

ALASKA LEGISLATURE COMMITTEE FILES, 2003-2004

8672

11301 SENATE RESOURCES

V. STATE LAND

1. Recommendations to the State re: State Lands

Although this plan (1996 Cooper Landing Land Use Plan Update) applies to land which has all ready been selected by the Borough, significant consideration was given to the Kenai Area Plan as set forth by the State of Alaska Department of Natural Resources because of the likelihood of selection of these lands by the Borough in the future.

On May 11, 1995, the CLAPC forwarded a letter to DNR outlining the Commission's concerns and recommendations for the lands in the Cooper Landing area addressed in the Kenai Area Plan. Appendix #3 is a copy of this letter.

Map "D", in the back of this document, shows some of the Kenai Area Plan Recommendations.

In cases where the State is still considering the Borough's selections, Unit Numbers have been assigned to these areas and are being discussed as part of the Kenai Area Plan. A Final Decision issued by the State of Alaska gives the Borough management authority on those lands and issuance of a Patent may or may not include certain conditions on the transfer of ownership and/or changes in the amount of acreage conveyed.

The following is a brief summary of the recommendations forwarded to the State DNR:

- a. The CLAPC considers Units numbered 388, 389, 390, 391, 393A, 393B, 394A, 394B, 395, and 396 as falling within the planning area, and/or having a significant affect on the community of Cooper Landing.
- b. That the Kenai Area Plan Planning Team consider certain portions of the 1992 Community Recommendations On A Land Use Plan for Borough Lands; specifically, the portion beginning "Land Status and Existing Land Use" and the Survey Results (of) Cooper Landing Community Goals. The directions for community growth and expansion expressed in this document reflect our goals for both state and borough lands. The plan should be useful to State Land Management Planners in formulating State Land Use Decisions in the Cooper Landing area.
- c. The CLAPC recommends that the state shoreline lands along Kenai Lake and its tributary streams be included in the Alaska State Park System for habitat protection, scenic value, and public access as specified in Kenai River Special Management Area, 1986. These

Cooper Lake Roads are appropriate per Section 1A of Cooper Landing community Goals Survey, August 1991.

GENERAL COMMENT: While the CLAPC supports traditional firewood and house-log use of Units 388 and 389, we question the utility of sales like the current hemlock rich, 240 acre Cooper Lake sale. We oppose extensive permanent road construction in this area and support the State's designation of winter removal on proposed sales. The community would rather limit permanent roads to planned development projects.

The Commission is concerned with the broad commercial leasing guidelines for Unit 388 and would like to work with the state on more refined designations with greater protection of habitat and recreation values around Cooper Lake. The community recommendations for borough-selected lands were crafted during the winter of 1995-1996. It is the intention of the Commission members to continue working with the state on Cooper Lake designations and guidelines to balance community expansion needs with retention of current recreation values. Future commercial and residential land disposals in Unit 388 and 389 must be coordinated with development plans on borough-selected lands and must be subject to community comment and approval.

VI. POTENTIAL NEW SELECTIONS UNDER AS 29.05

1. Recommendations to the Borough re: State and Borough Lands.

Although the above recommendations were addressed to the State, the following sections are included herewith as recommendations for selection/classification process (and other suggestions) to be considered by the Kenai Peninsula Borough.

- a. The selection of the 1,138-acre Unit 395 for community expansion as a residential subdivision with consideration for the integrity of the Resurrection Pass Trail System and surrounding fish and wildlife habitat. Also, all residential recommendations are contingent upon the ability of the developer to provide adequate road access, adequate sewage disposal facilities, and a potable water supply.

The commission recommends a 200 foot preservation greenbelt along either side of the Juneau Bypass state right-of-way, with limited access, and no roadside commercial development.

- b. The selection of the 523-acre Unit 394B for community expansion as commercial and residential subdivision. The northeast corner of this parcel where the Sterling Highway runs directly along the Kenai River to the south of Cooper Creek Campground is an important bald eagle winter feeding area and should be protected either by inclusion in State

- b. There is to be NO access to or from the new alignment other than the departure from the existing road at either end of the bypass. The NO ACCESS issue is not a matter taken lightly by the community

Diverting traffic away from the business district could be damaging to the community's economic base. Most businesses rely heavily on tourism and it is difficult enough to operate on a seasonal basis. It is important to the residents that Cooper Landing remain a viable, thriving community.

VII. IMPLEMENTATION

While this 1996 Update to the 1992 CLLUP provides recommendations to the KPB on the classification of its land, it is not a revision of the 1992 CLLUP. The CLAPC is encouraged to update the 1992 CLLUP to address the many significant issues affecting the Cooper Landing community as mentioned in the introduction.

KPB 17.10.080(I) states that "classification or reclassification shall be compatible with any land use plan adopted under the borough comprehensive plan or another plan approved the assembly. If a proposed classification or reclassification is not compatible with an approved land use plan, a plan revision shall be necessary before the classification or reclassification is adopted." Classifications are general land use recommendations. Within each classification definition there is significant latitude to implement the classification. It is not until KPB land is disposed or developed for a public purpose that classification is ultimately implemented. Prior to development, large tracts of KPB land need to be, at a minimum, surveyed, soil tested, and subdivided. This could cause the modification of classification boundaries. Specific decisions on items such as lot size and alignment of roads can only be decided during the subdivision planning and development stage.

Certain preexisting land uses have been determined through filing of subdivision plats and reservations in conveyance instruments. Specifically, land that has been subdivided has established or dedicated access, easements, and, in some cases, development setback and non-development buffer areas. Where these decisions have been made through the platting process, classification recommendations do not supersede the subdivision plat. Additionally, land use plans and KPB classifications are subject to any restrictions and reservations imposed on the property by patent or conveyance documents from the State of Alaska, the United States or the Kenai Peninsula Borough.

The Southern Intertie Route Selection Study Phase 1, dated May 3, 1996 shows Cooper Landing as being affected by one of the alternate corridors. The alternate alignment generally parallels the existing Quartz Creek transmission line. Should this alignment be selected the right-of-way for the intertie would be an additional 150 feet.

SB

241

SENATE COMMITTEE REPORT

First Committee of Referral

DATE: 1/12/04

FURTHER: Finance

Date of 5-Day Notice: _____
(in accordance with Uniform Rule 23)

DATE TURNED IN TO OFFICE: 1-29-04

Resources Committee considered SENATE BILL NO. 241

SB 241 APPROP: NATURAL GAS DEVELOPMENT AUTHORITY

"An Act making an appropriation to the Alaska Natural Gas Development Authority; and providing for an effective date."

and recommends:

- be replaced with _____ CS _____ (_____)
- adopt previous _____ CS _____ (_____)
- attached amendment(s)
- adopt Letter of Intent by _____ Committee
- further referral to _____ Committee

Senate Bill:
 Same Title
 New Title

House Bill:
 Same Title
 Technical Title Change
 New Title w/ SCR # _____

NEW FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero	FN#

PREVIOUS FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero	FN#

APPROPRIATION - no fiscal note

SIGNATURES AND RECOMMENDATIONS:	Do PASS	Do NOT PASS	No REC	AMEND
<i>George Neekins</i>	X			
<i>Don Hill</i>			/	
<i>Paul Ryan</i>			/	
<i>Ken Elton</i>	X			
CHAIR: <i>Bob Crum</i>			/	



Senate Majority News

Traci Kempert, Senate Majority Press Secretary
716 W 4th Avenue, Suite 520
Anchorage, AK. 99501-2133
Phone: (907) 269-0257
Web Site: <http://www.akrepublicans.org>

For Immediate Release: January 2, 2004

Contact: Traci Kempert at (907) 269-0257

Senate President Files ANGDA Legislation Designed to Help Voter-Created Authority

Senate President Gene Therriault (R-North Pole) announced today that he has filed two pieces of legislation designed to help the Alaska Natural Gas Development Authority (ANGDA). ANGDA was created by a citizens' petition initiative that appeared on the Nov. 2002 general election ballot.

The first bill is a supplemental appropriation for the Authority to complete preliminary engineering, legal, economic, and marketing analyses. The Board of Directors at the Authority had requested \$2.5 million in August of 2003. After the Legislature appropriated \$150,000 for the Authority in the operating budget, Senator Therriault worked with members of the board and the administration to secure another \$200,000 at a Legislative Budget and Audit Committee meeting on October 29 to begin an in-state benefits analysis. Senate Bill 241 would grant the balance of their request, \$2.15 million.

"I'd like to thank Sen. Therriault for his previous support of our efforts and look forward to working with him to advance these much-needed measures this session," commented Andy Warwick, Chair of the ANGDA Board of Directors.

The second measure, Senate Bill 253, will provide an exemption to the state procurement code for contracts entered into by the Authority. The Board has recently discussed such an exemption and Therriault believes that if ANGDA is to move forward as Alaska's vehicle to bring North Slope natural gas to market, then it must be empowered to respond quickly to market developments, particularly when it comes to gathering information and expertise.

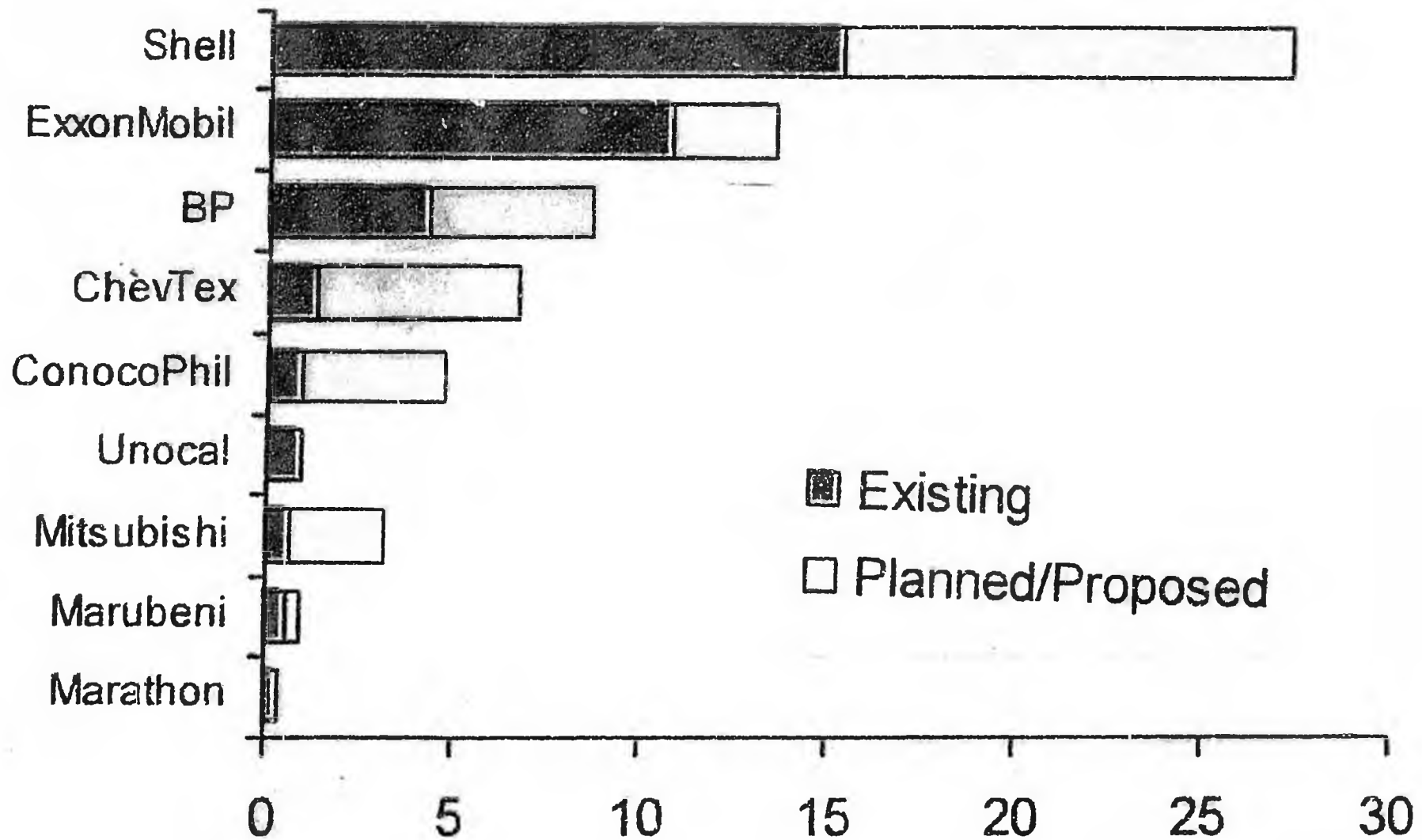
"While I am pleased to submit these proposals for consideration by the Legislature, the Authority must be prepared to explain what will be done with such funding and powers," Therriault said. "We need to make certain the Authority has a clear plan of action, including how they intend to acquire gas on the North Slope and who they intend to sell the gas to."

"Monetizing Alaska's North Slope natural gas is key to securing Alaska's economic future. I look forward to working with other legislators and the administration to ensure that ANGDA is properly positioned to bring that gas to market," Therriault said.

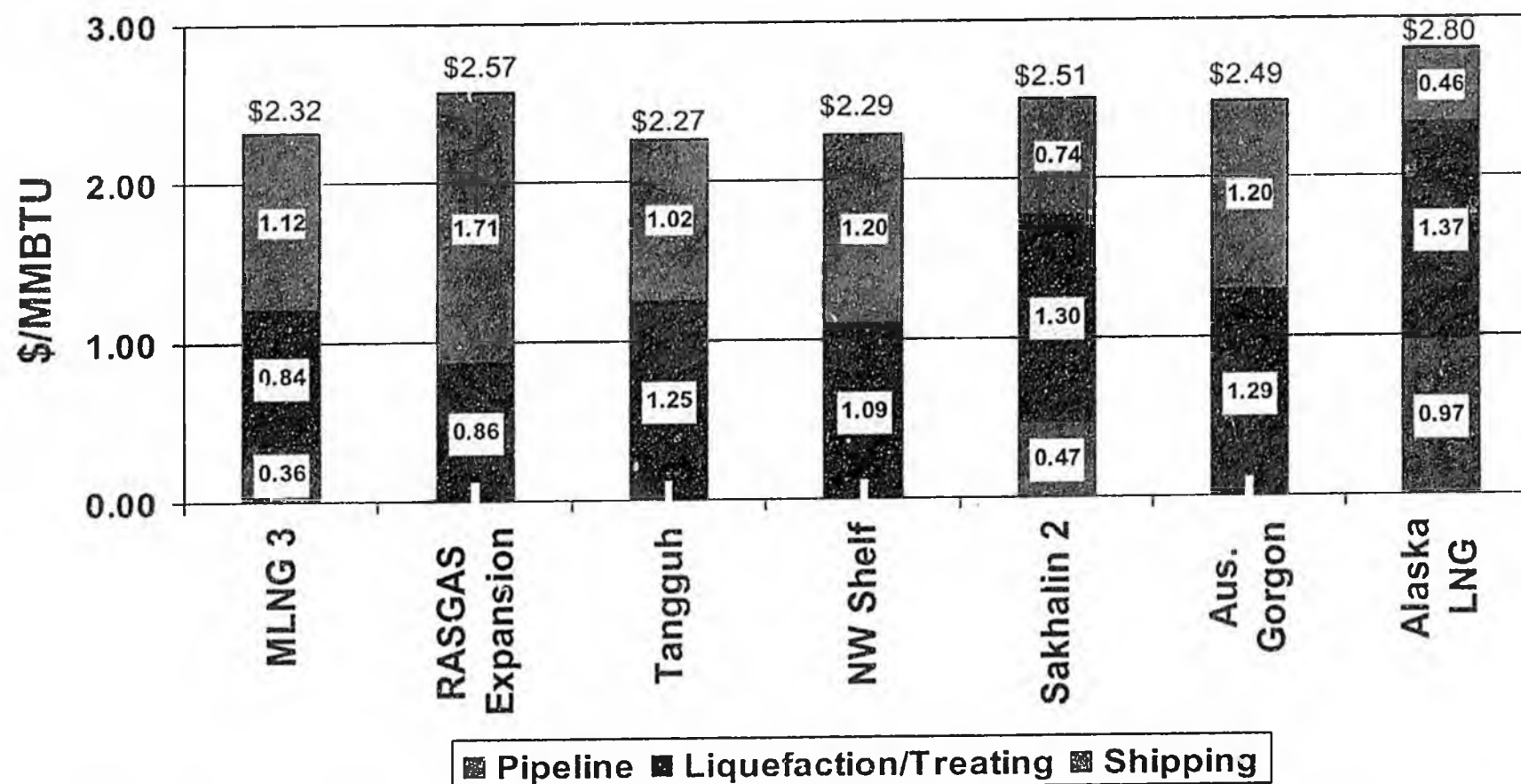
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Asia-Pacific Key LNG Suppliers

(Estimated working interest, mmtpa)



