

# The Sakhalin-II Project: The Strategic Energy Partnership with Japan for the 21<sup>st</sup> century.

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IEEJ Tokyo 13 December 2004

## APEC, Bangkok, October 2003



"Russia is also prepared to make its contribution to creating a new energy configuration in the Asian and Pacific Region. For example, in 2007 it is planned to open a factory for liquifying natural gas on Sakhalin – one of the largest (LNG) factories in the world."

President Vladimir Putin

## Definition of Strategic Partnership (Oxford Dictionary)

- Strategic adjective [usually attributed to] 1 of strategy, forming part of a plan or scheme; strategic(al) decisions. 2 giving an advantage; right for a particular purpose; a strategic position, move...
- Partner noun a person who takes part in an activity with another or others, especially of one of several ownership of business...

Partnership noun state of being a partner or partners,

especially in business...

"cooperation"
"long-term"
"mutual benefit"
"risk sharing"
"common goals"



## Our Strategic Partnership with Japan



#### **Japan is our Core Market**

- Customers
  - Crude and LNG
- > Shareholders include
  - Mitsui and Mitsubishi
- Contractors
- Shipping
- > Lenders
- Proximity and historical ties

## Competing Concepts for Russian Resources



## Sakhalin II Project Overview

### In Our Presentation I Shall Cover:

- Introduction Sakhalin Island
- Sakhalin Energy and its Organization
- Sakhalin II Project:
  - Phase 1 Oil Production
  - Four Landmark LNG Sales
  - Phase 2 IntegratedOil and Gas Production
  - Progress in LNG Marketing
- Sakhalin The Strategic
   Supply Source for Japan



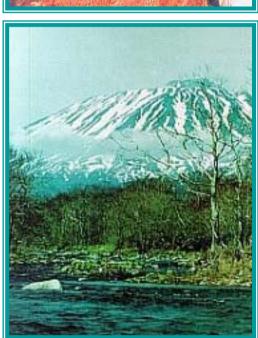
### Sakhalin at a Glance



- Sakhalin Region formed 1947
- Territory 87,100 Km2
- Population 608,000
- Capital Yuzhno-Sakhalinsk
- Sakhalin Regional "Oblast"
- Legislature is Sakhalin Duma
- Main industry is fishing, timber, and oil & gas export
- 2/3 of Sakhalin area is mountainous
- Large temperature differences
   -54 C Winter and +38C in Summer

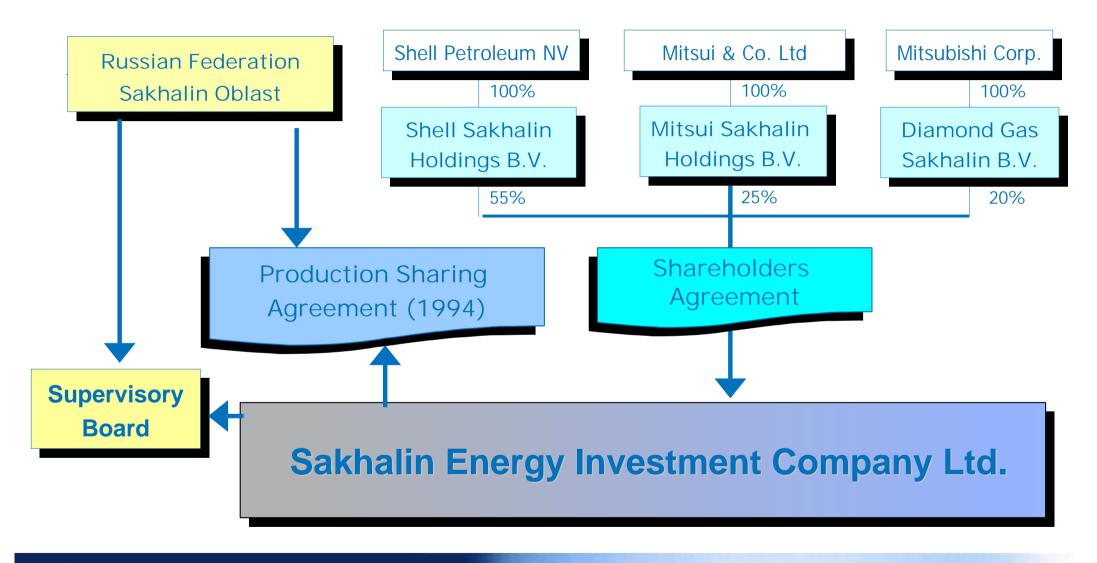
## Sakhalin Island Geography





- Sakhalin Island stretches 948 km from north to south
  - Maximum width is 160 km, minimum 30 km
- 2/3 of Sakhalin area is mountainous
  - Highest mountain is Lopatin (1,609 m)
  - Two mud volcanoes and more than 60,000 rivers /streams
- Lakes number 16,000+. The largest is Nevskoye (178 km²)
- Large temperature difference between North & South
  - Winter average varies between minus 6 & minus 24°C, and in summer between plus 10 & plus 19°C (record : minus 54°C in Winter and plus 38°C in Summer)
- Most productive areas of ocean in the world
  - The Sakhalin coast and basin alongside Kuril Islands is Russia's largest fishing ground

