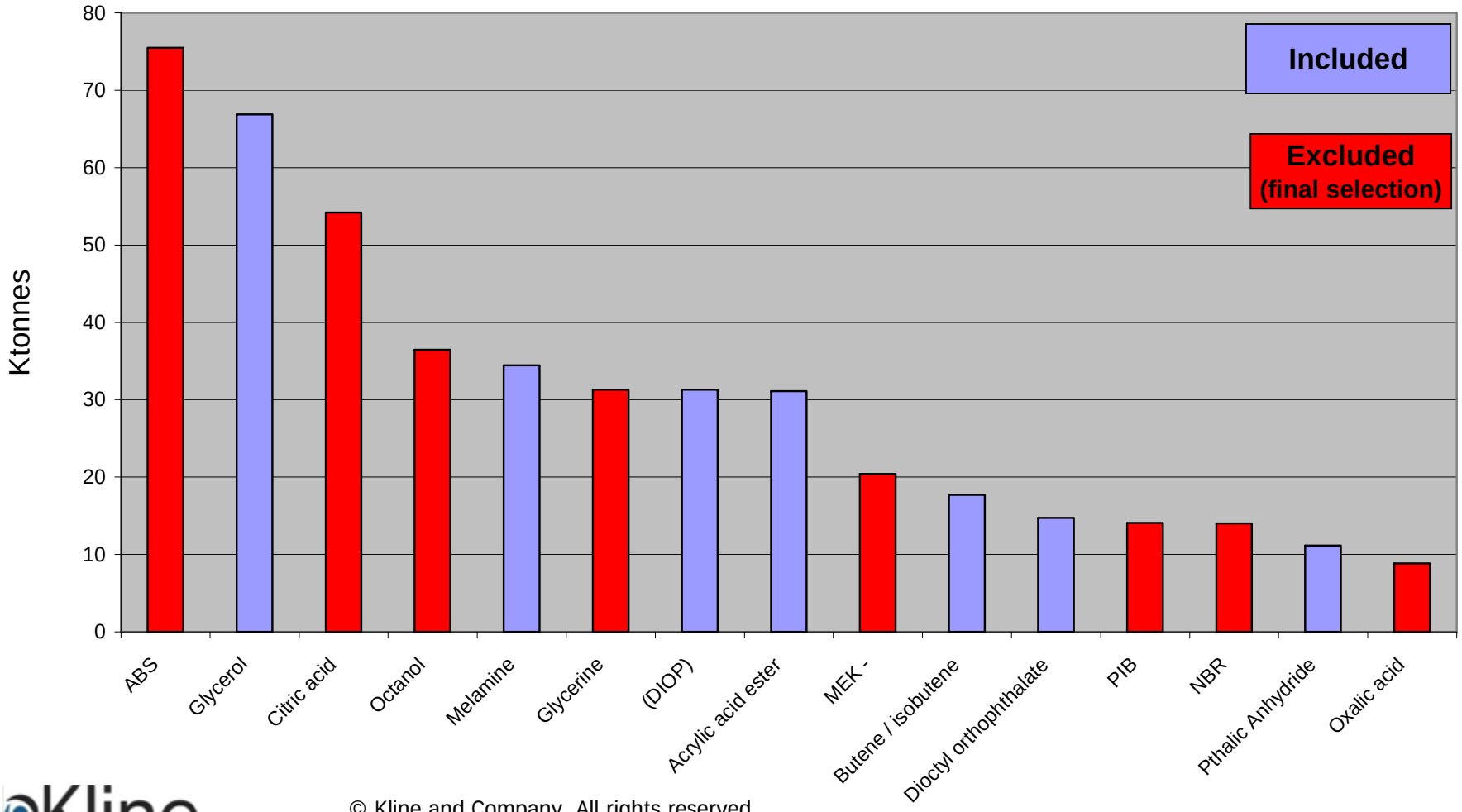
US net imports: a measure for the potential in regional petrochemical markets

US net imports 2006 - products, > 100 KTa , < 1 million KTa
(excludes trade with Canada)



US net imports: a measure for the potential in regional petrochemical markets

US net imports 2006 - products < 100 KTa
(excludes trade with Canada)



The Scale and Value of the Alternative Chemical Clusters is World Class

Value chain	# products	Capex (US$bn)	Production (Kta)	Sales value (US$bn/a)
C1	15	4.5	3,500	2.5
C2	12	3.6	2,700	3.5
C3	14	4.2	3,100	5.0
C4	13	3.1	2,400	4.0
C6	16	5.2	4,100	7.8
C7,8	7	2.6	2,200	2.2
Total	77	23.2	18,000	25.0

- Estimate based typical capex for 1 world scale plant for each product, USGC adjusted to Alberta project cost
- Estimate based on current sales prices delivered USA
- Excluding investments in utilities, sites services and general infrastructure

To put these figures into perspective the following should be considered:

- The Capex for 77 products is roughly equivalent to the Capex for 3 Upgraders (total capacity approximately 600,000 BBL/day)
- The quantity of bitumen processed would be 34,000 KTa
- The annual production of SCO would be roughly 25,000 KTa
- The annual Sales Value for 3 Upgraders is 12 bn US $ (80% yield, oil price: 70 US$/barrel, 350 day on-stream factor)
- This should be compared with 18,000 KTa chemicals at an annual Sales Value of 25 bn US $

This results in approximately 4 times the value per barrel of bitumen processed

Contents

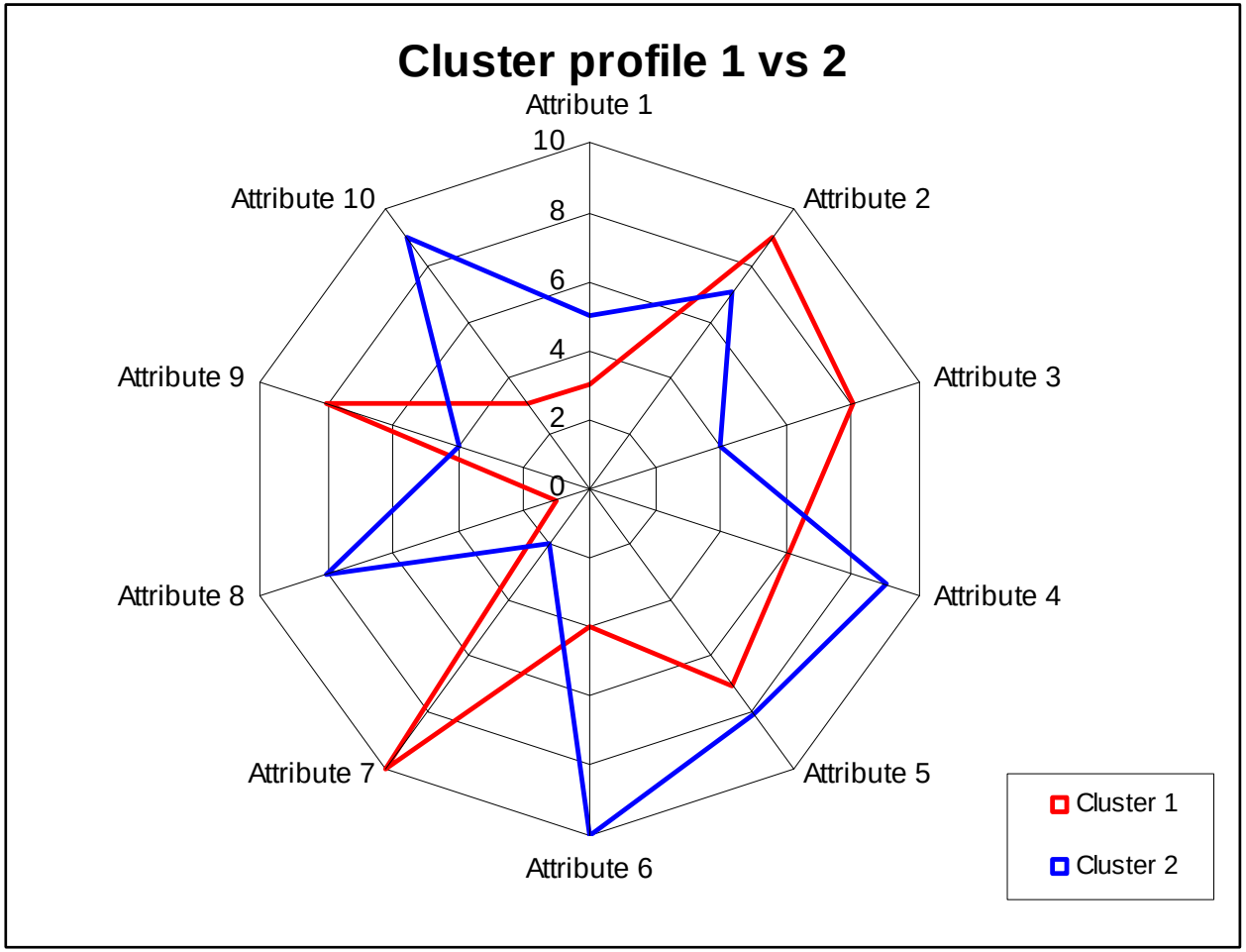
A Cluster benchmarking study was performed to provide “key learnings” for Greater Edmonton

- A number of **key attributes** were identified to **characterize the world class clusters**
- These attributes are considered as the “**Key Performance Drivers**” - high scores on these attributes are expected to result in a very successful cluster
- A **qualitative rating** of these attributes enabled a high level comparison between the clusters
- This provided an **understanding** of why these clusters are **successful**
- The following clusters were reviewed in this study:
  - Antwerp, Belgium
  - Houston, Texas, USA
  - Jurong Island, Singapore
  - Tarragona, Spain
  - Chemsite, Ruhrgebiet, Germany
  - Chemelot, Geleen, Netherlands
  - SCIP : Shanghai Chemical Industry Park, China