ESTIMATED COST OF SERVICE COMPARISON TO WCNA⁽¹⁾

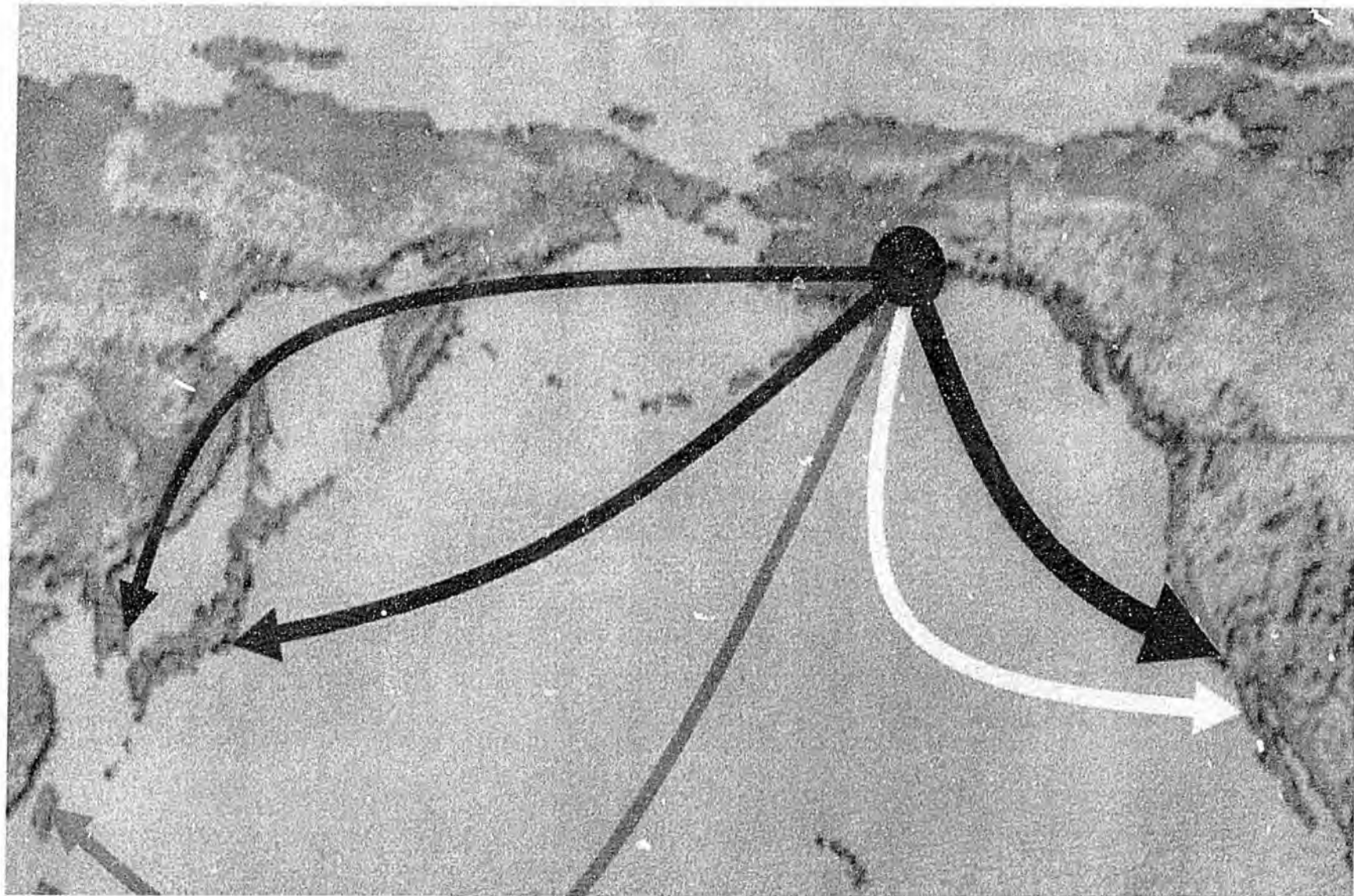


Numbers estimated from external sources
Excludes upstream and cost for regas

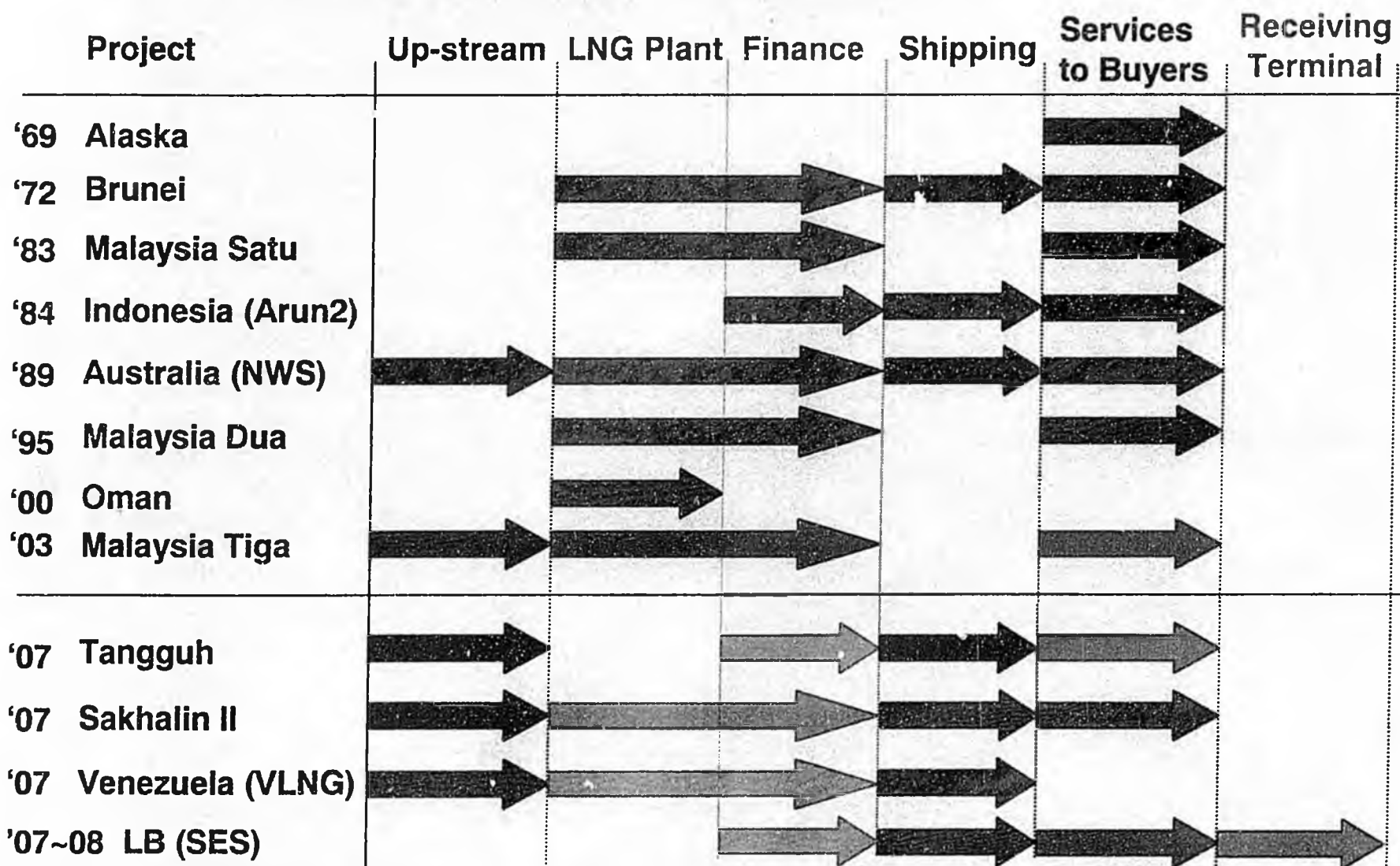
(1) West Coast North America

ConocoPhillips

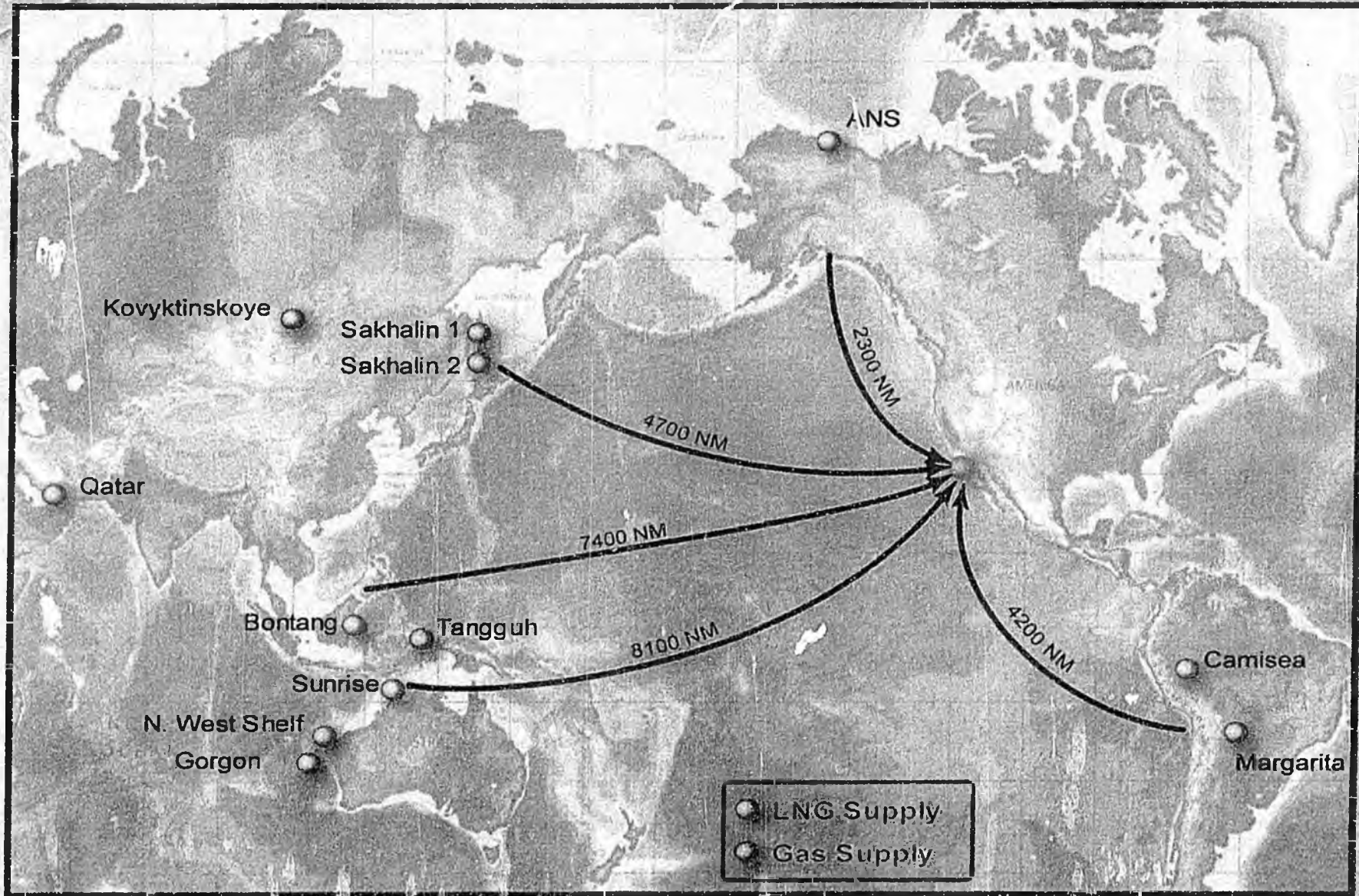
Potential Markets for Alaskan LNG



MC's Involvement in LNG Business



Pacific Basin Gas Competition



Alaska Natural Gas Development Authority

Homepage is: <http://146.63.35.79/>

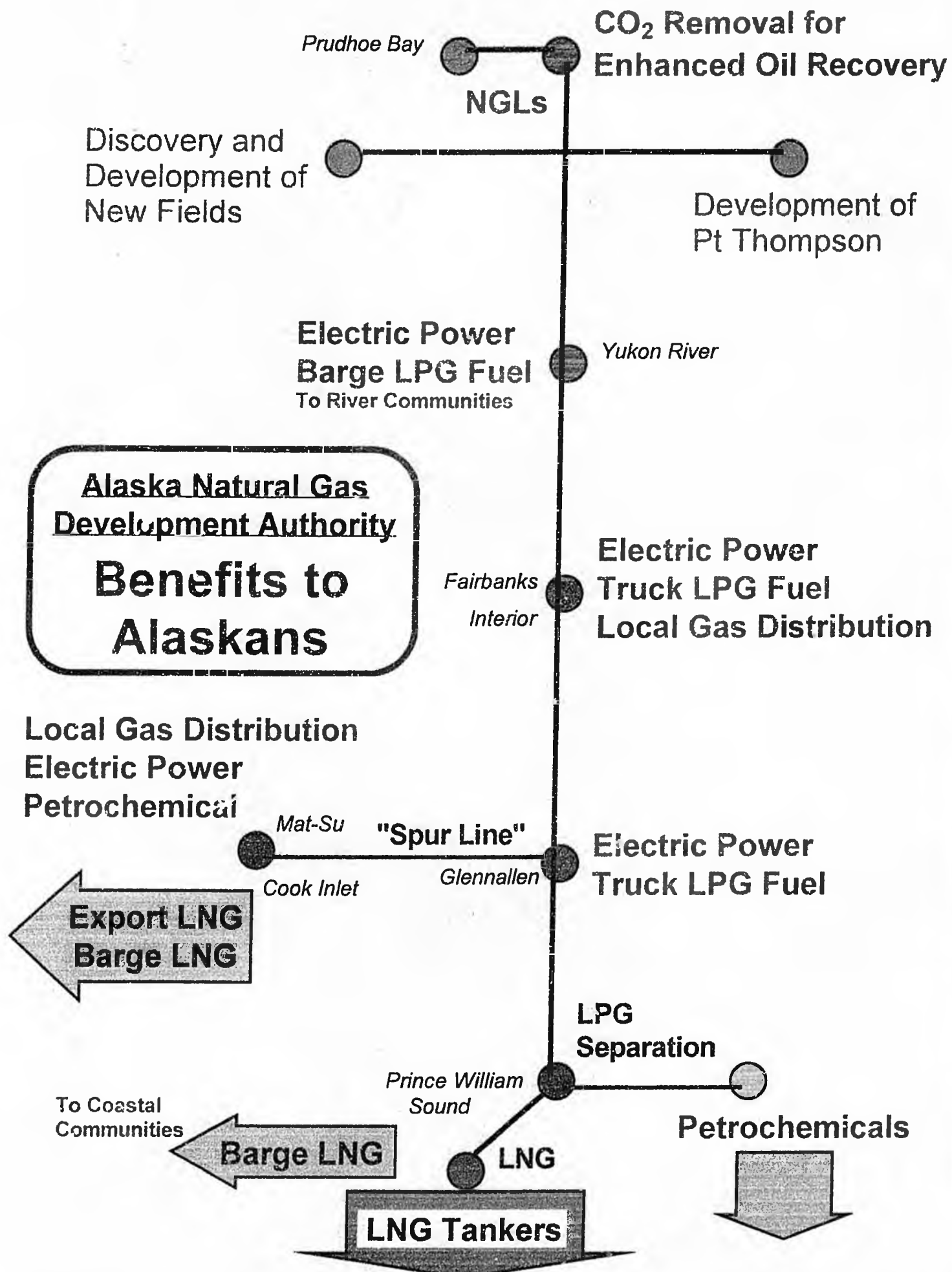
Harold Heinze

411 W. 4th Ave, Anchorage 99508

(907) 257 – 1347

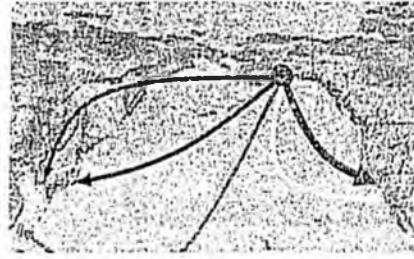
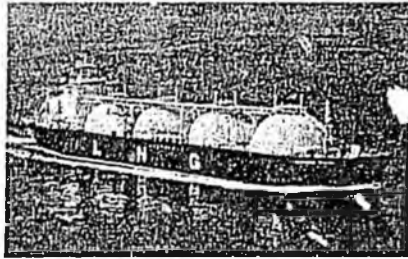
Fax: (907) 646 - 5005