## Sakhalin Energy - PSA Structure



## Sakhalin Energy Staffing

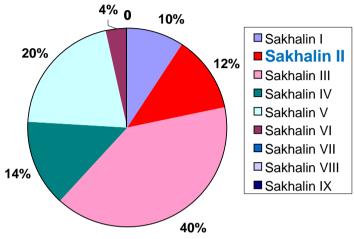


Sakhalin Shelf: Hydrocarbons

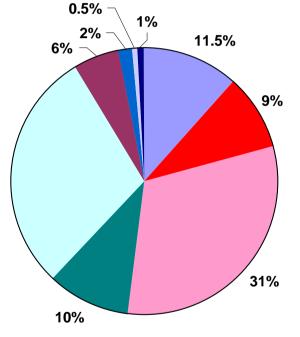
**In-Place** 

29%

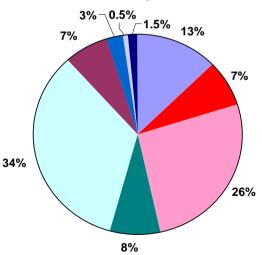


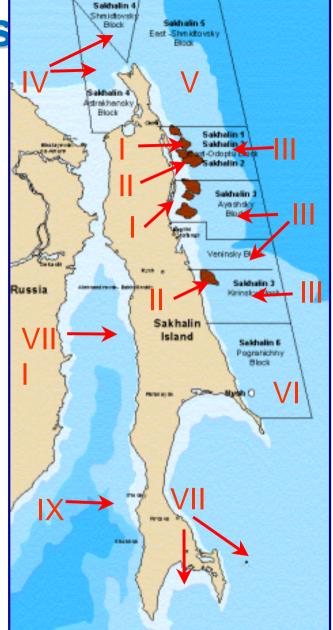


#### **BOE In-Place (94,300 MMboe)**

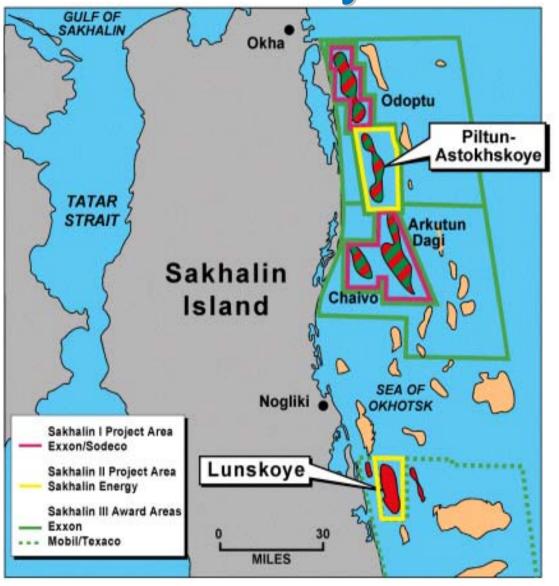


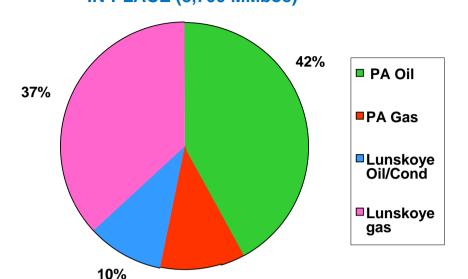
#### OIL-IN-PLACE (60,500 MMbbls)





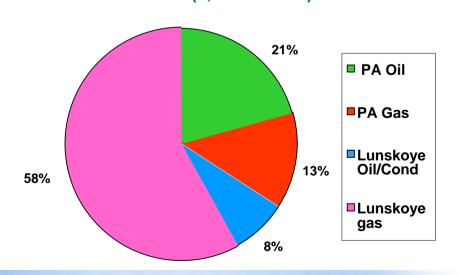
## Sakhalin II Hydrocarbon Resources IN-PLACE (8,700 MMboe)





11%

**RECOVERABLE (4,900 MMboe)** 



Sakhalin II Project: Phase 1

Vityaz Complex: Molikpaq, SALM and FSO First offshore oil production in Russia Produces during six month ice free summer season 60-70,000 b/d oil production