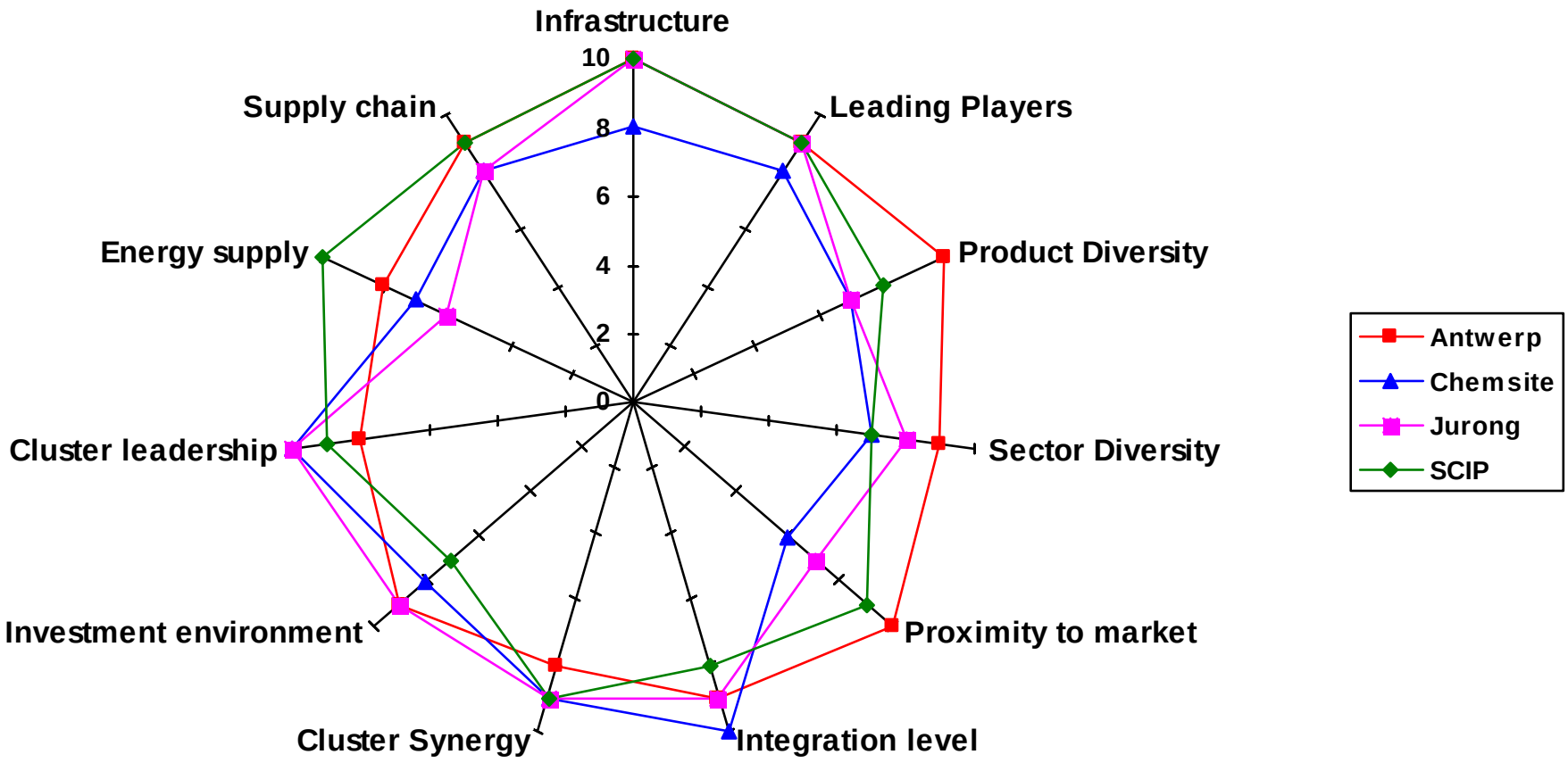
Identifying the appropriate set of benchmarking criteria enables an objective comparison

- Considered cluster attributes ("Key Performance Drivers"):
  - **Infrastructure** (e.g. proximity of main port, transport infrastructure, pipelines etc..)
  - **Presence of leading global companies**
  - **Product Diversity**: broad versus narrow product range
  - **Sector Diversity**: commodity focus or specialty focused
  - **Proximity of key markets**
  - **Degree of cluster integration** (degree to which feedstock and products are linked)
  - **Cluster synergy** (e.g. sharing utility services, environmental management, infrastructure, manufacturing JV's)
  - **Investment environment** (Role and support of the authorities in providing incentives and support in the development of infrastructure)
  - **Cluster leadership**
  - **Energy supply structure** (degree to which the energy supply infrastructure provides advantages to the cluster companies, energy cost)
  - **Overall Supply chain structure**