hheinze@ipo.doi.gov



THE
FOLLOWING
DOCUMENT(S)
ARE
POOR
ORIGINAL
COPIES

Alaska Natural Gas Development Authority



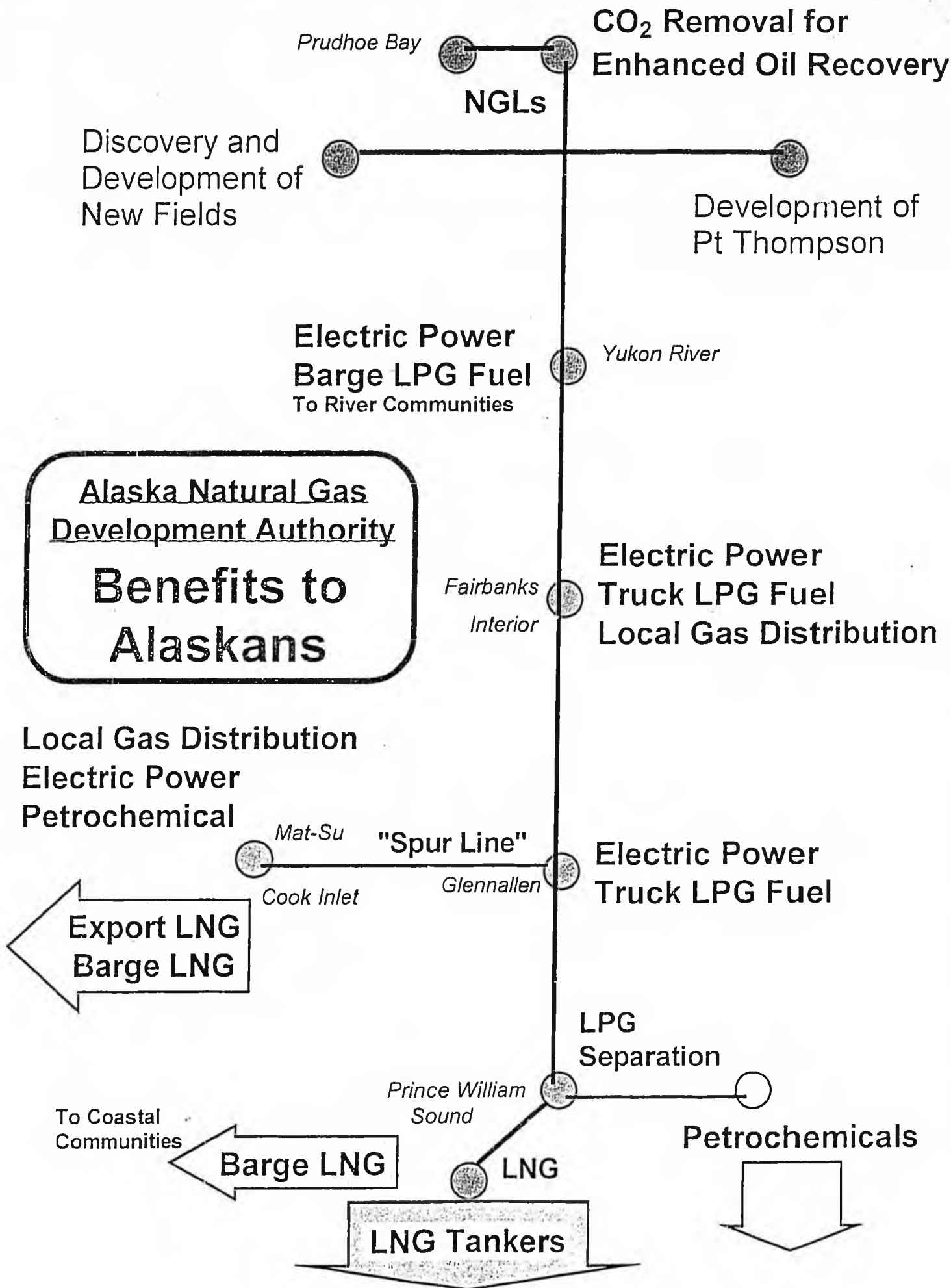
Anchorage Daily News Editorial Board

January 15, 2004

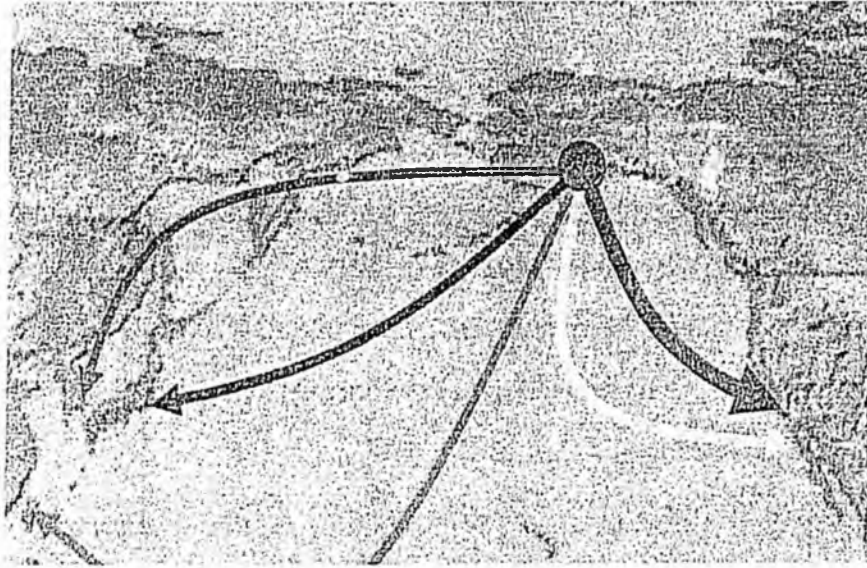
Anchorage, Alaska

ANGDA Business Concepts

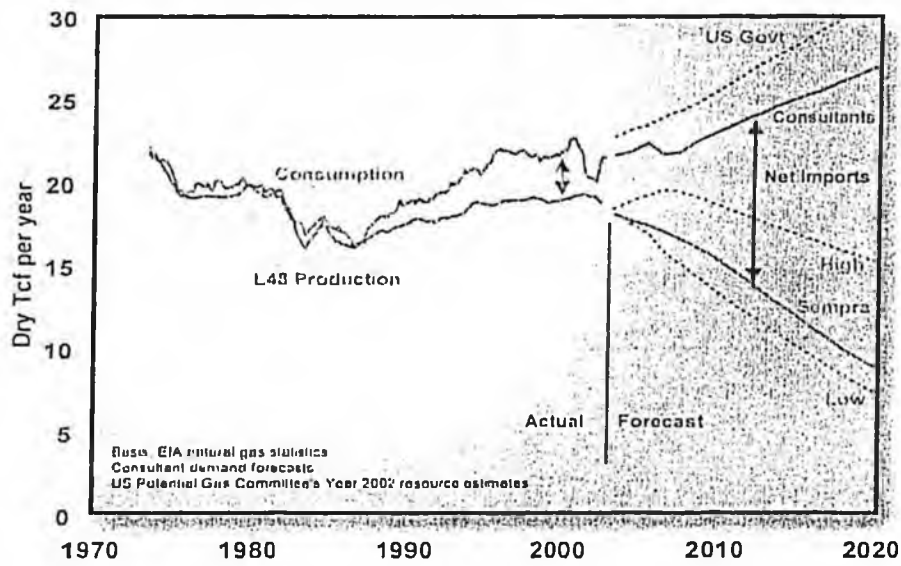
- Public corporation run by Board
- Issue revenue bonds
- Administer State right-of-way
- Build & operate facilities in Alaska
- Buy & sell gas (more than Royalty gas)
- Invest at risk -- capture rewards
- Benefits driven (more than ROI)
- Contract for ships & marketing



Potential Markets for Alaskan LNG



Lower-48 Natural Gas Supply & Demand



ANGDA Benefits & LNG Project

- ANGDA focus is getting NS gas benefits to Alaska & Alaskans
- LNG export is integral to the economies of delivering gas within Alaska
- Alaskan LNG project is economically viable as infrastructure providing significant benefit values

Natural Gas Consumption in Alaska (BCF per year)

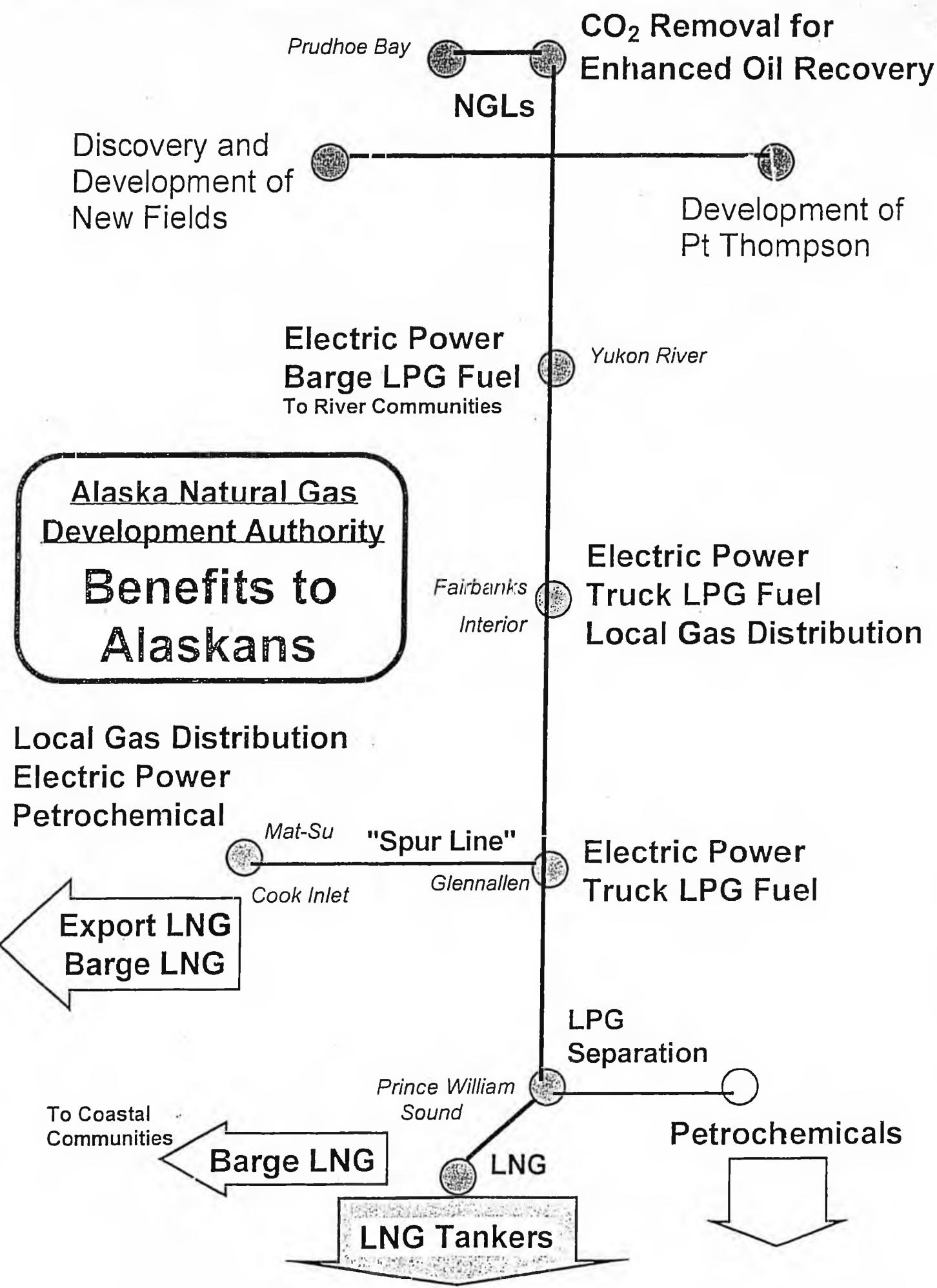
• Residential	15
• Commercial	20
• Electrical	35
• Agrium Plant	50
• Kenai LNG Plant	100
TOTAL	220 Bcf/yr
• New Public Services (?)	100 - 150

CORRECTION

THE FOLLOWING DOCUMENT(S)
HAVE BEEN REFILMED TO
ASSURE LEGIBILITY OR PAGINATION



Central Microfilm Services
Department of Education & Early Development
State of Alaska



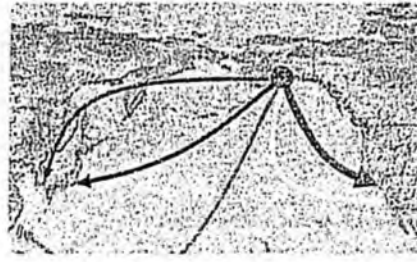
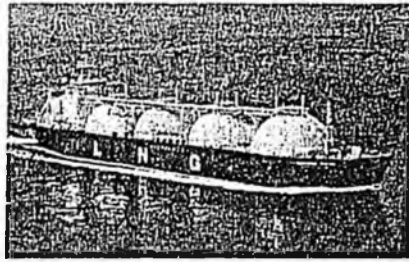
To Coastal Communities

Barge LNG

LNG Tankers

Petrochemicals

Alaska Natural Gas Development Authority



Anchorage Daily News Editorial Board

January 15, 2004

Anchorage, Alaska

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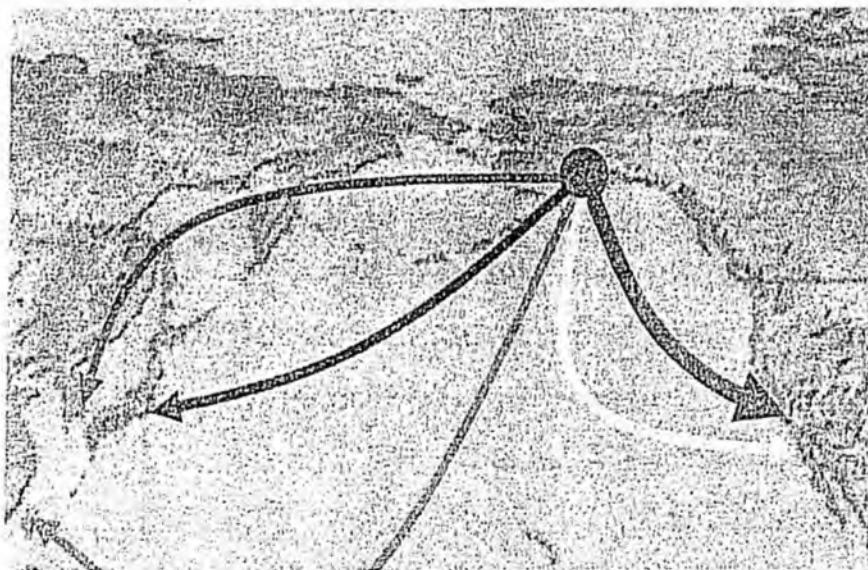
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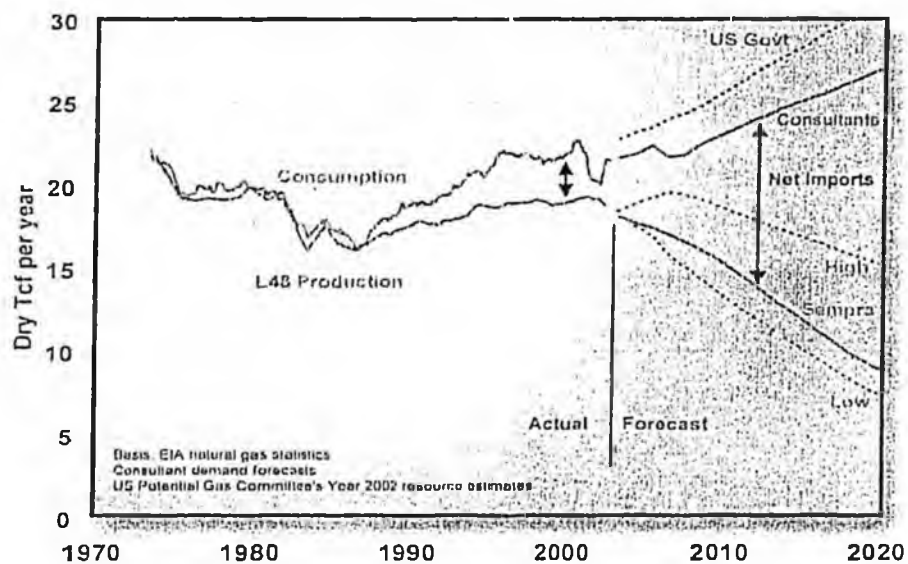
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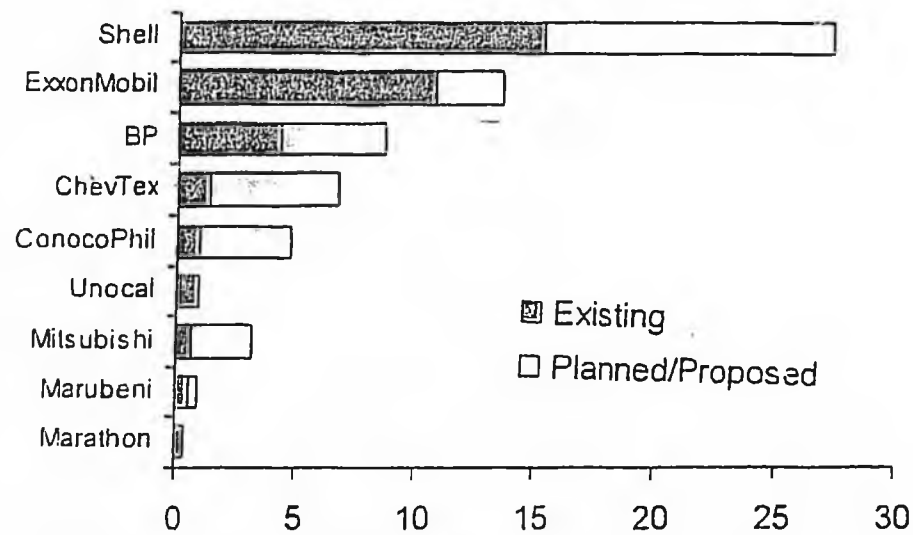
Lower-48 Natural Gas Supply & Demand



Pacific Rim Gas Supplies



Asia-Pacific Key LNG Suppliers (Estimated working interest, mmtpa)



ANGDA Project Concept & Cost

<u>Project Elements</u>	<u>Size</u>	<u>Cost</u>
Treatment	2 BCFPD plant	\$ 2 B
Pipelines	800 miles of 36"	\$ 4 B
Liquefaction	4 trains @ 4 M tn/yr	\$ 4 B
LNG Tankers	3@\$300M & 7@\$150 M	\$ 2 B
Total Export	16 M tn/yr	\$ 12 B

NOTIONAL Cost of Service Comparison

Does NOT Include Wellhead Purchase Price

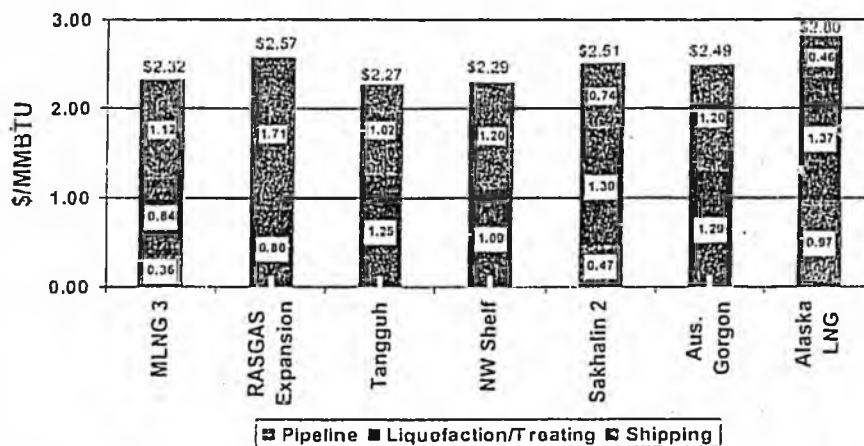
	High ROR Commercial	Not Taxable	Benefit Driven Infrastructure
Pipeline	1.40	1.00	0.75
LNG	1.50	1.20	0.90
Total Cost of Service	\$2.90	\$2.20	\$1.65

Pacific Rim LNG Projects to West Coast: \$2.20 to \$2.60

AlCan Highway Gasline to Market: \$2.39

20

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Numbers estimated from external sources
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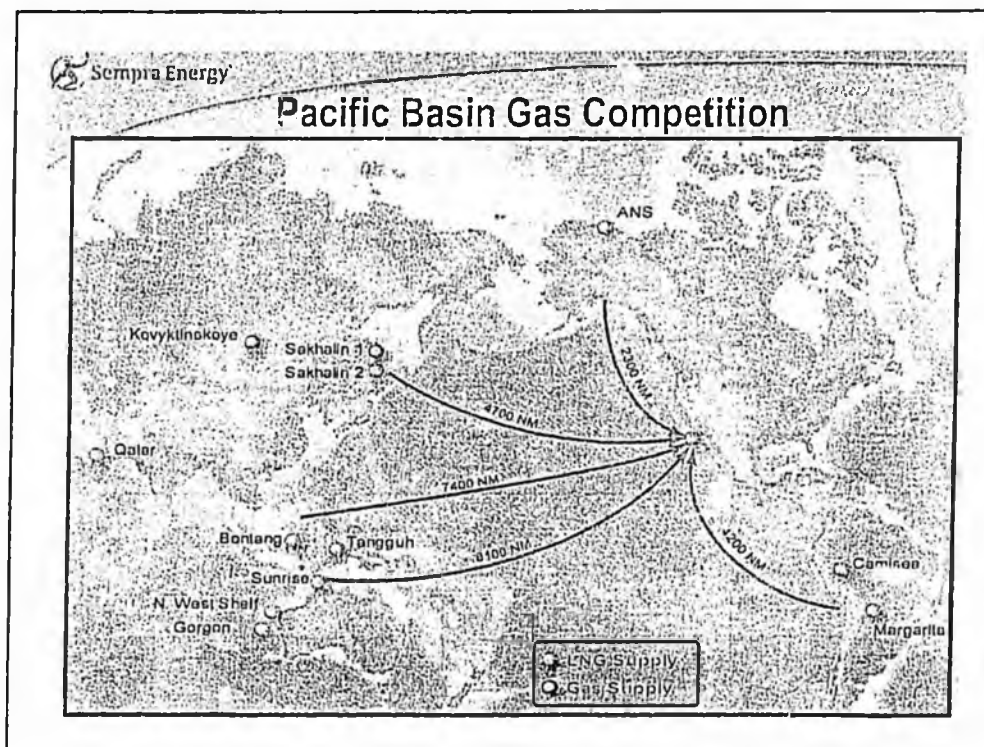
ConocoPhillips