Oil Production

2000 12.4 million bbls

2001 15.1 million bbls

2002 10.8 million bbls

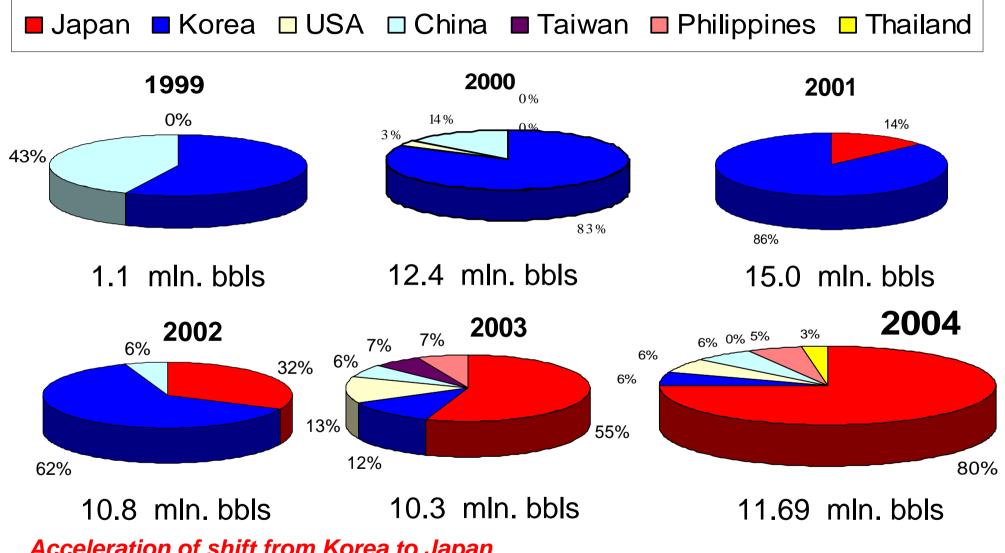
2003 10.3 million bbls

2004 11.69 million bbls

## **Supplying Crude Oil to Customers Since 1999**



### Sakhalin Vityaz Crude Oil Sales 1999 - 2004



Acceleration of shift from Korea to Japan



## Our Crude Oil Customers in Japan









MITSUI & CO., LTD.