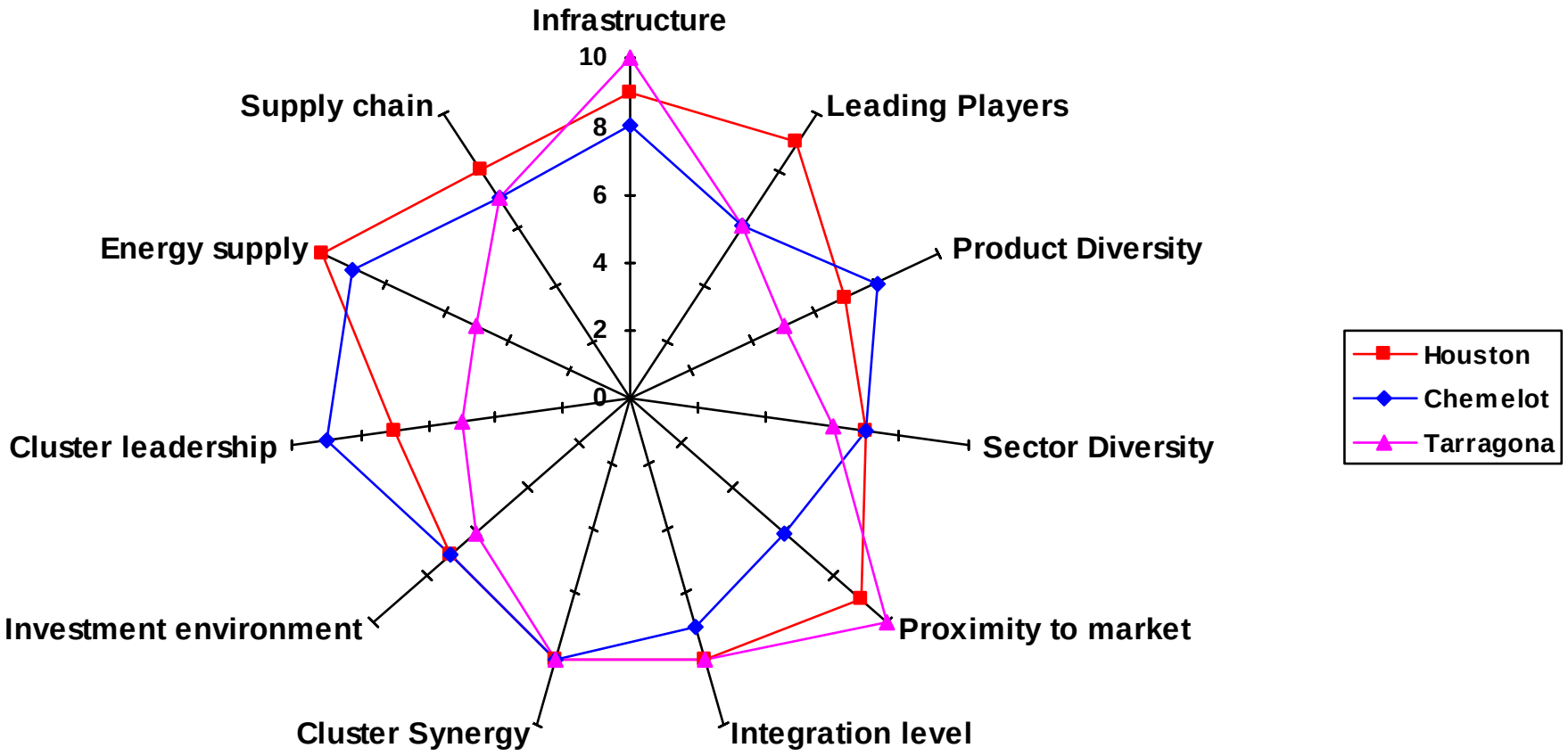
Cluster profiles were compared using overlays on "Spider Charts"



As would be expected with world-class clusters, profiles are quite similar (1/2)



Grouping contrasting clusters together provides a tangible "visual" difference (2/2)



The detailed analysis hi-lighted several important "key learnings" for Greater Edmonton (1/2)

- **Government participation and leadership helps in the overall growth of the cluster in a phased manner**
  - Government plays a primary role, e.g. Jurong, SCIP
  - Public Private Partnership (PPP) model, e.g. ChemSite
- **Involving global players early in the cluster development helps in achieving faster cluster growth & stronger integration**
  - Influences more players to invest in the cluster
  - Contributes through being a part of cluster leadership team
- **Investment by government/private sector in infrastructure, services, etc**
  - Builds confidence/commitment amongst the existing players towards the cluster
  - Induces further investment by private players, e.g. Chemelot
- **Better cluster integration together with product diversity helps in**
  - Promoting internal consumption within the cluster with efficient material flows, e.g. Jurong, SCIP
  - Consumption in local markets which further helps reduce supply chain costs

Insights (2/2)