Managing Project Risk Elements

Wellhead Price	Fixed Purchase Price
Construction	OVERRUNS -- Tariff ?
Market Volume	Minimal -- Marketer
Market Price	Basket of Prices
Fiscal Changes	Not Applicable

Delivery Volumes / year from Valdez

	Long Beach	Baja Mexico	Tokyo Japan	Inchon Korea	Taiwan
Distance (nm)	2,070	2,200	3,409	4,216	4,590
Volume/ship/yr	1.9 mt	1.8 mt	1.3 mt	1.0 mt	1.0 mt



MC's Involvement in LNG Business

Project	Up-stream	LNG Plant	Finance	Shipping	Services to Buyers	Receiving Terminal
'69 Alaska					→	→
'72 Brunel		→	→	→	→	→
'83 Malaysia Satu		→	→	→	→	→
'84 Indonesia (Arun2)			→	→	→	→
'89 Australia (NWS)	→	→	→	→	→	→
'95 Malaysia Dua		→	→		→	→
'00 Oman		→				
'03 Malaysia Tiga	→	→	→		→	
'07 Tangguh	→		→	→	→	→
'07 Sakhalin II	→	→	→	→	→	→
'07 Venezuela (VLNG)	→	→	→	→		
'07-08 LB (SES)			→	→	→	→

Mitsubishi Corporation

September, 2003

Alaska Natural Gas Development Authority

Homepage is: <http://146.63.35.79/>

Harold Heinze

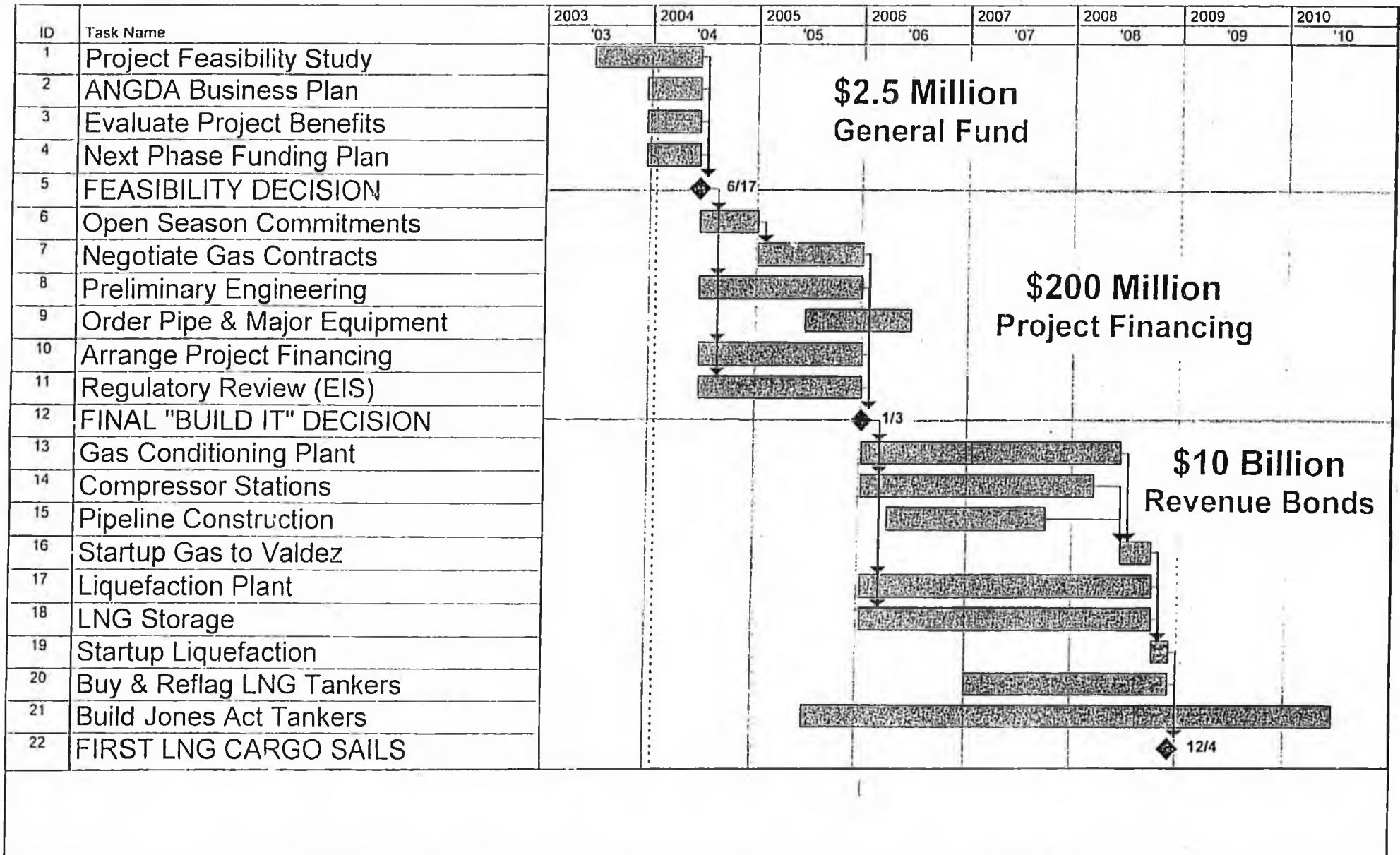
411 W. 4th Ave, Anchorage 99508

(907) 257 - 1347

Fax: (907) 646 - 5005

hheinze@jpo.doi.gov

ANGDA All-American LNG Project Conceptual Schedule



PROPOSITION 3 RESULTS BY ELECTION DISTRICT

provided
by Paul
Fuhs
Backbone 2

YES

Senate Seat A.....	Stedman, Bert.....	61.2%
B.....	Elton, Kim (D).....	53.4%
C.....	Lincoln, Georgiana (D).....	65.0%
D.....	Seekins, Ralph (R).....	58.6%
E.....	Wilken, Gary (R).....	66.5%
F.....	Therriault, Gene (R).....	70.4%
G.....	Green, Lyda (R).....	70.5%
H.....	Ogan, Scott (R).....	68.1%
I.....	Dyson, Fred (R).....	66.7%
J.....	Guess, Gretchen (D).....	65.7%
K.....	Davis, Bettye (D).....	60.8%
L.....	Ellis, Johnny (D).....	58.7%
M.....	French, Hollis (D).....	57.2%
N.....	Stevens, Ben (R).....	59.6%
O.....	Cowdery, John (R).....	63.8%
P.....	Bunde, Con (R).....	53.3%
Q.....	Wagoner, Tom (R).....	63.3%
R.....	Stevens, Gary (R).....	62.3%
S.....	Hoffman, Lyman (R).....	64.8%
T.....	Olson, Donnie (D).....	60.6%
House District # 1.....	Williams, Bill (R).....	63.6%
2.....	Wilson, Peggy (R).....	58.8%
3.....	Kerttula, Beth (D).....	50.3%
4.....	Weyrauch, Bruce (R).....	56.5%
5.....	Kookesh, Albert (D).....	65.0%
6.....	Morgan, Carl (D).....	65.0%
7.....	Fate, Hugh (R).....	59.3%
8.....	Guttenberg, David (D).....	58.0%
9.....	Holm, James (R).....	65.7%
10.....	Stepovitch, Nick (R).....	67.4%

PROPOSITION 3 ELECTION RESULTS CONTINUED

11.....	Coghill, John (R).....	69.2%
12.....	Harris, John (R).....	71.6%
13.....	Gatto, Carl (R).....	68.5%
14.....	Kohring, Vic (R).....	72.5%
15.....	Masek, Beverly (R).....	69.7%
16.....	Stoltze, Bill (R).....	66.5%
17.....	Kott, Pete (R).....	64.5%
18.....	Dahlstrom, Nancy (R).....	69.0%
19.....	Anderson, Tom (R).....	65.0%
20.....	Greunberg, Max (D).....	66.4%
21.....	Crawford, Harry (D).....	61.0%
22.....	Cissna, Sharon (D).....	60.7%
23.....	Gara, Les (D).....	56.4%
24.....	Heinze, Cheryl (R).....	61.0%
25.....	Croft, Eric (D).....	60.8%
26.....	Berkowitz, Ethan (D).....	53.7%
27.....	Rokeberg, Norman (R).....	61.7%
28.....	McGuire, Lesil (R).....	57.5%
29.....	Samuels, Ralph (R).....	67.0%
30.....	Meyer, Kevin (R).....	60.6%
31.....	Lynn, Bob (R).....	53.6%
32.....	Hawker, Mike (R).....	53.1%
33.....	Wolf, Kelly (R).....	63.7%
34.....	Chenault, Charles (R).....	63.0%
35.....	Seaton, Paul (R).....	63.0%
36.....	Ogg, Dan (R).....	61.5%
37.....	Moses, Carl (D).....	70.6%
38.....	Kapsner, Mary (D).....	59.0%
39.....	Foster, Richard (D).....	65.8%
40.....	Joule, Reggie (D).....	55.4%

ANGDA Business Concepts

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- LNG export is integral to the economies of delivering gas throughout Alaska
- Alaskan LNG project is economically viable as infrastructure providing significant benefit values to Alaska and the Nation

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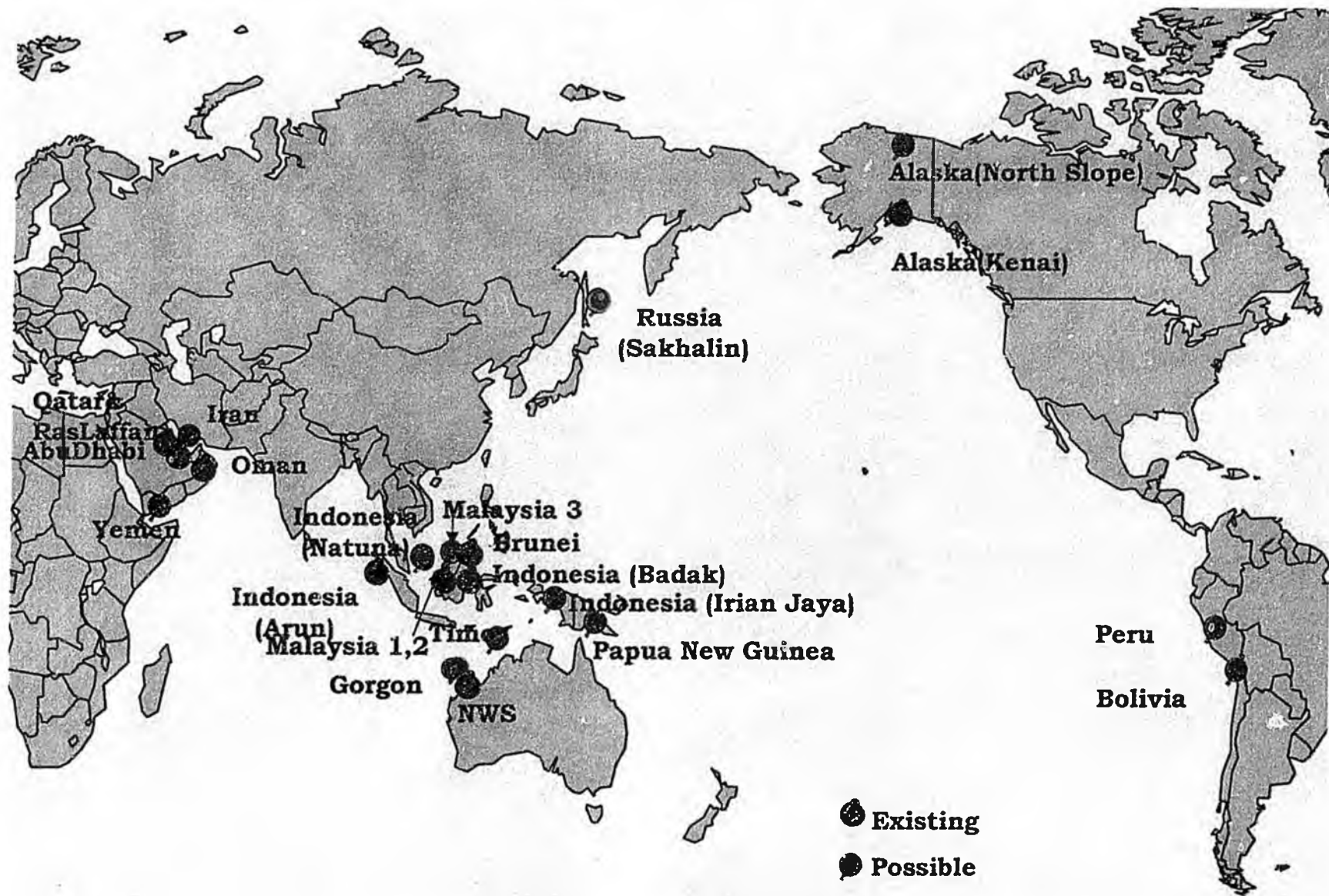
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What is ANGDA's contribution(s)
that make it worthy of \$2.15 million of public money"

Benefits to Alaska

- Make sure that Alaskan's receive the direct and indirect benefits of Alaskan gas
- Benefit analysis model integrates analysis in a new and broader view

Business Structure

- Reduce transportation cost of gas by:
 - avoidance of income tax and
 - lower financing costs through tax-exempt bonding,thereby improving North Slope gas (public resource) marketability and well head values

Alaskan LNG Project

- Complete feasibility study of LNG export project from Valdez (with a spur line from Glennallen to the Cook Inlet area) demonstrating that it is economic (can be financed) and competitive in the Pacific Rim LNG market

What is ANGDA's biggest challenge(s) ?

Timely funding !!

- By the time the fast track supplemental funding passes there will be barely 4 month left before the statutory deadline
- Quality information is needed in the feasibility study to support the multi-billion dollar decision to proceed or to stop
- The LNG market is very dynamic, moving rapidly, and we can not compete until the Alaska government and people want to move forward

Additional Commentary on ANGDA FY 04 Funding Plan

<u>Summary Categories</u>	<u>Current</u>	<u>Additional</u>	<u>Total</u>
ANGDA Staff, Office, & Travel	152	123	275
Contracts on Business Issues	150	500	650
Project Design/Mgmt Contracts	48	1,527	1,575
	-----	-----	-----
T O T A L	350	2,150	2,500

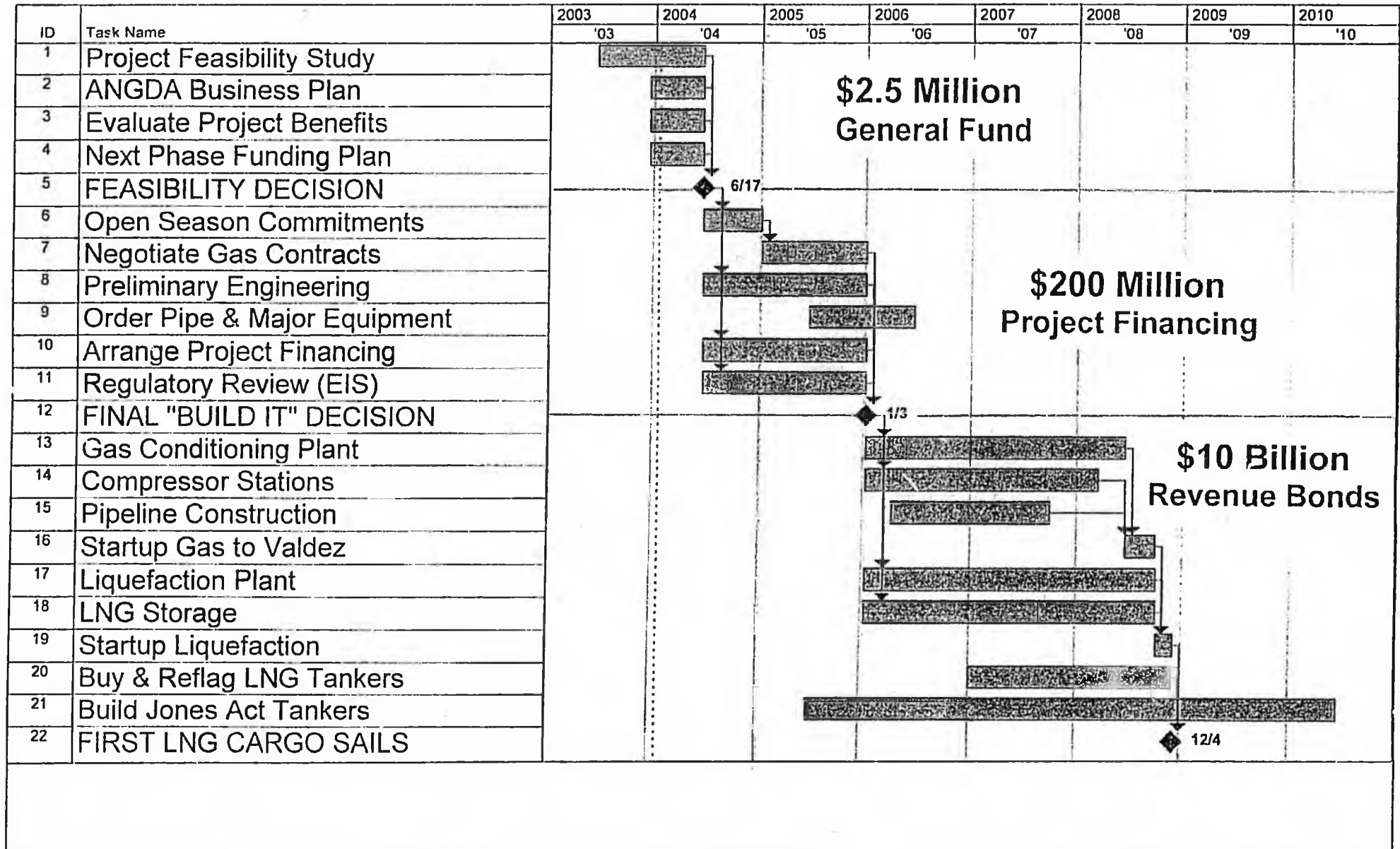
Alaska Natural Gas Development Authority FY 04 Funding Plan