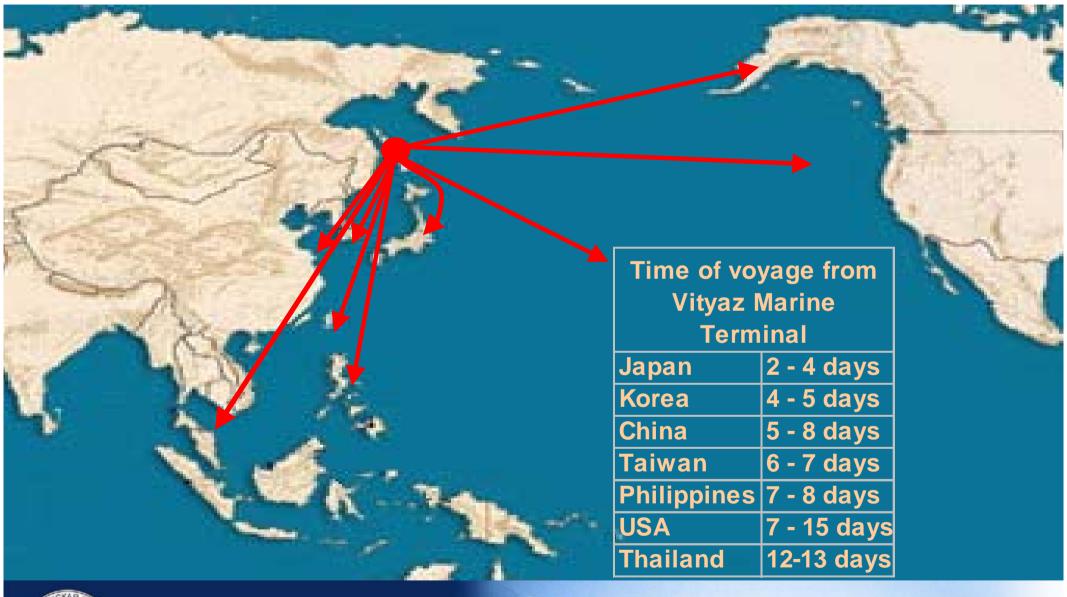




- Showa Shell



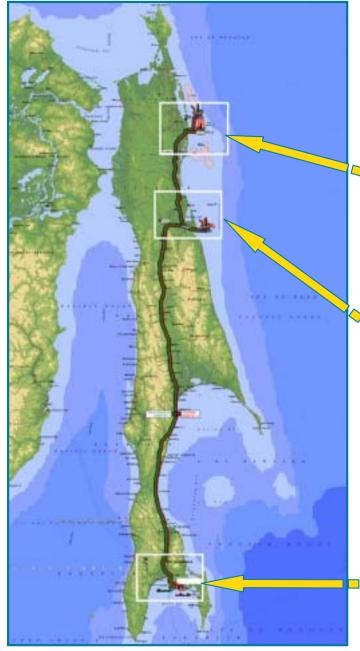
### Cargo Destinations 1999 - 2004



## Declaration of Development Date Announced – May 15, 2003



- Sakhalin Energy and shareholders took Final Investment Decision on \$10 billion + Phase 2 project
- Declared Development Date for the Lunskoye Field
- First sale of Russian gas into the Asia-Pacific markets with Japanese customers
- Russian Government provided assurance on long term PA/Lunskoye PSA license security
- Launched Phase 2 Project Financing
- Awarded major Phase 2 contracts



## Sakhalin II Project: Phase 2



- Piltun -B Platform.
- Astokh Year Round Production.
- Lunskoye A Platform.
- Onshore Processing Facility.
- 1870 km Oil and Gas Pipelines.
- LNG Plant & Oil Export Terminal.
- Infrastructure Upgrades.









## Phase 2 Project: A Four Year Challenge





- Piltun -B platform
- Lunskoye-A platform

## Offshore platforms

#### Lunskoye

4 leg concrete gravity base. Topsides 22,000 tonnes. Gas production 1800 mmscf/d. 30 well slots.

Possible oil rim production.

#### • Piltun

4 leg concrete gravity base. Topsides 28,000 tonnes. Oil production 70,000 b/d. Gas production 92 mmscf/d. 45 well slots.





## Lunskoye / Piltun GBS Construction at Vostochniy in Summer



**GBS Concrete Base** 

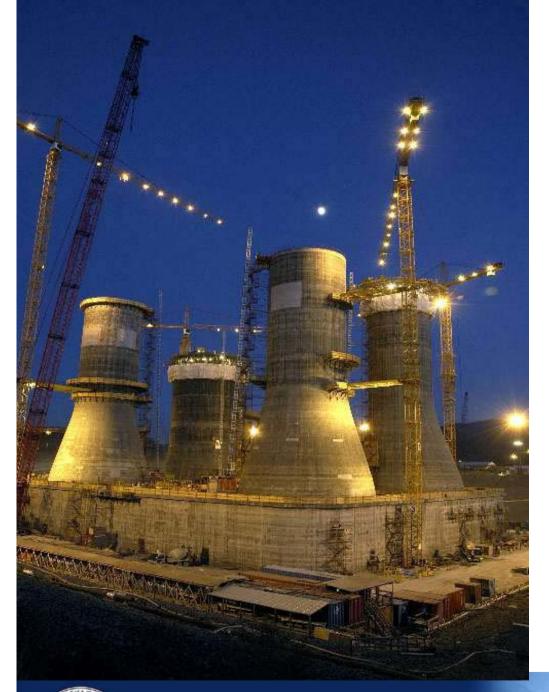




## Lunskoye GBS in October, 2004

First Shaft
Completed 22nd
October 2004





## Lunskoye GBS 3 December, 2004

- The Lunskoye concrete substructure has a total weight of 116,000 tonnes.
- The base is 105 metres by 88 metres and 13.5 metres high.
- The diameter of each leg measures more than 20 metres and they are some 56 metres high.
- Total height of the entire structure is 69.5 metres.

### **Tow to Offshore Location**



#### LUN-A

- Towing distance ≈ 960 nm.
- Duration of tow ≈ 16 days.
- 3 Tugs, each of 150 Tonnes.
- 1 Tug to assist during tow.

#### PA-B

- •Towing distance ≈ 1020 nm.
- Duration of tow ≈ 17 days.
- 3 Tugs, each of 150 Tonnes.
- 1 Tug to assist during tow.

Milestone 5 LUN-A, install 15<sup>th</sup> July 2005. Milestone 6 PA-B, install 15<sup>th</sup> September 2005.

## **Lunskoye – Status**



**Upper Deck Block UD30 Installed** 

## **Lunskoye – Status**



Installation of UD40 with underdeck outfitting in place

### Piltun – Status



PAB Lower Deck Block LD 21 – Turn Over



## Phase 2 Project: A Four Year Challenge







## Onshore Processing Facility

### **OPF – Plant View**



## **OPF – View Looking North**



#### **Piperack Erection**

### **OPF - Status**







**Gas/Liquid Exchanger onto Foundations** 

**Condensate Tank** 

## **OPF - Status**



**Parking Loop Vessel – Loaded onto Foundations** 

## Phase 2 Project: A Four Year Challenge







**Pipelines** 

## Offshore Pipelines – Status



**Cable Casing Pulled to Shore** 



## Offshore Pipelines – Status



**Lunskoye Landfall – Cofferdam with Pull-heads** 



**ROW preparation – Spread # 2** 

## **Onshore Pipelines – Status**



Welding at KP 336

## **Onshore Pipelines – Status**



**Pipelaying in Onor District** 



## **Onshore Pipelines – Status**



**Lowering at KP 589** 

### **Onshore Pipelines - Status**



Commencement of 1<sup>st</sup> weld on 48" pipeline (3<sup>rd</sup> November 2004)