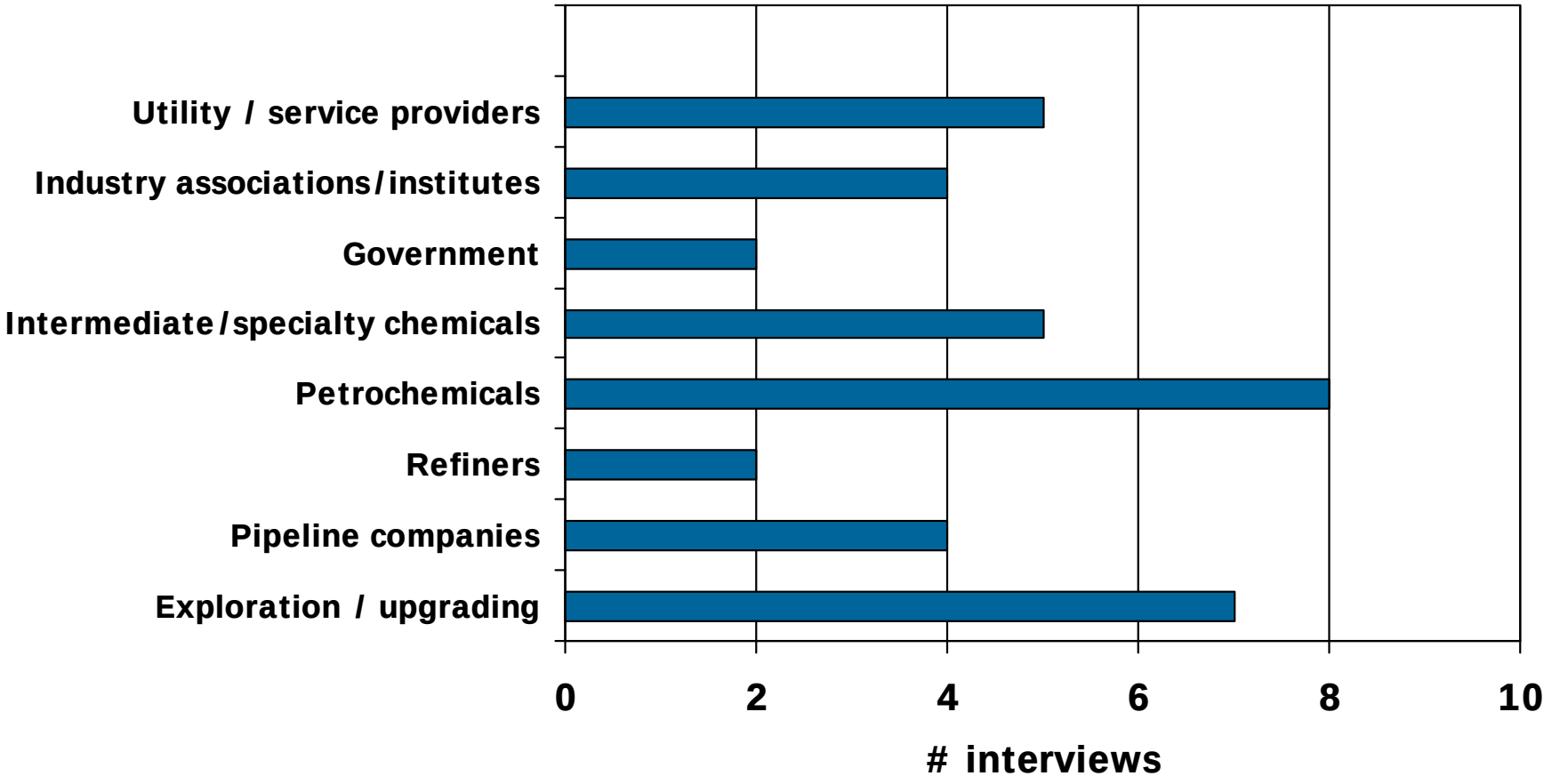
- **Good infrastructure is common to all world class clusters**
  - Good transport network (rail, road, sea, pipeline network) helps to increase cluster's critical mass through efficient delivery to the customer
  - Communal utilities help reduce costs and ensures better service
- **Limited cluster scale** (e.g. Tarragona) can be **compensated by a less diversified, yet fully integrated, product range**
- **Some clusters are successful even in the total absence of a local market** (e.g. Jurong)
- Most clusters **serve a large geographical area, shipping mostly final products** rather than commodities or intermediates
- The establishment of a **"cluster promotion body"** (e.g. Chemelot) can be a **key success factor** (stakeholder representation & strong leadership)
- **Most successful clusters are purpose built**
- All clusters have strengths and weaknesses, the **key is to progressively and consistently focus on the promotion and development of strengths**