	<u>Current</u>		<u>Added</u>	<u>FY 04</u>	<u>FY 04</u>
	Spent	Pending	In FY 04	Total	Sub-Total
ANGDA					275
Personal Services (Staff)	126		29	155	
Staff Travel	4	5	11	20	
Board Travel	7	4	14	25	
Office & Supply	6		19	25	
Report & Communication			50	50	
Business Contractors					650
Benefit Analysis	50		100	150	
Tax Advice	25		125	150	
Market Insight	25		75	100	
Financing		50	100	150	
Project Economics			100	100	
Project Contractors					1,575
Contractor Co-ordination	15		120	135	
Spur Line Cost		20		20	
Permit Review		13	37	50	
LNG Plant Concepts			100	100	
Engineering Design			750	750	
Cost & Schedule			500	500	
Downstream Concepts			20	20	
TOTAL	258	92	2,150	2,500	

Alaska Natural Gas Development Authority FY 04 Funding Plan

	<u>Current</u>		<u>Added</u>	<u>FY 04</u>	<u>FY 04</u>
	<u>Spent</u>	<u>Pending</u>	<u>In FY 04</u>	<u>Total</u>	<u>Sub-Total</u>
ANGDA					275
Personal Services (Staff)	126		29	155	
Staff Travel	4	5	11	20	
Board Travel	7	4	14	25	
Office & Supply	6		19	25	
Report & Communication			50	50	
Business Contractors					650
Benefit Analysis	50		100	150	
Tax Advice	25		125	150	
Market Insight	25		75	100	
Financing		50	100	150	
Project Economics			100	100	
Project Contractors					1,555
Contractor Co-ordination	15		120	135	
Spur Line Cost		20		20	
Permit Review		13	37	50	
LNG Plant Concepts			100	100	
Engineering Design			750	750	
Cost & Schedule			500	500	
Downstream Concepts			20	20	
TOTAL	258	92	2,150	2,500	

ANGDA All-American LNG Project Conceptual Schedule



Benefits Analysis for the Alaska Natural Gas Development Authority

A Proposal

Prepared for

Alaska Natural Gas Development Authority

January 2004

Prepared by

northern **economics inc.**

880 H STREET, SUITE 210, ANCHORAGE, ALASKA 99501

T: 907.274.5600 F: 907.274.5601

E: norecon@norecon.com • www.northemeconomics.com

PROFESSIONAL CONSULTING SERVICES IN APPLIED ECONOMIC ANALYSIS

Anchorage

880 H St., Suite 210, Anchorage, AK 99501
TEL: 907.274.5600 FAX: 907.274.5601

President & Principal Economist: Patrick Burden, M.S. Vice President & Senior Economist: Marcus L. Hartley, M.S. Senior Consultant, Planning Services: Caren Mathis, MCP, AICP Economists: Leah Cuyno, Ph.D., Ken Lemke, Ph.D., Jonathan King, M.S. Policy Analyst: Nancy Mundy, Ph.D. Socioeconomic Analyst: Don Schug, Ph.D. Analysts: Michael Fisher, MBA, Cal Kerr, MBA Office Manager: Stephanie Cabaniss Document Production: Terri McCoy

Bellingham

1801 Roeder Ave., Ste. 124, Bellingham, WA 98225
TEL: 360.715.1808 FAX: 360.715.3588

Associate Economist: Hart Hodges, Ph.D.
Economist: Tamer Kirac, M.A.
Analyst: Kelly Baxter-Porteen, M.S.



northerneconomics inc.

E-mail: norecon@norecon.com Web: www.northeconomics.com

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Introduction and Background

The development of North Slope gas will create substantial benefits to the State of Alaska.

The development of natural gas will stimulate both short-term economic growth with billion dollar construction projects and long-term economic benefits with operations of natural gas related projects. These benefits will accrue to State and local governments, Alaska businesses, and residents through higher incomes, more jobs, and access to a reliable source of energy.

The Alaska Natural Gas Development Authority (ANGDA) would like to quantify these economic benefits to ascertain the merits of constructing, operating, and maintaining a natural gas pipeline that will bring North Slope gas to domestic and global markets.

The Alaska Natural Gas Development Authority (ANGDA) was created by a vote of the people of Alaska in the November 2002 general election. The Authority has broad powers to:

- Acquire, condition, transport, and market North Slope natural gas
- Construct, operate and maintain a natural gas pipeline
- Buy property or use eminent domain
- Issue state tax-exempt revenue bonds

The development of North Slope gas will involve a wide range of projects encompassing different regions or communities in Alaska.

The gasline route would be from Prudhoe Bay to tidewater on Prince William Sound with a spur line from Glennallen to the Southcentral gas distribution grid. The project concept includes a liquefied natural gas (LNG) plant in Prince William Sound with leased tankers transporting the LNG to U.S. West Coast markets or the Pacific Rim.

The U.S. market is particularly dynamic at this time as North American gas supply is unable to expand at a rate sufficient to meet the growing demand for natural gas. Since Alaska has an advantage over other global LNG suppliers in shipping cost to U.S. West Coast markets, this market is of particular interest to the Authority.

The LNG concept has been evaluated over a number of years and is relatively well-defined as a result of efforts by Yukon Pacific, ConocoPhillips, and others. To date, the project as defined offers marginal economics for producers and, as a result, has not advanced beyond the study phase. However, the ANGDA has the ability to issue tax-free revenue bonds, which improves the project economics and reduces the cost of service for LNG delivered to U.S. West

Coast markets. At this concept level of analysis, the tax advantages of the ANGDA project make it very competitive in the marketplace and suggest that further efforts should be undertaken to move the project forward.

In addition to the major export component of the project for LNG, natural gas liquids (NGL), and petrochemicals, ANGDA also anticipates development of other facilities to ensure maximum benefits are derived from the project. These other components include:

- CO₂ removal for enhanced oil recovery
- Discovery and development of new fields
- Development of Pt. Thompson
- Natural gas-fired electric power plants with transmission lines to interior and river communities
- Local gas distribution in Fairbanks
- Liquid propane gas (LPG) barged to river and Southeast Alaska communities, and trucked to smaller interior communities
- A smaller capacity "spur" line to the Southcentral gas distribution system, augmenting Cook Inlet gas supplies and providing gas for heating, electric power, and the petrochemical and LNG facilities at Nikiski

As part of the next steps in the evaluation process, the ANGDA will be asking the Alaska legislature to fund significant engineering and design efforts beginning in early 2004. Prior to that time, the Authority will be developing the materials necessary to support that request. Part of the development effort entails identification of the benefits of the project concept, including all of the various components.

The Authority has asked Northern Economics to prepare a proposal describing the work to be done in identifying the benefits of the various components, as well as other benefits that may be created as a result of the project, and a cost for completing this work by the end of 2003.

The following sections describe Northern Economics' proposed approach to developing a transparent and user-friendly model that will provide ANGDA and decision-makers comprehensive and reliable information on the benefits of North Slope gas development.

Model Concept and Approach

Northern Economics proposes to develop an economic model that will integrate and quantify all the in-state benefits of North Slope natural gas development. This economic benefits model will provide a **comprehensive and systematic measure of economic benefits** that will allow ANGDA and decision-makers to ascertain the merits of all the natural gas-related projects more effectively and efficiently.

We will draw on our knowledge and experience in economic modeling, benefits analysis, and input-output analysis, as well as our familiarity with the Alaska economy to develop a user-friendly tool that will show the value of the various natural gas projects associated with development of North Slope gas. Descriptions of related studies that we have done for various clients are provided in the next section, Northern Economics Qualifications.

The general approach is to rely on information necessary for analysis of each of the project components that we have developed in our previous studies to develop a structure for this economic benefits model and then undertake the analytical steps of quantifying the economic benefits, fiscal benefits, and other benefits using order of magnitude estimates.

The Economic Benefits Model will answer the following questions:

- How many jobs will be created and what economic sectors will experience employment growth?
- How many jobs will go to Alaska residents?
- How much labor income will be earned, and what proportion will go to Alaska residents?
- How much gross sales or total industry output will be generated, and how much will be captured by Alaska businesses?
- How much value-added will be generated or how much of an increase in gross state product can be anticipated?
- What is the magnitude of revenues that the State and local governments will collect and spend?
- What is the value to Alaska's economy of household and government re-spending of earned income and revenues?
- How will property values be affected?

Usable and Understandable

The spreadsheet model will use Microsoft Excel, a program that is familiar to many users. The model will follow a conceptually logical

approach to quantifying benefits and will show step-by-step calculations to make it user friendly.

Transparent

The model will be well documented to achieve transparency. Assumptions, definitions of terms, explanations of methods, calculations, macros and formulas will be clearly identified and will be provided internally using cell comments and notes throughout the spreadsheets, as well as in the documentation that will be submitted to ANGDA.

Adaptable

The model will allow the user to edit assumptions, add projects, and change the defined scope of analysis. The model will provide options to show economic benefits by region, project component, year, or phase (construction phase or operations phase), and/or show effects on different sectors of the economy.

Useful and Insightful

The model will provide standard output tables that will allow the user to summarize the benefits by project component, by sector (if applicable), by year, by region, or show total statewide economic benefits. The model will also have the ability to generate sensitivity analysis. Finally, the model will allow comparison of results with existing economic indicators; this will provide a perspective on the magnitude of benefits associated with the gas development projects relative to existing conditions.

Components of the Model and Approach

The economic benefits spreadsheet model will be composed of several components and corresponding spreadsheets. The spreadsheet model will be structured to incorporate coefficients from an input-output program developed by the IMPLAN group and used frequently by Northern Economics to generate multiplier effects, in addition to other types of benefits.

Assumptions Component

This component will show all relevant information on data inputs and assumptions, including definitions, abbreviations, units, and sources of data.

Economic Drivers Component

The premise of the benefits analysis is that development of North Slope natural gas will stimulate economic growth and expansion in

Alaska. The benefits analysis will include all the project components shown in ANGDA's Project Concept graphic (Figure 4). All these natural gas-related projects/businesses would stimulate growth in employment, income, and industry sales through local spending. These expenditures will drive the economic benefits assessment.

The *economic drivers* component of the model will contain information for each of the projects shown in Figure 4 on the following types of expenditures:

- **Capital expenditures.** This will include all the development costs (construction, right-of-way, expansion expenses) for all the different natural gas projects.
- **Operating expenditures.** This will include estimates of annual operating expenditures of the various gas-related businesses.
- **Government spending.** This information will be based on State and local government financial statements over the past five years and, if available, estimated budgets for the following year.
- **Household spending.** This information will be based on personal consumption expenditures of different levels of household income available from the Bureau of Economic Analysis.

For the purposes of developing the model, we will rely on previously developed estimates of capital, operating, government, and household expenditures that are available from past Northern Economics studies and publicly available documents. We have developed spreadsheets with capital and operating expenditures by components (i.e. materials, labor, engineering and management, contingency, etc.) of some natural gas related projects. These estimates could be used to provide order of magnitude estimates of benefits of certain project components.

Ultimately, the data for the economic drivers component of the model will be based on information developed for ANGDA and will be incorporated in the 2nd phase of the benefits analysis study.

Economic Benefits Component

The various ANGDA project components will be evaluated in terms of the following benefits or impacts categories:

Economic Effects

The economic effects category is comprised of direct economic effects and multiplier effects.

The *direct effects* are based on calculations resulting from the economic drivers component. The various expenditure functions will

be allocated based on local, regional, state-wide and out-of-state expenditures using estimates of regional purchase coefficients available from the IMPLAN software and adjusted using engineering reports and previous Northern Economics studies, and will be validated through expert opinions. Direct effects would include purchases by the industry (from local suppliers), direct employment (wage and salary payments), proprietary income and profits, rents, dividends, tax payments and other government revenues.

The *multiplier effects* are based on an input-output (I/O) analysis using the IMPLAN software, maintained by the Minnesota IMPLAN Group. In an I/O model (of an economy), the total economic output or benefits created by a sector are determined by the magnitude of the multiplier and the magnitude of the project (i.e. amount of expenditures for a harbor expansion, or level of annual operating expenditures). The multiplier coefficients that will be generated using IMPLAN will be incorporated into the economic benefits spreadsheet. Northern Economics routinely uses this software for major project analysis, including work for the Alaska Gas Producers Pipeline Team, Foothills Pipeline Company, Anadarko Petroleum Corporation, and others.

Multiplier effects are comprised of indirect effects and induced effects. The *indirect effects* will include purchases by suppliers from other local suppliers, imports and purchases by suppliers from outside the local economy; wage and salary payments by suppliers; proprietary income and profits earned by suppliers; employment of suppliers (wage and salary payments, tax payments and other government revenues paid by suppliers). The *induced effects* will include purchases using wages, salaries, proprietary income, profits, and government revenues.

Regional/ Community Effects

This will be based on a general community-level economic and demographic model that Northern Economics uses for selected rural river/coastal communities. Information includes estimates of population, household income, local government taxes, and sectoral employment.

Fiscal effects

This component will show projected state and local government revenues generated from the production of the natural gas, property taxes, and other sources related to the project development and operation. These revenues will include royalty income, severance tax income, corporate income taxes, property taxes (ad valorem), increased value of State gas leases, sales taxes, and other non-taxes such as fees.

We understand that the Alaska Department of Revenue and other state agencies will be involved in developing revenue estimates associated with the project concept. To develop the fiscal benefits we will need revenue estimates (direct effects) accruing to the State of Alaska (including distribution among the Permanent Fund, the state general fund, education and other programs), and property taxes and other revenues accruing to each local government where project facilities would be located. The local governments would include the North Slope Borough, the Fairbanks North Star Borough, the City of Valdez, and other communities with taxing authority.

Based on this information, IMPLAN input-output will be used to estimate the secondary effects at the state level, including the subsequent spending by government entities, and spending of Permanent Fund Dividend checks. In the event that DOR revenue estimates are not yet available, we will use previous reports or preliminary ROM estimates.

Other project-related benefits

This category involves the additional benefits associated with cost savings to consumers, additional production from new fields or enhanced oil recovery, maintenance or expansion of the petrochemical and LNG facilities on the Kenai Peninsula, and similar factors.

The availability of a natural gas pipeline project to transport North Slope natural gas to market will result in a number of other benefits that are not captured in the previous categories. These benefits cover a wide range of activities including:

- The joint production of oil and gas from existing fields which reduces the costs that must be covered by oil production, resulting in additional oil production from these fields
- Improving the viability of yet-to-be-discovered fields that would be uneconomic if joint production were not possible
- The use of CO₂ removed from the natural gas for enhanced oil recovery in existing and yet-to-be discovered fields
- The development of the Pt. Thompson field that is currently struggling to achieve viability because of the high cost required to reinject the produced gas into the reservoir at very high pressures; a natural gas pipeline would reduce the need to reinject this gas production into the reservoir
- Cost savings to residents and business in communities where the availability of North Slope natural gas-fired electric power plants could result in lower electricity prices;¹

¹ The lower electricity prices could result from larger gas-fired power plants and transmission of that electricity to individual communities.

concomitantly, a reduction in power cost equalization payments by the State for subsidizing electric power rates in rural communities

- The cost savings to Southcentral Alaska consumers when the cost of service for delivered gas through the ANGDA project would be less than the Henry Hub price that will be required in the future under existing contracts
- Cost savings to residents and businesses in communities where natural gas would be available through local (piped) gas distribution or trucked/barged LPG for heating at costs less than anticipated Henry Hub prices or diesel fuel
- The maintenance or expansion of the existing petrochemical and LNG facilities in Nikiski in the event that Cook Inlet gas supplies are insufficient to maintain the facilities or, with the availability of North Slope natural gas, to expand the facilities with associated employment and local tax increases

A substantial amount of these benefits have been addressed in previous studies. However, there are some potential benefits that have not been thoroughly addressed. For example, some previous reports have suggested that the proximity of a natural gas pipeline through certain portions of highly mineralized zones will transform the viability of some mining projects by providing lower cost energy to the mine sites and thus creating greater employment estimates and revenues to the state and other entities. We will investigate this concept further and include the benefits of this and other developments that could occur with implementation of the ANGDA project. We would also propose to develop an estimate of the monetary benefit associated with using natural gas rather than coal and diesel for power generation and heating in Alaska, thereby reducing CO₂ emissions.

Output

This component of the model will generate results of the benefits analysis using standard table formats and charts that can be fashioned in different ways depending on the users defined scope of analysis (by region, by year, by project, or an integrated total benefits table).

Examples of table outputs that we have generated for previous studies are shown on the following pages.

Documentation

As previously described, the spreadsheet model will use cell comments and notes to facilitate ease of use. We will also provide a basic user's manual within Excel that can be accessed by a person is using the spreadsheet model. We will also provide more detailed documentation in a Microsoft Word file.