## Phase 2 Project: A Four Year Challenge









## LNG plant and export terminal



## Sakhalin II LNG Plant – Project Dimensions

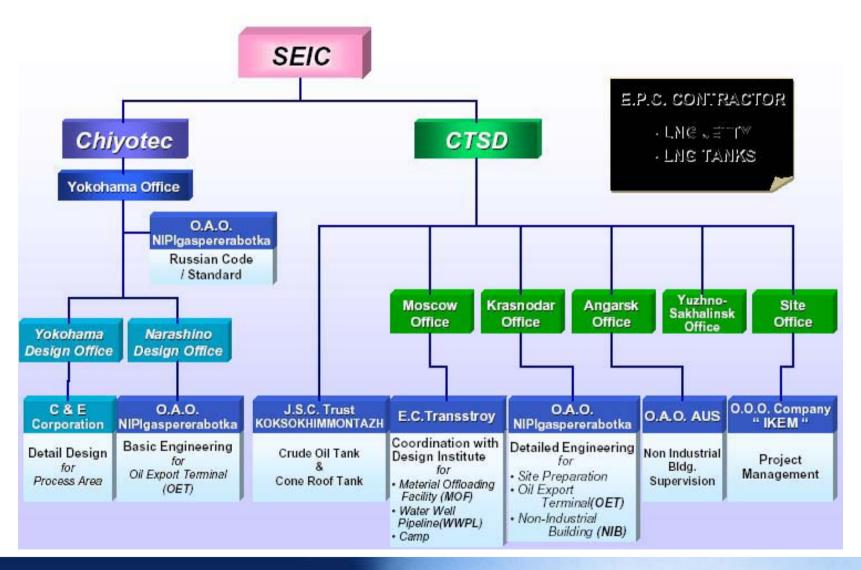
 State-of-the-art LNG processing technology for maximum advantage of Sakhalin climate – more LNG in the winter

Feed gas supplied from dedicated Sakhalin Energy fields

- Plant with two parallel LNG trains
   each producing 4.8 million tons
   LNG per annum largest in the world
- LNG export terminal suitable for wide range of LNG carriers, operating 24 hours a day, 365 days a year
- Engineering completed, construction progressing



#### LNG EPC CONTRACT ORGANISATION



### **LNG/OET Plant Site Overview**



# LNG Plant: Green Field to Construction Site (photographed by Tokyo Gas)

14 July 1998

16 September 2004





### **LNG/OET Status**



**LNG Process Area** 



#### **LNG** – Process Train Foundations



**Process Train-1 PR-101 Base Concreting Block-1** 



Process Train-1 C-1301 ABC Rebar Installation

## **LNG / Oil Export Terminal Status**



**LNG Piperack PR-101** 

## **LNG / Oil Export Terminal Status**



LNG Tank T-3101

## **LNG Material Offloading Facility Status**





**Installing first MOF insert** 

**Installing fourth MOF cell** 





## **Four Landmarks Japanese LNG Sales Agreements**

- ➤ 12 May 2003 HoA signed with Tokyo Gas -1.1 million tonnes a year from 2007 for a period of 24 years.
- 19 May 2003 HoA signed with Tokyo Electric - 1.2 million tonnes a year from 2007 for a period of 22 years, 23 April 2004 TE declared increase of the long term volumes to 1.5 million, and on 5 November full SPA was signed
- 24 July 2003 HOA signed with Kyushu Electric up to 0.5 million tonnes a year from 2009 for a period of 21 years, 9 June 2004 full SPA signed between Kyushu Electric & Sakhalin Energy.
- ➤ 12 March 2004 HOA signed with Toho Gas – 0.3 million tonnes from 2010 for the period of 23 years
- ➤ Total Volume sold to-date to Japan is 3.4 million tonnes per annum



Tokyo Gas HOA Signing Ceremony

## 2004: Toho Gas HoA Signed; Additional Volume



## 2004: Kyushu Electric SPA Signed; Additional Volume



## 2004: Tokyo Electric SPA Signed; Additional Volume



### Sakhalin SPA with Shell Eastern Trading Signed

To Supply (14 October 2004)

America

STREET, STREET, STREET,

A Royal Dutch/Shell-led group by the world's largest liquefied nare plant on Sakhukn Island has cline first soms supply deal in North Arts the group said Thursday.