Contents

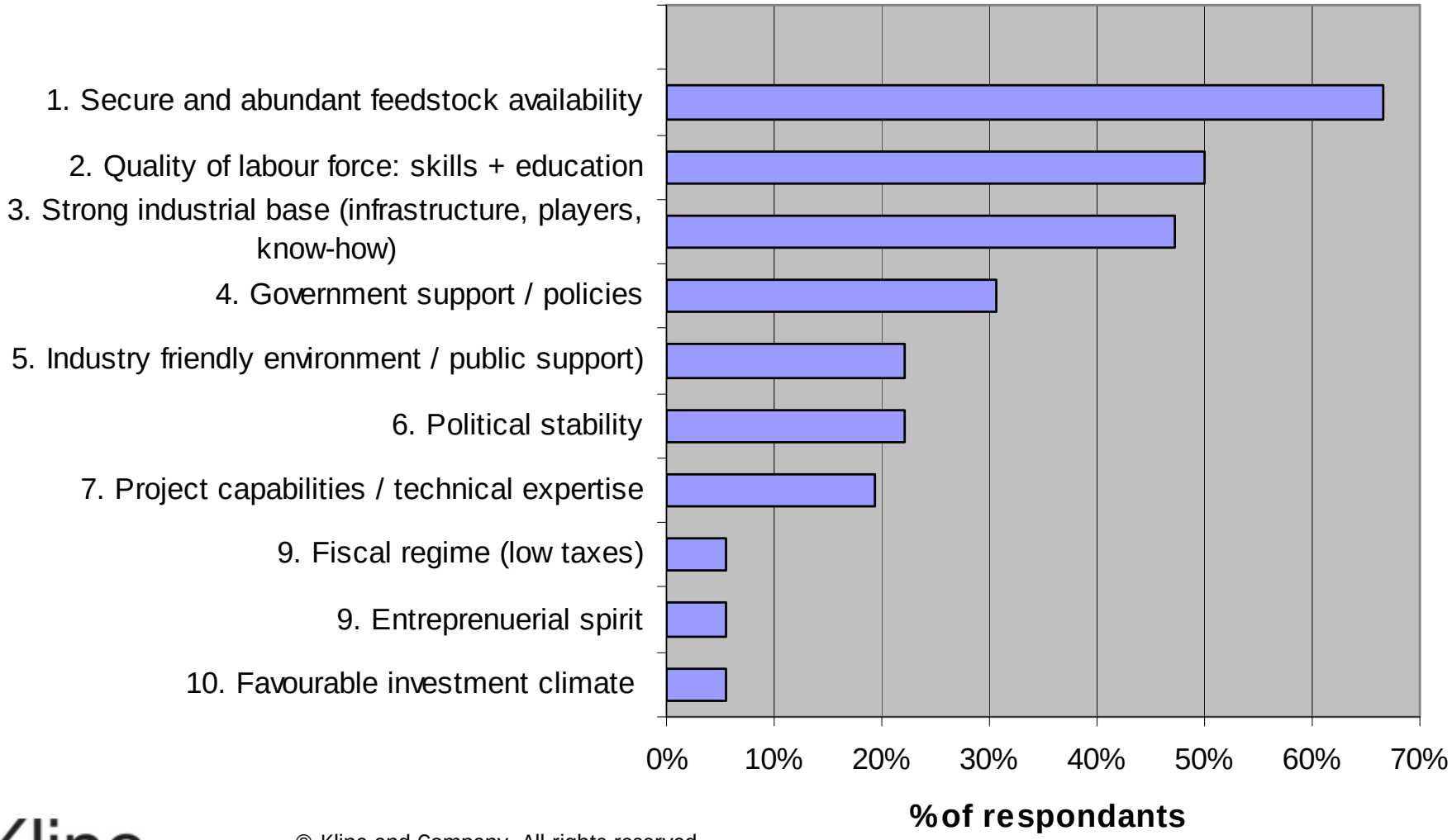
Interviews were used to obtain the views and inputs of the regional Stakeholders

- Interviews were conducted with key stakeholders in the Hydrocarbon value chain. These include exploration & production/upgraders, refiners, petrochemical producers, intermediates/specialty producers, utilities/services companies, pipeline companies, government and industry associations.
- Questions were divided into 2 categories
  - General/common questions covering common challenges/issues for cluster development
  - Specific questions pertaining to their role in the cluster supply chain
- Interviews were conducted either in person or telephonically with prior appointments and questionnaires sent out in advance
- Feedback from the interviews was used to build the various views from the industry, extract issues and capture additional opportunities in developing a World-class Eco-Industrial Chemical Cluster.