Table 1. Summary of In-State Employment and Revenue Impacts

Route/Option	Employment (Number of Person-Years)			Government Revenues (MoD \$ Millions)	
	Total Over Project Life	Peak Construction Year	Average During Operations	Total	Annual
Northern Route Without Mackenzie Delta Gas	XXXXX	XXXXX	XXXXX ^b	XXXXX	XXX
Northern Route with Mackenzie Delta Gas	XXXXX	XXXXX	XXX ^b	XXXXX	XXX
Southern Route	XXXXX	XXXXX	XXX ^b	XXXXX	XXX
Gas Treatment Plant ^a	XXXXX	XXX	XXX	^c	^c
Point Thomson Unit	XXXX	XXX	XXX	^d	^d
Other Business Opportunities					
Fairbanks Spur					
[REDACTED]	XXXXX	^e	XXX	XXX	^d
[REDACTED]	XXXXX	XXX	XXX	XXXX	XXX
Tidewater Spur					
[REDACTED]	XXXXX	XXX	XXX	XXXXXX	XXX
[REDACTED]	XXXXX	XXX	XXX	XXXXXX	XXX
Natural Gas Liquids Terminal	XXXX	XXX	XXX	^d	^d

Table 2. Expenditure Pattern for Exploration of Remote Oil Fields by Category

Category	Percent of Total	Percent of Category Spent in Alaska	Percent of Total Spent in Alaska
Personnel	28.3	84.4	23.9
Business Services	34.6	98.2	34.0
Equipment and Supplies	23.3	51.4	11.9
Construction Activities	1.3	100.0	1.3
Transportation	5.7	88.9	5.0
Labor Support	1.3	100.0	1.3
Other	5.7	0.0	0.0
Total	100.0		77.4

Table 3. In-State Exploration Expenditures for Natural Gas Projects in the Alaska North Slope Foothills by Category, 2001-2030

2001 \$ (Millions)							
Year	Personnel	Business Services	Equipment & Supplies	Construction Activities	Transportation	Labor Support	Total
2001	5.0	7.1	2.5	0.3	1.1	0.3	16.2
2002	6.5	9.2	3.2	0.3	1.4	0.3	20.9
2003	11.5	16.3	5.7	0.6	2.4	0.6	37.1
2004	9.3	13.3	4.7	0.5	2.0	0.5	30.2
2005	6.9	9.9	3.5	0.4	1.5	0.4	22.4
2006	2.6	3.7	1.3	0.1	0.6	0.1	8.5
Total	41.8	59.5	20.9	2.2	8.8	2.2	135.4

Figure 1. Annual Employment for the State of Alaska from Anadarko/AEC ANS Foothills Gas Project, 2001-2030

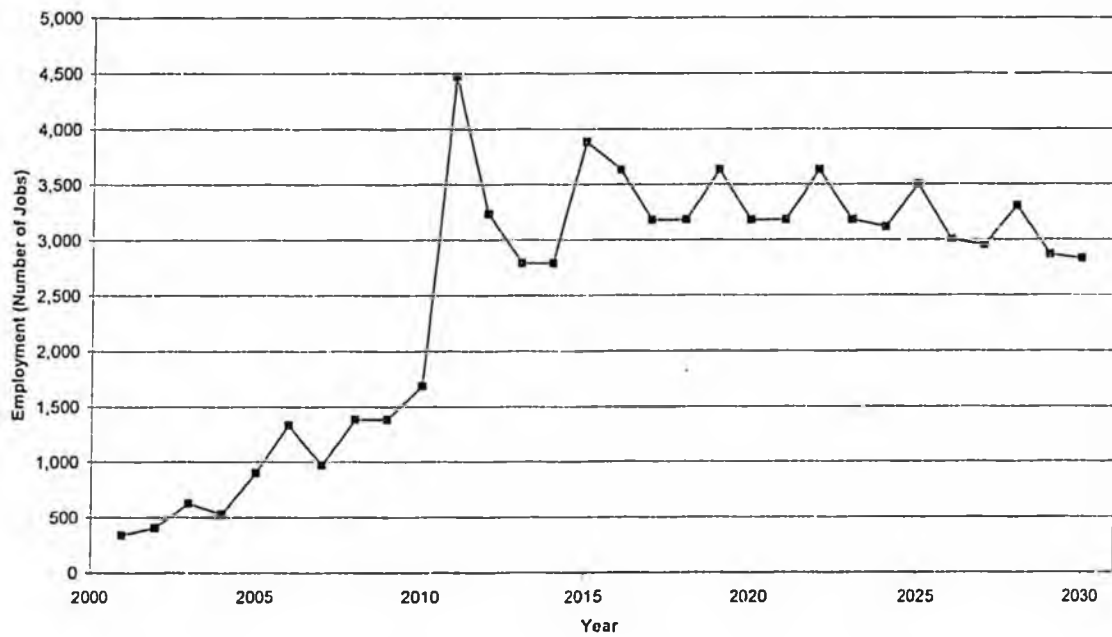


Figure 2. Annual Labor Income for the State of Alaska from the Anadarko/AEC ANS Foothills Gas Project, 2001-2030

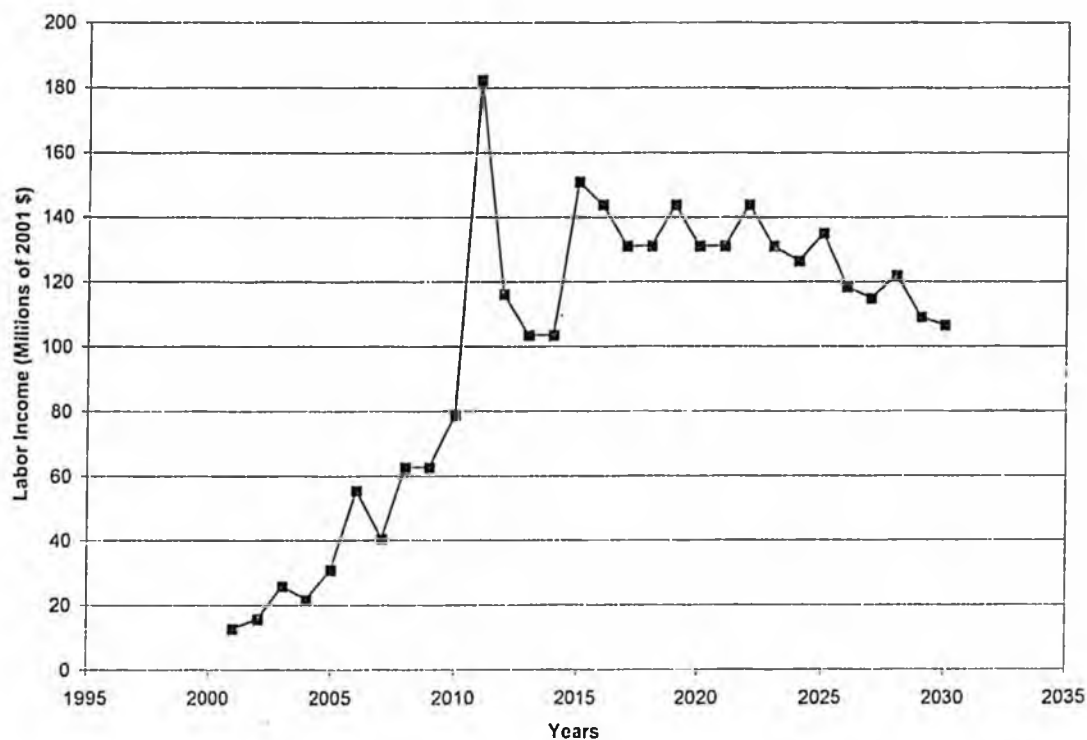
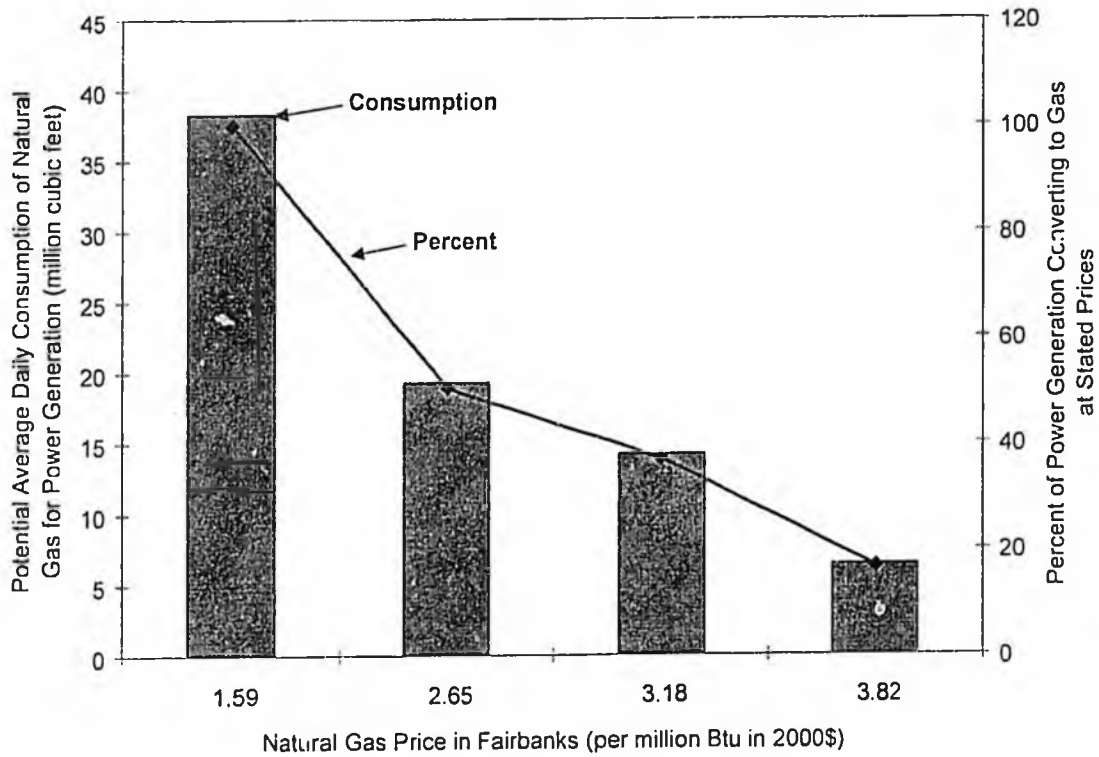


Table 4. Anadarko/AEC Exploration, Development, and Production Expenditures for the Alaska North Slope Foothills Gas Project, 2001-2030

	2001 \$ (Millions)	
	Total Expenditures	In-State Expenditures
Exploration	175.0	135.4
Development	1,428.0	660.6
Production	1,144.0	870.8
Total	2,747	1,667

Source: Anadarko/AEC

Figure 3. Amount of Fairbanks Power Generation Converting from Coal and Diesel to Natural Gas at Different Gas Prices



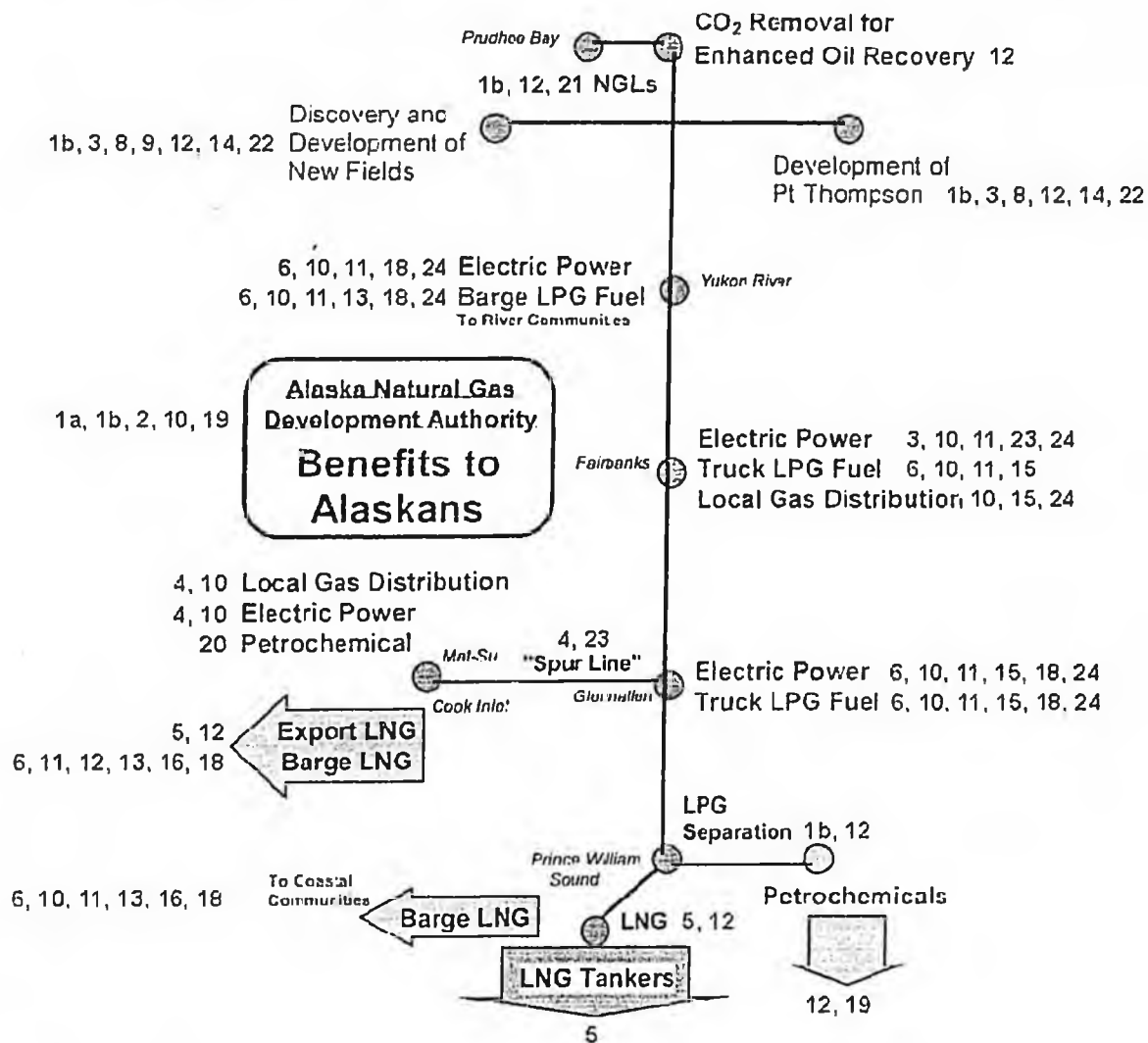
Source: Adapted from Zobrist, 1997.

Northern Economics Qualifications

Northern Economics, founded in 1982 and incorporated in 1998, has developed a long-term, in-depth understanding of the oil and gas industries in Alaska. As the petroleum industry has emerged as a major segment of the Alaskan economy, Northern Economics has grown along with it, helping state and local governments and private businesses in Alaska to develop an economy for present and future generations. Northern Economics has provided feasibility analyses, environmental impact assessments, benefit-cost analyses and other tools to facilitate industry growth. Our projects include economic impacts and benefits assessments of natural gas development; as well as economic and socioeconomic evaluations for development of oil and gas reserves, construction and operation of gas handling facilities, replacement of TAPS line segments, and Outer Continental Shelf oil exploration.

The graphic attached to the ANGDA's request for proposals illustrates the steps to be completed for this project. Northern Economics has extensive experience and resources to complete the steps delineated in the ANGDA project concept graphic. These project descriptions are numbered and listed below, with references added to the graphic (Figure 4, next page) to illustrate which steps are addressed by which project experience. In addition to our own projects, we have an extensive library with other resources that will be useful for completion of project tasks. These resources are listed as well. Northern Economics reports and projects are represented in the graphic by red numerals; resources from our library are represented with green numerals.

Figure 4. ANGDA Project Concept, with Northern Economics Relevant Projects and Resources by Each Step



Note: Red numbers represent projects completed by Northern Economics. Green numbers represent additional resources and reports available in our library.

Northern Economics Relevant Projects

Northern Economics' relevant projects are listed by number and detailed below. The bold text under each project description indicates the particular relevance of the project to the ANGDA Natural Gas Development Benefits Analysis.

Oil and Gas Projects

1a. Alaska Natural Gas Pipeline Project—Task One

Develop employment and revenue estimates, as well as benefits of other business opportunities and higher netback wellhead values for

the State of Alaska and affected local governments of alternative natural gas pipeline routes; for the North American Natural Gas Producers Group

1b. Alaska Natural Gas Pipeline Project—Task Two

NEI evaluated the potential socioeconomic impacts of construction of alternative gas pipeline routes. Two pipeline routes were considered: 1) the northern route would begin at Prudhoe Bay, with a pipeline extending to the McKenzie River delta in the Northwest Territories of Canada; 2) the southern route would begin at Prudhoe bay and follow the Dalton Highway corridor south to Fairbanks and from there a line that parallels the Alaska Highway corridor to Alberta. The socio-economic impacts involved looking at the following items:

- Job creation (direct, indirect, and induced) from natural gas production and transportation
- Revenues to the State of Alaska and local governments resulting from direct, indirect, and induced economic activity
- Jobs and revenues associated with additional business opportunities created by availability of natural gas. These additional business opportunities included a spur line to tidewater, separation and export of natural gas liquids (NGL), displacing diesel with natural gas-fired power generation along the pipeline corridor, and natural gas distribution for heating.
- Jobs and revenues associated with development of Point Thompson, which was anticipated to be economically viable with the pipeline, and estimates of the additional gas resources that would be economically viable with the pipeline.

This analysis was prepared using IMPLAN (an input-output model) and Microsoft Excel spreadsheets. These two projects demonstrate the directly relevant experience that Northern Economics staff has with major natural gas pipelines and developing the spreadsheet model that the Authority is requesting.

2. The Economic Impacts of Northern Gas Development.

Develop revenue and employment estimates for State of Alaska and local governments associated with development of a proposed natural gas pipeline along the Alaska Natural Gas Transmission System right-of-way; for Foothills Pipeline Company. This project provided our staff with additional experience in establishing the benefits of major natural gas pipelines.

3. *Economic impact study of natural gas exploration and production from foothills region of North Brooks Range.*

Northern Economics evaluated the potential economic impacts of natural gas exploration, development, and production activities of Anadarko in the Brooks Range Foothills. This study was used by Anadarko to support their bid on the State's royalty gas. An input-output model of the North Slope Borough and the State of Alaska (using IMPLAN) were used to generate the economic impacts at the Borough level and at the State level. The impact assessment involved estimating the direct, indirect, and induced effects of the gas exploration, development, and potential production on employment, revenues to State and local governments, labor income, and gross state product. Prepared for Anadarko Petroleum Corporation. A portion of this analysis included a discussion of the benefits to consumers from lower energy costs in Fairbanks, assuming a natural gas pipeline were in place. This type of analysis is directly applicable to establishing the benefits associated with discovery and development of new fields, development of Point Thompson, and electric power in Fairbanks.

4. *Review of Cook Inlet Natural Gas Supply and Demand.*

Summarize Cook Inlet natural gas supply and demand and factors affecting the role of Cook Inlet gas as a continuing energy source for Southcentral Alaska; present data on historical production, consumption, prices, and known and potential reserve estimates, examining the effect of prices on Lower 48 and Cook Inlet gas exploration activity and presenting alternatives for supplementing natural gas as an energy source for Southcentral Alaska; for Anchorage Economic Development Corporation in association with Chugach Electric Association, ENSTAR Natural Gas Company, and Municipal Light and Power. The preparation of this study provides Northern Economics staff with an understanding of the benefits associated with a spur line to southcentral Alaska for electric power generation and heating.

5. *Economic Analysis of Regional and Local Interests Relating to LNG Export to Japan*

Evaluation of natural gas supplies in Cook Inlet as part of export license reauthorization application for the Phillips/Marathon Kenai LNG plant; additional work completed 8 years later for determination of natural gas demand in southcentral Alaska as part of the next export license reauthorization application for the plant. Prepared for Phillips Petroleum Company and Marathon Oil Company as a subconsultant to Resource Decisions. Our work on these two studies provided us with the necessary background and understanding of the export LNG industry.

6. *Alaska Rural Energy Plan, Phase 2B*

Analyzed options for reducing the cost of electricity and heat in rural Alaska and for improving the reliability of electricity in rural Alaska. Strategies considered included improving diesel efficiencies, alternative fuels and technologies, end-use conservation, fuel purchasing strategies, waste heat recovery, and issues related to bulk fuel storage. Conducted analysis of end-use conservation and strategies related to space and water heating. For Alaska Industrial Development and Export Authority, U.S. Department of Agriculture, and Denali Commission. Our experience in this study is directly relevant to the discussion of electric power and heating in river and coastal communities, as well as Glennallen and other communities on the road network in proximity to the pipeline.