Sakhnin Energy, which is Japanese trading beases Mittag at tradishi, saidit would supply a top million tons of supercooled gas of years to Mexico and California United States

Sokhalin Energy, which opened Sekhalin-2 project, seed the deal is at frast 56 billion

LNG will be purchased by Sh.

#### OIL & GAS Shell first to supply Russian gas to US

By James Boxell In London

signed a deal to supply 37m by Sempra, the US smergy tonnes of liquefied natural truting group. gas to Mexico and the US west coast, in what it chains cont of Sakhalin 2 alongside | "HM"

reserves in the Rockies. The Mexican LNG plant in Royal Dutch/Shell has Baja California is being built

Shell, which owns to per c will be the first export of two Japanese partners, is itussian gas to north Amer- essentially selling the gas on to itself, under the suspices



"Сахалин-2" прорвался в Америку

Роцион Ленинский Александр Тутуциани

Rosmonna Sakhalin Energy. оператор шельфового просита "Сахалин-2", заключила c ement to "acrest" Shell annтрант на поставку 1.6 жил у в год свиженного врироцио-TO TAKE (CILIT) HER SOMEWHOLD BOTбережье Мексикит и и США. Это первый коптрыкт на поставку российского газа S STOT PERSON.

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10 ОКТЯБРЯ 2004 ГОДА, ВТОРНИК ♦ № 187 (22994) ♦ ИЗДАЕТСЯ С 1 МАЯ 1925 ГОДА

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ли нальний договор култи предвая СПГ и маляверепринци придом постана и CONTRACT INCOMESSATIVATIONS

перектор компания «Самаазменят «Этот договор сун-да-продока СПП импети круппей сделков. Мы нарожоб на дальноване развите: допосредных отволения с нисукования СПГ в Спирний Америка и приложен вог чествек и темп, чеобы менет COOR BANKS IN CONTRACTOR OF CHICKES CONFIDENCE THE R -Саксион экспекта свемя.