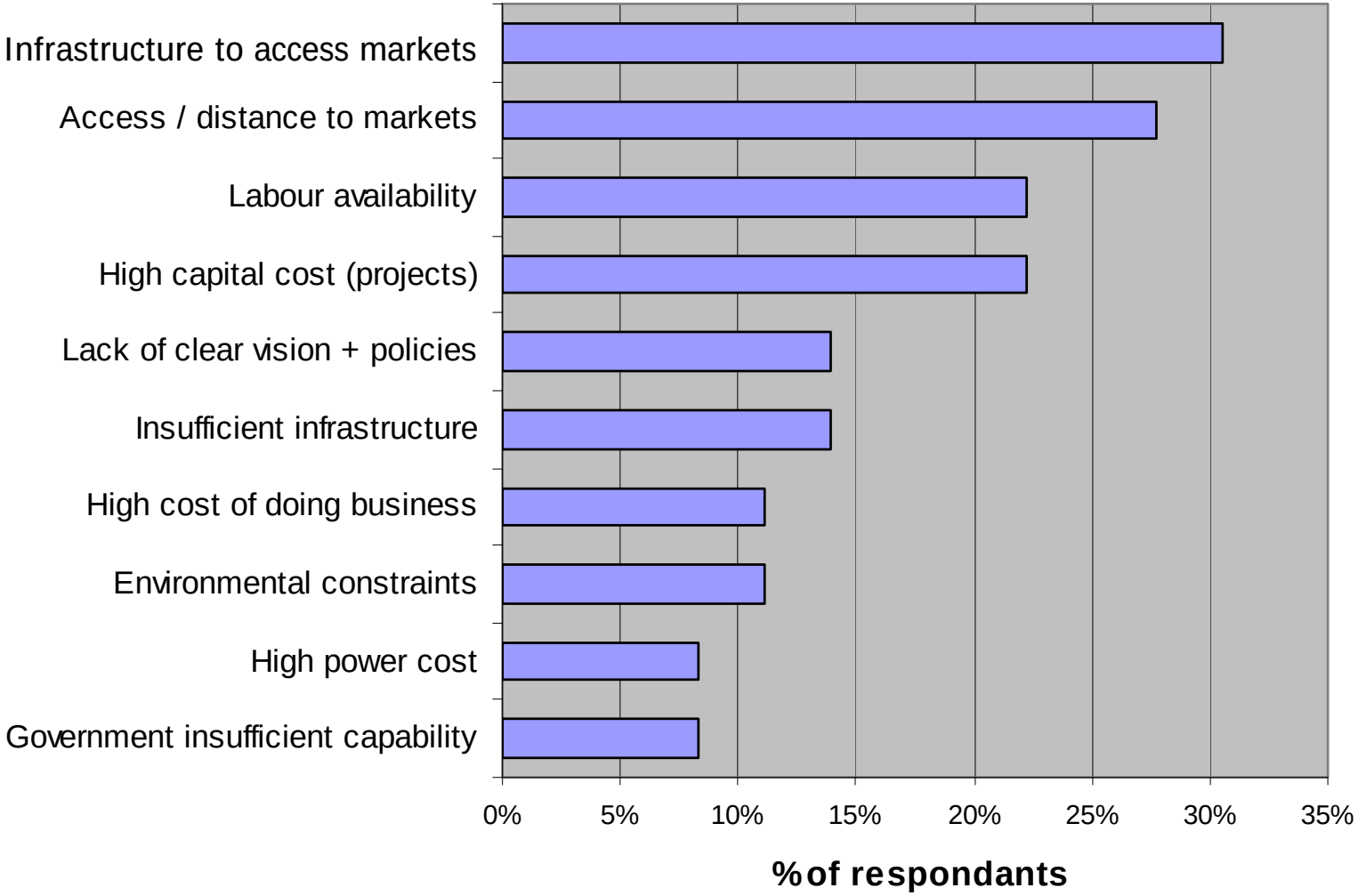
In order to provide an objective view, a cross-section of stakeholders were interviewed - 37 in total.



Feedstocks, existing Industrial base and Quality of Workforce are seen as key Strengths of the Region



Infrastructure, Market Access, and Labour availability are seen as key weaknesses



Conclusion & recommendations

- Over 90% of **stakeholders** are **confident** that the **fundamentals to develop a world-class petrochemical cluster in Alberta are present**
- **Enhancing the confidence of potential investors** will require a **strong message** with regards to tackling the **shortage of skilled labour**, the **high cost of projects** and approach to the further development of Alberta's **infrastructure** and **energy supply network**
- The **concept** of a **World-class Eco-Industrial Chemical Cluster** needs to be **better defined** and **communicated**.
- The **dilemma** of **reduction in greenhouse gas emissions** and **large scale industrial expansion** needs to be tackled (uncertainty increases investment risk)

Contents

The Scale and Value of the Alternative Chemical Clusters is World Class

Value chain	# products	Capex (US$bn)	Production (Kta)	Sales value (US$bn/a)
C1	15	4.5	3,500	2.5
C2	12	3.6	2,700	3.5
C3	14	4.2	3,100	5.0
C4	13	3.1	2,400	4.0
C6	16	5.2	4,100	7.8
C7,8	7	2.6	2,200	2.2
Total	77	23.2	18,000	25.0

- Estimate based typical capex for 1 world scale plant for each product, USGC adjusted to Alberta project cost
- Estimate based on current sales prices delivered USA
- Excluding investments in utilities, sites services and general infrastructure

To put these figures into perspective the following should be considered:

- The Capex for 77 products is roughly equivalent to the Capex for 3 Upgraders (total capacity approximately 600,000 BBL/day)
- The quantity of bitumen processed would be 34,000 KTa
- The annual production of SCO would be roughly 25,000 KTa
- The annual Sales Value for 3 Upgraders is 12 bn US $ (80% yield, oil price: 70 US$/barrel, 350 day on-stream factor)
- This should be compared with 18,000 KTa chemicals at an annual Sales Value of 25 bn US $