7. *Point McIntyre Oil and Gas Reserves*

Socioeconomic evaluations of development of Point McIntyre oil and gas reserves, and construction and operation of GHX-1 and GHX-2 gas handling facilities near Prudhoe Bay, for ARCO Alaska. Our experience with this study enhances our understanding of the effects of new fields.

8. *Socioeconomic Impacts of Changes in Alaska's Petroleum Royalty and Tax System*

This report estimated statewide impacts on government finances, employment, personal income, and population resulting from development of marginal fields, remote fields, and the employment of enhanced oil recovery methods, assuming changes in the state's fiscal system; for the Governor's Oil and Gas Policy Council. This study provides a basis for Northern Economics to address the discovery and development of new fields and development of Pt. Thompson.

9. *Socioeconomic evaluation of Liberty prospects for BP Exploration, Inc.*

This study report provided a summary of the historical and existing socioeconomic conditions of the state and the jurisdictions that will be affected by the Liberty Development Project, as well as estimates of project-related impacts on employment and aspects of the economy. Subsequent sections summarized impacts on population and demographics, employment, and fiscal conditions in the state and North Slope Borough. Our experience on this project, as well as our current engagement in the Northeast NPRSA Supplemental Environmental Impact Statement provide our staff with an understanding of the benefits associated with new field development.

10. *The Economic Impacts of Pacific Star Energy (PSE) Participation in the Alaska Natural Gas Industry.*

Northern Economics evaluated the benefits accruing from a 10 percent ownership position in a major natural gas pipeline, as

well as the benefits associated with construction of ancillary businesses that would be associated with the use of the gas within the State of Alaska. Many of the ancillary businesses are similar to those proposed by the authority. The benefits were measured with changes in total sales, labor income, profit, value added, and employment.

11. Feasibility Study for the Nuiqsut LNG Project

Staff of Northern Economics prepared the economic and financial analysis of a proposed LNG project for providing gas-fired electricity and heating to the village of Nuiqsut. The analysis addressed liquefiers, transportation, storage, distribution, and gas-fired generation and heating equipment. Several sources of gas were evaluated and the results of the gas-fired systems were compared with diesel-fired generation and heating systems. This study provides background and understanding of the ability to use LPG for electric power in rural villages and the costs associated with trucking gaseous fuels, and the distribution of gas in small communities.

12. Labor Availability for North Slope Module Development.

Northern Economics estimated the number of Alaska residents with skills in critical crafts for oil and gas industry to determine if sufficient labor resources were available in Alaska to enable major Alaska construction firms to bid for and undertake construction of North Slope oil and gas modules, the percent of the labor force crafts that may need to be hired from outside of the state, and a comparison of wage rates in the crafts. Prepared for Alaska Petroleum Contractors. This study, as well as our experience on other major projects in the state, enables us to address the Alaska Hire issues that must be addressed in estimating employment benefits to Alaska residents.

Transportation and Barge Related Projects

13. Yukon River Port and Road Network

Conduct a cost benefit analysis of alternative Yukon River port and road networks to determine a site that would best meet the transportation needs associated with the mineralized zone between the Yukon and Kuskokwim Rivers and assess the feasibility of facilitating development of the western Tintina Gold belt; for the Alaska Department of Transportation and Public Facilities. A substantial portion of this analysis addressed the cost of barging fuel and equipment on the Yukon and Kuskokwim Rivers, as well as barging costs from Puget Sound and Cook Inlet. The barge transportation cost models for this study will be useful for the Barge LNG and Barge LPG components of the ANGDA project.

14. Dalton to Nuiqsut Access.

Northern Economics is part of a team led by CH2M-Hill that evaluated a proposed road extending from the Dalton Highway to Nuiqsut, and then extending into the National Petroleum Reserve Alaska. Northern Economics developed a benefit-cost analysis for the proposed facility, which includes a major bridge crossing of the Colville River, and evaluating and recommending a financing and funding package for the project. A major part of this project entailed estimating the effect of a road on exploration and development costs, and the impact of these savings on increasing economically recoverable oil reserves. This type of analysis will be directly relevant to establishing the benefits of new fields and the development of Point Thompson.

15. Matanuska-Susitna Borough Rail Corridor Study

As part of the Matanuska-Susitna Rail Corridor Study team, economists and analysts at Northern Economics prepared a detailed draft study of current and potential commodity flows through Port MacKenzie. The study team analyzed nine categories of goods: Petroleum and chemical products, containerized cargo and vehicles, wood products, coal, sand and gravel, oil field modules, manufactured homes, selected minerals, and natural gas. Current market conditions were assessed for commodities in each category. Low, base, and high case scenarios were developed and the potential for import or export of the goods under each scenario was evaluated. In addition to export of LNG, the natural gas case also addressed the ongoing business near Point MacKenzie that liquefies gas from Cook Inlet and trucks it to Fairbanks for use by major consumers in the community. The purpose of this investigation was to evaluate the feasibility of importing LNG if Cook Inlet supplies diminished in the future, and a pipeline from the North Slope was not available. Our investigation of this ongoing business is directly applicable to the Truck LPG and local gas distribution components of the Authority's project.

The sand and gravel analysis also involved development of truck and barge cost models for transport to local and coastal communities.

16. Gravel Market Analysis

Summarized flow of construction aggregates (including sand and gravel, rip rap, concrete aggregates, armor rock, and lime) in Alaska and along the West Coast of the Lower 48 and British Columbia. Identified and contacted major suppliers of aggregates to determine which materials were produced in which region, the extent to which aggregates are imported or exported from state to state or region to region, and the level of interest in developing new aggregate supplies in Alaska. Also discussed with U.S. Army Corps of Engineers, departments of transportation, and others the planned work that could influence the supply and demand for aggregates in the West.

Prepared estimates of the cost to ship aggregates from identified sites in Alaska to potential markets. For Sealaska Corporation. A substantial portion of this work entailed development of cost models for tug and barge transportation which is directly relevant to the Barge LNG component of the Authority's project.

Modeling Projects

17. Harbor Economic Impact Model for the State of Alaska

Northern Economics is currently developing an economic impact model that will quantify the benefits of Alaska harbor facilities at the local, regional, and state levels. This economic impact model will provide a standardized measure of economic impacts for decision-makers to evaluate projects more effectively and efficiently. The model is a user-friendly tool that project proponents can use to generate reports showing the value of the harbor investments on the financial position of the harbor, the fiscal effects on the community and/or regional government, and the economic effects on the community, regional entity, and/or the state. This information will be used to support local funding decisions and requests for state and federal matching funds, as well as provide information to local residents on the value of the harbor to their economy.

The harbor economic impact model is based on an input-output (I-O) model designed to specifically quantify the benefits of Alaska harbor facilities to the local communities, the region, and the state of Alaska. Primary data for the model was collected via a statewide survey of different harbor user groups. The results of the I-O model are incorporated into a Microsoft Excel model that can be used by harbormasters around the state and other interested parties. Microsoft Visual Basic is used to make the Excel file user friendly for data input and to automate the calculation and printing steps. Our experience in developing this model for use by harbormasters and the general public demonstrates our ability to develop a spreadsheet model for the Authority that meets its requirements.

18. Economic and Demographic Model (EDMs).

Northern Economics, working with the Arctic Slope Consulting Group, developed a spreadsheet-based EDM that was employed in evaluating transportation projects in 231 communities that were included in a long range transportation plan developed for the U.S. Bureau of Indian Affairs in 1989. [Juneau Area Transportation Plan, Technical Memoranda 1-5, USBIA, June 1989.] Since 1989 these models have been expanded and updated for several coastal communities including Dutch Harbor/Unalaska on the Bering Sea and King Cove in the Gulf of Alaska. A substantial portion of this model can be directly incorporated into the Authority's model to estimate the benefits accruing to river and coastal communities from LPG- and LNG-fired power generation and heating.

Additional Resources

In addition to the studies described above that were prepared by Northern Economics, there are several other reports and publications in our library that will be used to aid us in preparing the spreadsheet model. These reports include the following:

19. *Backbone. Alaska's Gas Alaska's Future: Briefing Book. January, 2001.*
20. *The Dow-Shell Group. Alaska petrochemical industry feasibility study. 1981.*
21. *Econ One Research, Inc. Alaska Gas and NGL: Economic Analysis of Value and Royalty. Prepared for the Alaska Department of Natural Resources Oil and Gas Division. January 2002.*
22. *Institute of Social and Economic Research, University of Alaska. Marginal Oil Field Development: The Economic Impact. June, 1995.*
23. *Stone & Webster Engineering Corporation. Estimated Costs and Environmental Impacts of a Natural Gas Pipeline System Linking Fairbanks with Cook Inlet Area. Prepared for the Alaska Power Authority. January 1989.*
24. *Zobrist, Daniel H. Alaska Department of Natural Resources, Division of Oil and Gas. The Potential In-State Demand for Alaska North Slope Gas. Prepared for RIK/RIV Committee of the North Slope Gas Commercialization Team. October 1, 1997.*

Northern Economics Key Personnel

Northern Economics consultants have years of experience working with Alaska's Oil and Gas Industry, helping both private entities and the agencies and federal, state and local governments that work with private companies to develop this resource.

We have selected four of our most highly qualified and experienced personnel to work on this project. Their profiles are provided below. More complete resumes are attached on the following pages.

Patrick Burden, President and Principal Economist

Mr. Burden has completed many projects for the oil and gas industry, including an analysis of socioeconomic impacts from potential changes in state oil and gas taxation and incentives for North Slope development for the Oil and Gas Policy Council of the Alaska Department of Commerce and Economic Development. Other projects include an evaluation of the availability of the number of persons available in Alaska that have skills necessary for module construction and the wages necessary to attract persons with these skills from the U.S. Gulf Coast, a study of the economic and employment effects of OCS oil exploration in The Bering Sea, and socioeconomic evaluations of development of the Point McIntyre oil and gas reserves, and construction and operation of GHX-1 and GHX-2 gas handling facilities.

International projects include his evaluation of the competitive position of Alaskan oil field services companies and manufacturers in the Russian Far East to competing firms from other Pacific Rim countries, review of a proposal for feasibility study financing for a private power project in Cote d' Ivoire, for the U.S. Trade and Development Agency, technical review of a feasibility analysis for a petroleum refinery and loading terminal on Sakhalin Island, Russia, and preliminary feasibility analysis and primary authorship of a successful application to the U.S. Trade and Development Agency for financing a petroleum refinery in the Nenets Autonomous Region, Russian Federation.

Mr. Burden has served as the U.S. Co-Chair of the Finance Committee of the U.S.-Russia Bilateral Commission Ad Hoc Working Group. The Group is a private-sector-oriented organization tasked with identifying impediments to trade and commerce between the U.S. West Coast and the RFE. He is a member of the International Association for Energy Economics, and past president of Anchorage chapter. He is also a member of Commonwealth North, and the Finance Committee for the Alaska-Sakhalin Island Working Group. He holds a master's degree in Economic Geography from Portland State University.

Leah Cuyno, Ph.D., Economist

Dr. Cuyno has conducted several feasibility and economic impact assessments for Northern Economics. Current projects include an economic impact assessment of exploration, development and production of natural gas for Anadarko's Alaska Project, and an analysis of impacts of construction and operations of gas pipeline options and related development projects for Alaska Gas Producers Pipeline Team (AGPPT). She has also recently completed an evaluation of the feasibility of rural energy projects and is involved with the development of business plans to ensure sustainability of tank farms in rural Alaska. In addition, she is estimating economic impacts of several infrastructure projects in rural Alaska using input-output analysis. Prior to joining Northern Economics, Dr. Cuyno worked as an economist for a non-government organization specializing in resource economics and environmental policy in the Philippines. Her work and research in the Philippines examined poverty alleviation, use of market-based instruments for environmental management, and resource accounting using market and non-market valuation. Dr. Cuyno received her Ph.D from Virginia Tech University in 1999 in Environmental Economics.

Ken Lemke, Ph.D., Economist

Dr. Lemke's primary focus for Northern Economics is on transportation economics and community development. His current and recent projects include conducting a benefit-cost analysis of Yukon River port and road network to support mineral development in Tintina Gold Belt; developing long-range traffic forecasts for access alternative (with and without a bridge) between South Naknek and Naknek and King Salmon for the Naknek Crossing Intermodal Economic Impact and Airport Use Study; and developing a user-friendly, spreadsheet-based Harbor Impact Model for Alaska communities, for the Alaska Department of Transportation and Public Facilities.

Dr. Lemke came to Northern Economics from Peru State College (PSC) where he served as Director of Regional Development. He also served as Manager of Business Research for Data Transmission Network (DTN), and as an Economist for the Nebraska Department of Economic Development (NDED). At PSC, he supervised the Peru Office of the Nebraska Business Development Center and was responsible for labor surveys, market studies, and strategic planning efforts to support local and regional economic development activities in nineteen rural counties of Southeast Nebraska. While at PSC he conducted multi-county labor studies and a market study for educational-based tourism opportunities in southeastern Nebraska.

At DTN, Dr. Lemke planned, developed and managed over twenty-five new product and customer satisfaction market research projects and managed a research staff consisting of an Economist and three

research analysts. At NDED Dr. Lemke conducted economic impact analysis for two automobile assembly plant projects, a computer chip manufacturing project, a plastics manufacturing project and the Nebraska ethanol industry.

Dr. Lemke is a graduate of the Economic Development Institute, a past president of the Nebraska Development Network's Southeast Regional Group, a former board member of the Nebraska Economic Developers Association and Nebraska Development Network, and a Fellow of the University of Nebraska's Center for Applied Rural Innovation. He has served on statewide transportation and labor force development committees and taskforces.

C: Kerr, MBA, Analyst

Mr. Kerr holds two master's degrees from the University of Alaska, Anchorage, including an MBA. With this background, he worked as an Investment Officer with the former Alaska Renewable Resources Corporation (ARRC), a venture capital firm established to develop businesses in the forestry, fishing, farming and renewable energy sectors.

Cal Kerr's work for Northern Economics focuses on feasibility studies, project management, and financial analysis. His ongoing and recently completed work includes a water export study, a vegetable market analysis, and a market and financial feasibility study for a proposed expansion of an Anchorage Neighborhood Health Center facility, for all of which he served as project manager and provided market analysis.

Cal has been involved in Alaska natural resource projects since he first began work in Ketchikan in 1974. Before coming to Northern Economics, he was a Project Manager and network administrator for an environmental consulting firm. He has also worked as a forester with fieldwork extending from Ketchikan and Prince of Wales Island, to Amber, Fort Yukon, and Sleetmute. He is familiar with remote Alaska conditions and economic constraints, as well as transportation issues throughout all seasons. He was the director of the Alaska State Forest Nursery and, later, operated a tree seed business specializing in Alaska spruce. He has also served as the Biomass Specialist for the Alaska Energy Authority.

From 1982 to 1992 Mr. Kerr was sole proprietor of a forestry and business management consulting company. During this time, he also taught courses at the Anchorage Community College, in Business Management. He has also served as the Biomass Specialist for the Alaska Energy Authority.

Attachments: Resumes and Work Samples

Resumes for the key personnel listed above are provided on the following pages. For more information on Northern Economics and our staff, please visit www.northerneconomics.com.

Four work samples are also included with this file on the CD. These include:

- Cook Inlet Gas Supply and Demand
- Economic Impacts of Anadarko Exploration, Development and Production of Alaska North Slope Foothills Gas Operations
- Chapter Six of the RTA Dalton to Nuiqsut Economic Analysis
- Screening Report for Rural Energy Plan



Alaska Division of Elections

INITIATIVE PETITION BILL LANGUAGE by Petition Sponsors

Petition ID: 01GSLN

The All-Alaskan Gasline Initiative:

An Act establishing the Alaska Natural Gas Development Authority,
to maximize revenues for Alaska and jobs and gas for Alaskans

Posted 9/20/01

Proposed Bill:

BE IT ENACTED BY THE PEOPLE OF THE STATE OF ALASKA:

* Section 1. The uncodified law of the State of Alaska is amended by adding a new section to read:

FINDINGS AND INTENT. (a) The people find that

1. The Phillips-Marathon liquefaction facility at Nikiski has been supplying Cook Inlet natural gas to Japan and Southcentral Alaska at great profit and without interruption since 1969;
2. Cook Inlet gas supplies are dwindling rapidly with shortfalls anticipated as early as the winter of 2003;
3. Alaska's North Slope contains vast proven reserves of natural gas that have been known for at least 25 years but have never been developed;
4. these gas resources have never been offered for sale, because there has been no way to transport them to market;
5. multiple markets in North America and Asia have recently expressed an interest in receiving a proposal from Alaska for the purchase of Alaska gas;
6. if developed, these natural gas resources could represent substantial economic benefits to Alaskans in jobs, state revenue, and gas for Alaska citizens and businesses;
7. the major North slope leaseholders have competing gas reserves in other parts of the world vying for the same markets, creating a conflict of interest for them in advancing the sales of Alaska gas;
8. the North slope Producers agreed in 1991 to strand North Slope gas until at least 2005;
9. given the producer's conflicts of interest and their historic refusal to make North Slope natural gas available it may be necessary to take the gas back;
10. the permits necessary for an Alaskan gasline project have been pledged to the Alaska Natural Gas Development Authority, operating as a port authority, to facilitate the development of the project;

11. there is sufficient gas for an all-Alaskan gasline project;
12. the Alaska Natural Gas Development Authority offers substantial tax benefits that improve the economics of a gasline project;
13. state ownership of the pipeline and associated facilities has the potential to provide substantial revenues to the state and the Alaska Permanent Fund; and
14. Alaska's constitution requires that Alaska's resources are developed, utilized, and conserved for the maximum benefit of Alaska's people.
15. an all-Alaskan gasline maximizes jobs for Alaskans, revenues for the Alaskan treasury, and access to gas for Alaskans.

(b) It is the intent of this Act to create the All-Alaskan Natural Gas Development Authority for the purpose of developing, constructing, managing, and operating a gas pipeline from the North Slope of Alaska and a spur line to the Southcentral Alaska natural gas distribution grid.

*Sec. 2. AS 41 is amended by adding a new chapter to read:

**Chapter 41. Alaskan Natural Gas Development Authority.
Article 1. Establishment of the Authority.**

Sec. 41.41.010. Establishment of the authority. (a) There is established the Alaska Natural Gas Development Authority, the purpose of which is to provide one or more of the following services and functions in order to bring natural gas from the North Slope to market, including

1. the acquisition and conditioning of North Slope natural gas;
2. the design and construction of the pipeline system;
3. the operation and maintenance of the pipeline system;
4. the design, construction, operation, of other facilities necessary for delivering the gas to market and to Southcentral Alaska; and
5. the acquisition of natural gas market share sufficient to ensure the long-term feasibility of the pipeline system project.