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#### Sakhalin Energy

### **Key Terms of Baja Agreement**

Volume

Duration

Start Date

Delivery

Destination

Take-or-Pay

Price

37 mt

20 years

2007-2008

**Delivered Ex-Ship** 

Terminal developed at Costa Azul

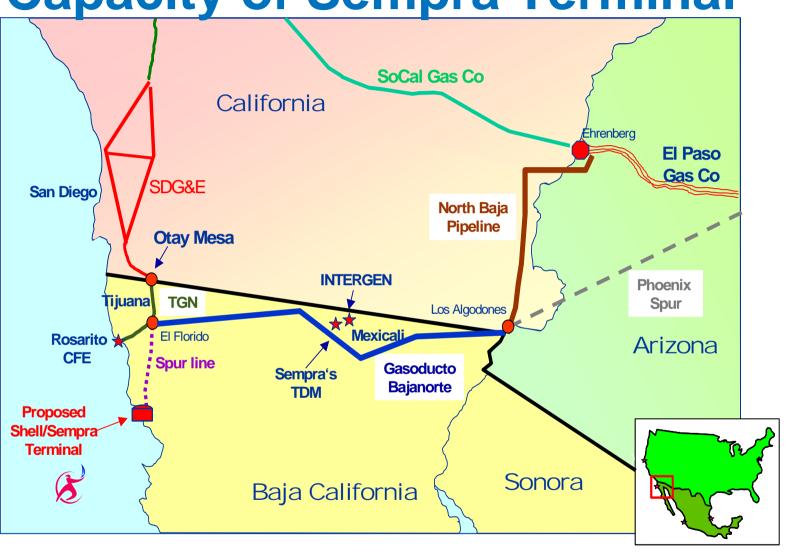
Yes

Linked to gas price in USA

## **The Shipping Route**



**Shell and Sempra will Share Capacity of Sempra Terminal** 



## Why has Sakhalin Energy Entered into this SPA?

**Economics** 

High operating load factors in startup years

Debt capacity

Russia-Mexico-USA



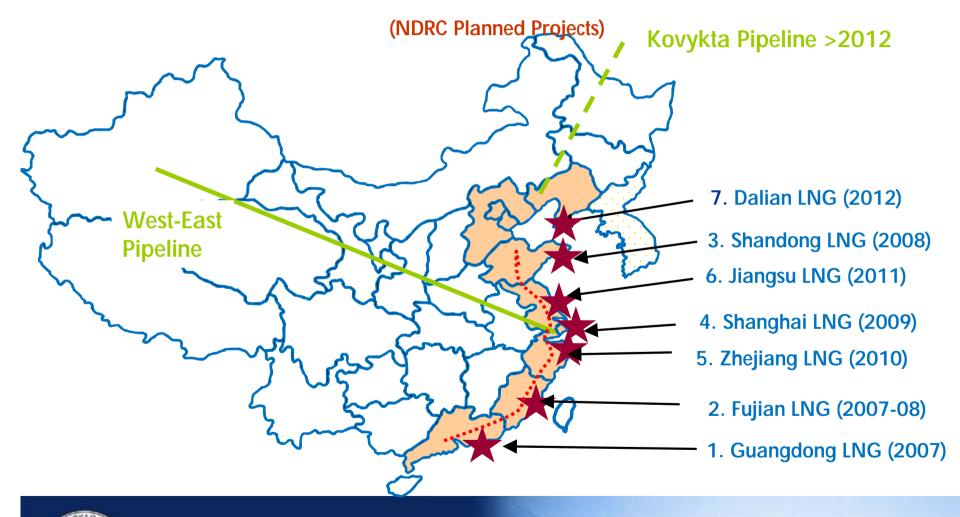
### Kogas



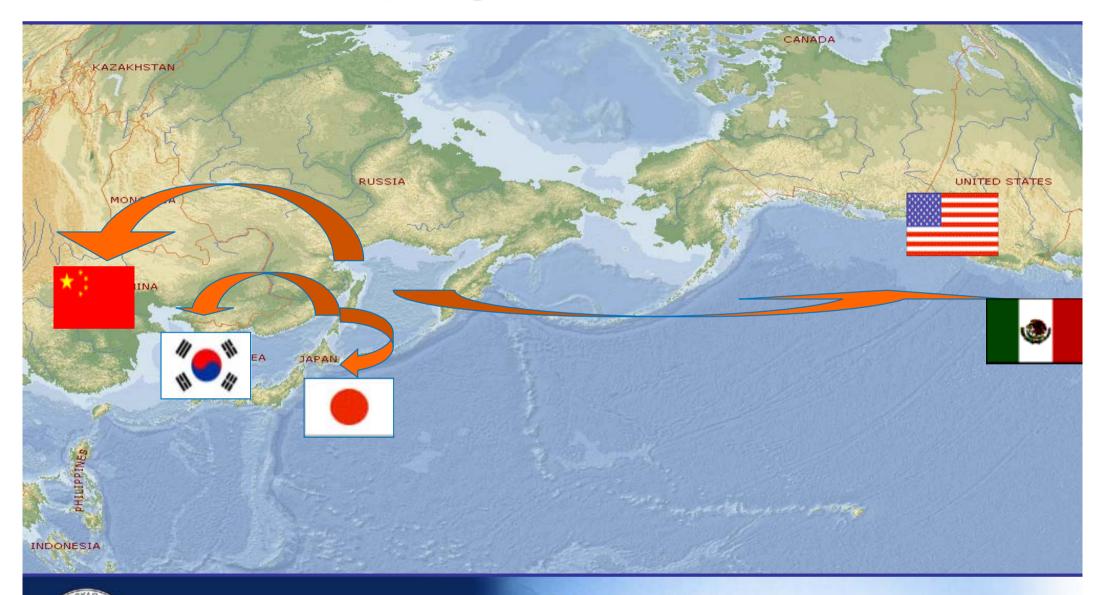
- Sakhalin Energy has been shortlisted as Negotiation Invitee
- Currently negotiating with Kogas
- Selection date for Preferred Sellers postponed
- Power Generation Companies also permitted to import LNG; Term Sheets or HOAs to be agreed with potential Suppliers
- MOCIE will subsequently select Preferred Sellers from Kogas shortlist and GenCo offers
  - Metropolitan Area
  - Major City
    - LNG Receiving Terminal

#### **New Chinese LNG Terminals**

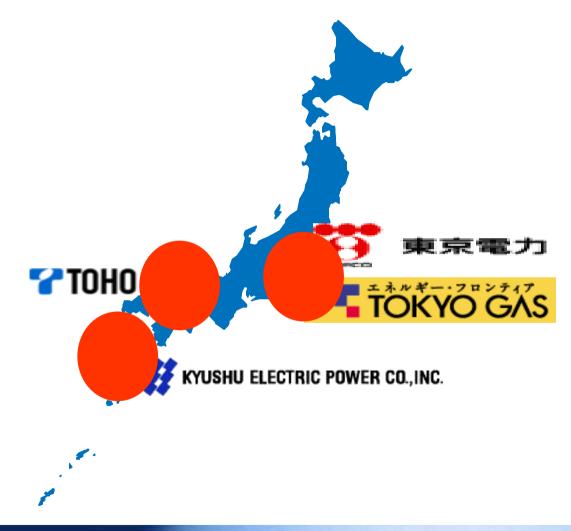
- Forecasted increase of gas share in total energy balance from 3 % in 2003 to 10% in 2010
- Gas demand will be partially met by LNG import