This results in approximately 4 times the value per barrel of bitumen processed

Stage 1 provides the platform for action – Stage 2 addresses the action

To be covered in a future proposal

	Stage 1: Developing the Cluster Alternatives		Stage 2: Selection, Promotion and Acquisition Strategies	
Phase	1 Lay the Groundwork	2 Define the Context and Develop Concept	3 Cluster Marketing Strategy	4 Investment Acquisition Support

Objectives	▪ Build understanding of the potential with the regional players at Stakeholder leader and working group levels
	▪ Lay a solid foundation for the project in terms of process, team interactions, communications and knowledge base
		▪ Develop the integration opportunities based on Value Chain analysis
		▪ Evaluate the Market opportunities
		▪ Benchmark against best practice clusters
		▪ Develop alternative cluster concepts
		▪ Review cluster alternatives with Steering Group and Stakeholder groups
		▪ Recommend cluster alternative
			▪ Select cluster alternative
			▪ Prioritize Products for investment
			▪ Identify target investor groups
			▪ Develop promotional strategy
			▪ Develop investment acquisition strategy
				▪ Develop a comprehensive investment acquisition support program to enable Greater Edmonton to implement the Cluster marketing strategy in:
				  ▪ Pre-Start Up Phase
				  ▪ Start Up Phase
				  ▪ Post Start Up Phase
				▪ Recommend Additional expertise required to fully implement the investment acquisition strategy

Phase 3: Developing the promotion and acquisition strategies

3

Cluster Marketing Strategy

Objective

- Select cluster alternative and establish product priorities
- Identify target investor groups
- Develop promotional strategy
- Develop investor acquisition strategy

Key Tasks

- Select the appropriate cluster alternative
- Establish product priorities for investment acquisition
- Develop a prioritized target investor list
- Develop an outline promotional strategy for the region
- Formulate the investor acquisition strategy together with the Steering Group
  - Approach to potential investors
  - Develop business cases
- Develop strategies to obtain buy-in from authorities to support the promotion and acquisition strategies

Deliverables

- Selected cluster alternative
- Product priority list
- Investor database
- Promotional "content"
- Qualified business cases for each product
- Prioritized investor acquisition strategy and schedule

Phase 4: Supporting the region in the implementation of these strategies

4

Investment Acquisition Support

Objective

- Develop a comprehensive investment acquisition support program to enable Greater Edmonton to implement the Cluster marketing strategy in:
  - Pre-Start Up Phase
  - Start Up Phase
  - Ongoing development
- Recommend additional expertise required to fully implement the investment acquisition strategy

Key Tasks

- Draw up a comprehensive investment acquisition support program for the implementation of the Cluster Marketing strategy for the:
  - Pre-Start up phase
  - Start Up phase
  - Ongoing development
  - Special tasks/initiatives
- Identify qualified expertise in specific areas

Deliverables

- Support plan for all three phases
- Expert recommendations

The Kline Group

www.klinegroup.com

If you require additional information about the contents of this document or the services that Kline provides, please contact:

Fred du Plessis
Senior Vice President
Phone: +44 1865 784 464
Fred_Duplessis@klinegroup.com

Jonathan A Goldhill
Senior Vice President
Phone: +1 215 370 7839
Jonathan_Goldhill@klinegroup.com

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Offices

USA –NY/NJ
Kline & Company, Inc.
Overlook at Great Notch
150 Clove Road, Suite 410
Little Falls, NJ 07424-0410
Phone: +1-973-435-6262
Fax: +1-973-435-6291
consult@klinegroup.com

EUROPE
Kline Consulting Europe Limited
Magdalen Centre
Oxford Science Park
OX 4 4GA, UK
Phone: +44-1865 784 464
Fax: +44-870 928 9837
consult@kline-europe.com

CHINA
Kline Asia
Shui On Plaza, Suite 1111-1112
333 Huai Hai Road (Middle)
Shanghai, PC 200021, China
Phone: +86-21 5382-6677
Fax: +86-21 5383-3889
consult@kline-asia.com

INDIA
Kline India
20/4 Ground Floor, Palm Court
Sukhrali Chowk, Gurgaon-Mehrauli Road, Gurgaon,
122001 Haryana, India
Phone: +91-124 4546-100
consult@kline-india.com

USA – PA/DE
Kline & Company, Inc.
Jenkintown Commons
93 Old York Road, Suite 300
Jenkintown, PA 19046
Phone: +1-215-887-4257
Fax: +1-208-493-1171
consult@klinegroup.com

JAPAN
Kline Japan Ltd.
Sankei Building 27F
1-7-2 Ote-machi, Chiyoda-ku
Tokyo 100-0004, Japan
Phone: +81-3 3242-6277
Fax: +81-3 3242-6278
consult@klinejapan.com

BRAZIL
Factor de Soluçào
Av. São Gabriel, 333 - CJ. 112
Itaim Bibi - São Paulo - SP
01435-011 Brazil
Phone: +55-11 30797843
Fax: +55-11 30796197
srebelo@factordesolucao.com.br

KNOWLEDGE NET
Central & Eastern European Alliance Partners
Alpha Management Consultants, Czech Republic
PMR Consulting, Poland
G&P Consulting, Rumania
Foreign Market Consulting, Turkey