(b) The authority is a public corporation and an instrumentality of the state within the Department of Revenue.

(c) The authority has a legal existence independent of and separate from the state.

(d) The acquisition of natural gas from the North Slope and its delivery to tidewater for shipment to market by the authority is an essential government function of the state.

(e) The authority may not be terminated as long as it has bonds, notes, or other obligations outstanding.

Sec. 41.41.020. Authority governing body. (a) The authority shall be governed by a board of directors consisting of seven members from the general public appointed by the Governor and confirmed by the legislature.

(b) The board shall annually elect a chair, and may elect other officers, from among its members.

Sec. 41.41.030. Term of office. (a) The members of the board shall be appointed for terms of three years, and they may be reappointed.

(b) The terms of the members shall be staggered.

Sec. 41.41.040. Removal and vacancies. (a) The governor may remove a member of the board from office. A removal must be in writing and must state the reason for the removal. A member who is removed may not participate in board business and may not be counted for purposes of establishing a quorum after the member receives written notice of removal. A member who is removed is not entitled to honoraria, per diem, or travel expenses authorized under AS 41.41.060 for work performed after the member receives the written notice of removal.

(b) The governor shall promptly fill a vacancy on the board by appointment. An appointee to a vacancy shall hold office for the balance of the term for which the appointee's predecessor on the board was appointed.

(c) A vacancy on the board does not impair the authority of a quorum of the board to exercise all the powers and perform all the duties of the board.

Sec. 41.41.050. Quorum and voting. Four members of the board constitute a quorum for the transaction of business and the exercise of the powers and duties of the board. Action may be taken only upon the affirmative vote of a majority of the full membership of the board.

Sec. 41.41.060. Compensation of board members; per diem and travel expenses. Members of the board are entitled to per diem and travel expenses authorized for boards and commissions under AS 39.20.180.

Sec. 41.41.070. Authority staff. (a) The board may employ and determine the salary of a chief executive officer.

(b) The chief executive officer may, with the approval of the board, select and employ additional staff as necessary.

(c) An employee of the authority, including the chief executive officer, may not be a member of the board. The chief executive officer and the other employees of the board are in the exempt service under AS 39.25.110.

(d) In addition to its employees, the authority may contract for and engage the services of bond counsel, consultants, experts, and financial advisors the corporation considers necessary for the purpose of developing information, furnishing advice, or conducting studies, investigations, hearings, or other proceedings.

Sec. 41.41.080. Legal counsel. The attorney general

1. is the legal counsel for the authority;
2. shall advise the authority in legal matters; and
3. shall represent the authority in legal actions.

Sec. 41.41.090. Conflicts of interest. (a) Members of the board and the chief executive officer of the authority are subject to the provisions of AS 39.50.

(b) If a member of the board or an employee of the authority acquires, owns, or controls an interest, direct or indirect, in an entity or project in which assets of the authority are invested, the member shall immediately disclose the interest to the board. The disclosure is a matter of public record and shall be included in the minutes of the first board meeting following the disclosure.

Sec. 41.41.100. Budget. The revenue earned by operations of the authority must be identified as the source of the operating budget of the authority in the state's operating budget under AS 37.07 (Executive Budget Act).

Sec. 41.41.110. Audits. The Legislative Budget and Audit Committee may provide for an annual post audit and annual operational and performance evaluations of the authority's operations and budget.

Sec. 41.41.120. Reports and publications. (a) By September 30 of each year, the board shall publish a report of the authority for distribution to the governor and the public. The board shall notify the legislature that the report is available.

(b) The report must include financial statements audited by independent outside auditors and a statement of the amount of money received by the authority from its operations during the period covered.

Sec. 41.41.130. Tax exemption. The security instruments issued by the authority, the transfer of the security instruments, and the income on the security instruments are exempt from all taxes and assessments in the state.

Sec. 41.41.140. Political activities. The resources of the authority may not be used to finance or influence political activities.

Sec. 41.41.150. Public access to information. (a) Information in the possession of the authority is a public record, except that information that discloses the particulars of the business or affairs of a private enterprise or investor is confidential and is not a public record for purposes of AS 40.25.110 - 40.25.140. Confidential information may be disclosed only for the purposes of an official law enforcement investigation or when its production is required in a court proceeding.

(b) The restrictions of (a) of this section do not prohibit the publication of statistics presented in a manner that prevents the identification of particular reports, items, persons, or enterprises.

Article 2. Powers of the Authority.

Sec. 41.41.200. Powers of the authority. In furtherance of its corporate purposes, in addition to its other powers, the authority may

1. sue and be sued;
2. adopt a seal;
3. adopt, amend, and repeal bylaws and regulations;
4. make and execute contracts and other instruments;
5. in its own name acquire property, lease, rent, convey, or acquire real and personal property; a project site or part of a project site may be acquired by eminent domain;
6. acquire natural gas supplies;
7. issue bonds and otherwise incur indebtedness in accordance with AS 41.41.300 - 41.41.410 in

order to pay the cost of a project;

8. accept gifts, grants, or loans from and enter into contracts or other transactions regarding gifts, grants, or loans with a federal agency or an agency or instrumentality of the state, a municipality, private organization, or other source;
9. enter into contracts or agreements with a federal agency, agency or instrumentality of the state, municipality, or public or private individual or entity, with respect to the exercise of its powers;
10. charge fees or other forms of remuneration for the use of authority properties and facilities;
11. defend and indemnify a current or former member of the board or an employee or agent of the authority against the costs, expenses, judgments, and liabilities as a result of actions taken in good faith on behalf of the authority; and
12. purchase insurance to protect its assets, services, and employees against liabilities that may arise from authority operations and activities.

Article 3. Revenue Bonds and Notes.

Sec. 41.41.300. Bonds and notes of the authority. (a) The authority, by resolution, may issue revenue bonds and bond anticipation notes in order to provide funds to carry out the purposes set out in AS 41.41.010(a).

(b) The principal and interest on the revenue bonds or notes authorized and issued under (a) of this section are payable from authority funds. Bond anticipation notes may be payable from the proceeds of the sale of bonds or from the proceeds of the sale of other bond anticipation notes or, in the event bond or bond anticipation note proceeds are not available, the notes may be paid from other funds or assets of the authority.

(c) Bonds or notes may be additionally secured by a pledge of a grant or contribution from the federal government, or a corporation, association, institution, or person, or a pledge of money, income, or revenues of the authority from any source.

(d) Bonds or bond anticipation notes of the authority may be issued in one or more series and shall be dated, bear interest at the rate or rates per year or within the maximum rate, be in the denomination, be in the form, either coupon or registered, carry the conversion or registration provisions, have the rank or priority, be executed in the manner and form, be payable at the times, from the sources, and in the medium of payment and place or places within or outside the state, be subject to authentication by a trustee or fiscal agent, and be subject to the terms of redemption with or without premium, as the resolution of the authority may provide. Bond anticipation notes shall mature at the time or times that are determined by the authority. Bonds shall mature at a time not exceeding a number of years from their date that is determined by the authority. Before the preparation of definitive bonds or bond anticipation notes, the authority may issue interim receipts or temporary bonds or bond anticipation notes, with or without coupons, exchangeable for bonds or bond anticipation notes when these definitive bonds or bond anticipation notes have been executed and are available for delivery.

(e) Bonds or bond anticipation notes may be sold in the manner and on the terms the authority determines.

(f) If an officer whose signature or a facsimile of whose signature appears on a bond, note, or coupon attached to them ceases to be an officer before the delivery of the bond, note, or coupon, the signature or facsimile is valid to the same extent as if the officer had remained in office until delivery.

Sec. 41.41.310. Covenants. In a resolution of the authority authorizing or relating to the issuance of bonds or bond anticipation notes, the authority has power by provisions in the resolution that will constitute covenants of the authority and contracts with the holders of the bonds or bond anticipation notes to

1. pledge to a payment or purpose all or a part of its revenues to which its right then exists or may thereafter come into existence, and the money derived from the revenues, and the proceeds of bonds or notes;
2. covenant as to the use and disposition of payments of principal or interest received by the authority on loans or other investments held by the authority;
3. covenant as to establishment of reserves or sinking funds and the making of provision for and the regulation and disposition of the reserves or sinking funds;
4. covenant with respect to or against limitations on a right to sell or otherwise dispose of property of any kind;
5. covenant as to bonds and notes to be issued, and their limitations, terms, and conditions, and as to the custody, application, and disposition of the proceeds of the bonds and notes;
6. covenant as to the issuance of additional bonds or notes, or as to limitations on the issuance of additional bonds or notes and the incurring of other debts;
7. covenant as to the payment of the principal of or interest on the bonds or notes, as to the sources and methods of the payment, as to the rank or priority of the bonds or notes with respect to a lien or security, or as to the acceleration of the maturity of the bonds or notes;
8. for the replacement of lost, stolen, destroyed, or mutilated bonds or notes;
9. covenant as to the redemption of bonds or notes and privileges of their exchange for other bonds or notes of the authority;
10. covenant to create or authorize the creation of special funds of money to be held in pledge or otherwise for operating expenses, payment or redemption of bonds or notes, reserves, or other purposes;
11. establish the procedure, if any, by which the terms of a contract or covenant with or for the benefit of the holders of bonds or notes may be amended or abrogated, the amount of bonds or notes the holders of which must consent to amendment or abrogation, and the manner in which the consent may be given;
12. covenant as to the custody of property or investments, their safekeeping and insurance, and the use and disposition of insurance money;
13. agree with a corporate trustee that may be a trust company or bank having the powers of a trust company within or outside the state as to the pledging or assigning of revenue or funds to which or in which the authority has rights or an interest; the agreement may further provide for other rights and remedies exercisable by the trustee as may be proper for the protection of the holders of a bond or note of the authority and not otherwise in violation of law and may provide for the restriction of the rights of an individual holder of bonds or notes of the authority;
14. appoint and provide for the duties and obligations of a paying agent or paying agents or other fiduciaries as the resolution may provide within or outside the state;
15. limit the rights of the holders of a bond or note to enforce a pledge or covenant securing the bonds or notes;
16. make covenants other than and in addition to the covenants expressly authorized in this section of like or different character, and to make covenants to do or refrain from doing acts and things as may be necessary or convenient and desirable in order to better secure bonds or notes or that, in the absolute discretion of the authority, will tend to make bonds or notes more marketable, notwithstanding that the covenants, acts, or things may not be enumerated in this section.

Sec. 41.41.320. Limitations of issuance of bonds. (a) The authority may not issue bonds in an amount that exceeds the amount of bonds authorized to be issued by the legislature.

(b) This section does not apply to the issuance by the authority of refunding bonds or to the issuance by the authority of bonds the proceeds of which are intended to be used to refinance the loans held by the authority.

Sec. 41.41.330. Independent financial advisor. In negotiating the private sale of bonds or bond anticipation notes to an underwriter, the authority may retain a financial advisor. A financial advisor retained under this section must be independent from the underwriter.

Sec. 41.41.340. Validity of pledge. (a) The pledge of assets or revenue of the authority to the payment of the principal or interest on an obligation of the authority is valid and binding from the time the pledge is made, and the assets or revenue become immediately subject to the lien of the pledge without physical delivery or further act. The lien of a pledge is valid and binding against all parties having claims in tort, contract, or otherwise against the authority, irrespective of whether those parties have notice of the lien of the pledge.

(b) This section does not prohibit the authority from selling assets subject to a pledge, except that a sale may be restricted by the trust agreement or resolution providing for the issuance of the obligations.

Sec. 41.41.350. Capital reserve funds. (a) For the purpose of securing one or more issues of its obligations, the authority may establish one or more special funds, called "capital reserve funds," and shall pay into those capital reserve funds (1) money appropriated and made available by the state for the purpose of those funds, (2) proceeds of the sale of its obligations, to the extent provided in the resolution or resolutions of the authority authorizing their issuance, and (3) other money that may be made available to the authority for the purpose of those funds from another source. All money held in a capital reserve fund, except as provided in this section, shall, subject to appropriation, be used as required solely for the payment of the principal of obligations or of the sinking fund payments with respect to those obligations; the purchase or redemption of obligations; the payment of interest on obligations; or the payment of a redemption premium required to be paid when those obligations are redeemed before maturity. However, money in a fund may not be withdrawn from that fund at any time in an amount that would reduce the amount of that fund to less than the capital reserve requirement set out in (b) of this section, except for the purpose of making, with respect to those obligations, payment, when due, of principal, interest, redemption premiums, and the sinking fund payments for the payment of which other money of the authority is not available. Income or interest earned by, or increment to, a capital reserve fund due to the investment of the fund or other amounts in it may be transferred by the authority to other funds or accounts of the authority to the extent that the transfer does not reduce the amount of the capital reserve fund below the capital reserve fund requirement.

(b) If the authority decides to issue obligations secured by a capital reserve fund, the obligations may not be issued if the amount in the capital reserve fund is less than a percent, not exceeding 10 percent, of the principal amount of all of those obligations secured by that capital reserve fund then to be issued and then outstanding in accordance with their terms, as may be established by resolution of the authority, called the "capital reserve fund requirement," unless the authority, at the time of issuance of the obligations, deposits in the capital reserve fund from the proceeds of the obligations to be

issued or from other sources an amount that, together with the amount then in the fund, will not be less than the capital reserve fund requirement.

(c) In computing the amount of a capital reserve fund for the purpose of this section, securities in which all or a portion of the funds are invested shall be valued at par or, if purchased at less than par, at amortized costs as the term is defined by resolution of the authority authorizing the issue of the obligations or by some other reasonable method established by the authority by resolution. Valuation on a particular date must include the amount of interest earned or accrued to that date.

(d) To assure the continued operation and solvency of the authority for the carrying out of its corporate purposes, provision is made in (a) of this section for the accumulation in capital reserve funds of an amount equal to their capital reserve fund requirement.

(e) The chair of the authority shall annually, not later than January 2, make and deliver to the governor and chairs of the house and senate finance committees a certificate stating the sum, if any, required to restore a capital reserve fund to the capital reserve fund requirement. The legislature may appropriate that sum, and all sums appropriated during the current fiscal year by the legislature for the restoration shall be deposited by the authority in the appropriate capital reserve fund.

(f) This section does not create a debt or liability of the state.

Sec. 41.41.360. Remedies. A holder of obligations or coupons attached to them issued under the provisions of this chapter, and a trustee under a trust agreement or resolution authorizing the issuance of the obligations, except as restricted by a trust agreement or resolution, either at law or in equity, may enforce all rights granted hereunder or under the trust agreement or resolution, or under another contract executed by the authority under this chapter, and may enforce and compel the performance of all duties required by this chapter or by the trust agreement or resolution to be performed by the authority or by an officer of it.

Sec. 41.41.370. Negotiable instruments. All obligations and interest coupons attached to them are negotiable instruments under the laws of this state, subject only to applicable provisions for registration.

Sec. 41.41.380. Obligations eligible for investment. Obligations issued under the provisions of this chapter are securities in which all public officers and public bodies of the state and its political subdivisions, all insurance companies, trust companies, banking associations, investment companies, executors, administrators, trustees, and other fiduciaries may properly and legally invest funds, including capital in their control or belonging to them. These obligations may be deposited with a state or municipal officer of an agency or political subdivision of the state for a purpose for which the deposit of bonds, notes, or obligations of the state is authorized by law.

Sec. 41.41.390. Refunding bonds. (a) The authority may provide for the issuance of refunding bonds for the purpose of refunding an obligation then outstanding that has been issued under the provisions of this chapter, including the payment of redemption premium on them and interest accrued or to accrue to the date of redemption of the obligations. The issuance of the bonds, the maturities and other details of them, the rights of the holders of them, and the rights, duties, and obligations of the authority in respect of them are governed by the provisions of this chapter that relate to the issuance of obligations insofar as those provisions may be appropriate.

(b) Refunding bonds may be sold or exchanged for outstanding bonds issued under this chapter, and, if sold, the proceeds may be applied, subject to appropriation and in addition to another authorized purpose, to the purchase, redemption, or payment of the outstanding obligations. Pending the application of the proceeds of refunding bonds, with any other available funds, to the payment of the principal, accrued interest, and redemption premium on the obligations being refunded, and, if so provided or permitted in the resolution authorizing the issuance of the refunding bonds or in the trust agreement securing them, to the payment of any interest on the refunding bonds and expenses in connection with the refunding, the proceeds may be invested in direct obligations of, or obligations the principal of and the interest on which are unconditionally guaranteed by, the United States that mature or that will be subject to redemption, at the option of the holders of them, not later than the respective dates when the proceeds, together with the interest accruing on them, will be required for the purposes intended.

Sec. 41.41.400. Credit of state not pledged. (a) Obligations issued under the provisions of this chapter do not constitute a debt, liability, or obligation of the state or of a political subdivision of the state or a pledge of the faith and credit of the state or of a political subdivision of the state but are payable solely from the revenue or assets of the authority. Each obligation issued under this chapter must contain on its face a statement that the authority is not obligated to pay it or the interest on it except from the revenue or assets of the authority and that neither the faith and credit nor the taxing power of the state or of a political subdivision of the state is pledged to the payment of the principal of or the interest on the obligation.

(b) Expenses incurred by the authority in carrying out the provisions of this chapter are payable from funds provided under this chapter, and liability may not be incurred by the authority in excess of these funds.

Sec. 41.41.410. Officers not liable. A member or other officer of the authority is not subject to personal liability or accountability by reason of having executed or issued an obligation.

Article 4. Property of the Authority.

Sec. 41.41.450. Property of the authority. The authority may acquire, by purchase, lease, or gift, upon terms that it considers proper, land, structures, real or personal property rights, rights-of-way, franchises, easements, and other interests in land it considers necessary or convenient for the financing of the project or a part of the project.

Article 5. Project Construction.

Sec. 41.41.500. Contract terms relating to use of Alaska resources. (a) The authority shall enter into one or more prehire project term agreements with labor organizations that (1) contain no-strike clauses; and (2) secure timely completion of the project and maximum employment opportunities for state residents.

(b) To maximize the economic benefits of the project to Alaskan businesses, the authority shall use Alaska contractors and suppliers to the maximum extent possible to take advantage of the Alaska experience in Arctic engineering and construction.

Article 6. General Provisions.

Sec. 41.41.900. Tax exemption. All obligations issued under this chapter are declared to be issued