## Developing Our Success ...



## We will sign More Contracts in Japan beyond Our Foundation Customers



### Our Strategic Partnership with Japan

**Our Aspired Market** 



## **LNG Ship Signing Ceremony**



### Two Japanese-Russian Shipping Consortia

Nippon Yusen Kabushiki Kaisha - 60%



SC Sovcomflot



Mitsui O.S.K. Lines - 45%



🎫 Mitsui O.S.K. Lines

Kawasaki Kisen Kaisha - 30%



Primorsk Shipping Corporation - 25%,



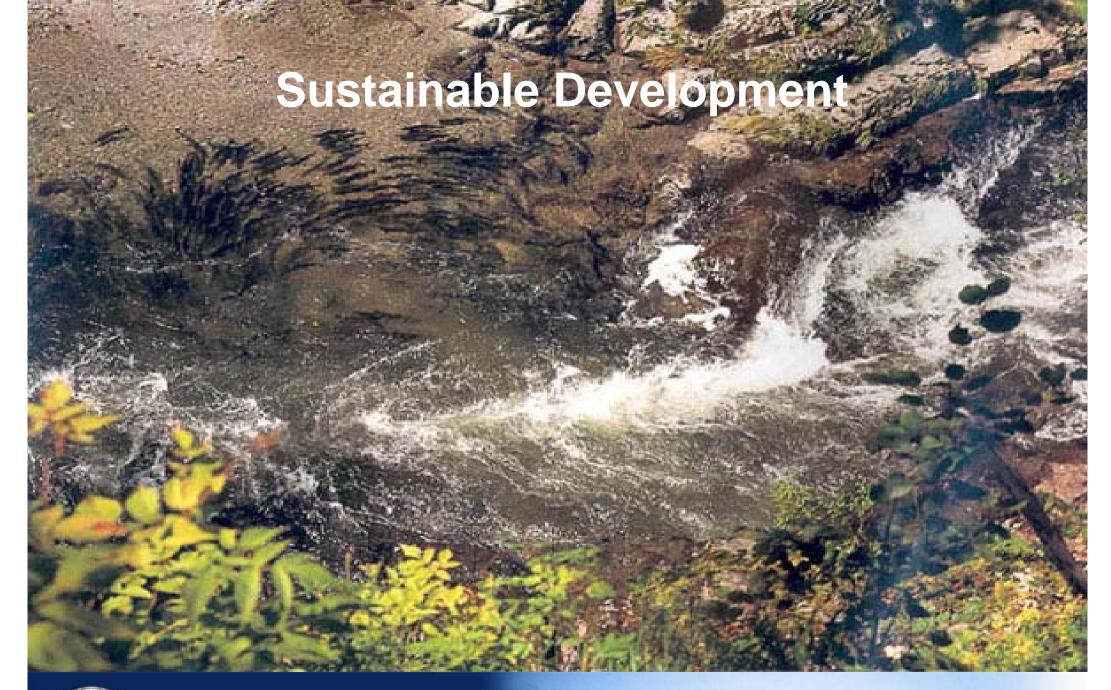


### **Project Financing**

- Agreement for Phase 1 financing of \$348m singed in Dec 1997
- Phase 1 loan repayment commenced in Oct 2000
- PIM for Phase 2 financing launched in Jun 2003
- Phase 2 financing Term Sheet negotiations with JBIC, EBRD, ECGD and USEXIM complete in Oct 2004
- Commercial bank appointment process to start early next year and Financial Signing targeted for mid next year

#### Phase 2 financing is:

- largest ever project financing on a limited recourse basis (roughly \$5bn senior debt targeted);
  - for the project of unprecedented size and complexity in Russia; and
  - flexibly structured to accommodate the expected build-up of LNG sales commitments.





## Sakhalin II Project is on Track (Current Status Highlights)

- 6<sup>th</sup> season Oil production completed with 11.69 million barrels in 2004
- Phase 2 construction 45% completed
- More than 50% LNG capacity sold
- 2 trains capacity expected to be sold by mid 2005
- Two contracts for three LNG ships were signed
- Financial close expected mid 2005

## Why Gas from Sakhalin?

## Sakhalin Energy is the Strategic Supply Source of Gas to Japan

- Earliest available gas from Russia
- Closest source of LNG to Japan
- Established LNG infrastructure in Japan
- Unrivalled shareholder track record in LNG projects worldwide (45% MC and MBK)
- Diversification of energy supply from the North
- Competitive pricing
- Winter seasonality of production
- Robust Production Sharing Framework
- Strong Russian Federal and Oblast support
- Plentiful high quality reserves of both oil and gas from the whole of Sakhalin Island

# With the development of the Sakhalin projects, Russia is now establishing itself as a reliable supplier of oil and gas in Japan and

"... creating a new energy configuration in the Asian and Pacific Region".

Sakhalin LNG provides an immediate opportunity for customers to experience the energy proposition offered by Russia