



APEC Public-Private Roundtable on Energy Security

APEC's Natural Gas Opportunity: Insights from the 2012 APEC Energy Outlook 'High Gas' Case

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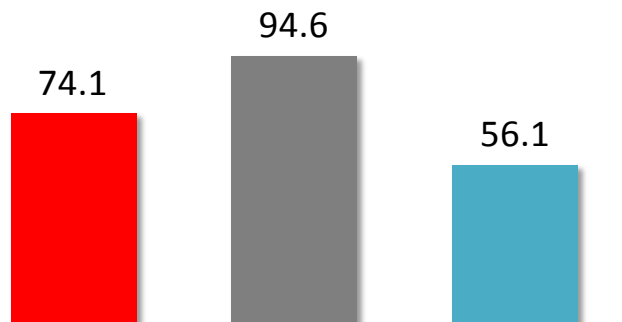
What this presentation will show?

*APERC is aiming to publish an updated long-term **APEC Energy Demand and Supply Outlook**, including a “High Gas” modeling scenario, in late 2012. The Outlook will consider recent developments in the natural gas sector in the APEC region, including the “shale gas revolution” in the USA and stronger demand for natural gas after the March 2011 Fukushima nuclear accident. This presentation discusses some preliminary results, including:*

- The **immense size of the gas resources** potentially available in the APEC region
- **An example ‘High Gas’ modeling scenario** illustrating how these resources could benefit the APEC economies
- Some steps APEC could be taking to **promote increased use of natural gas**

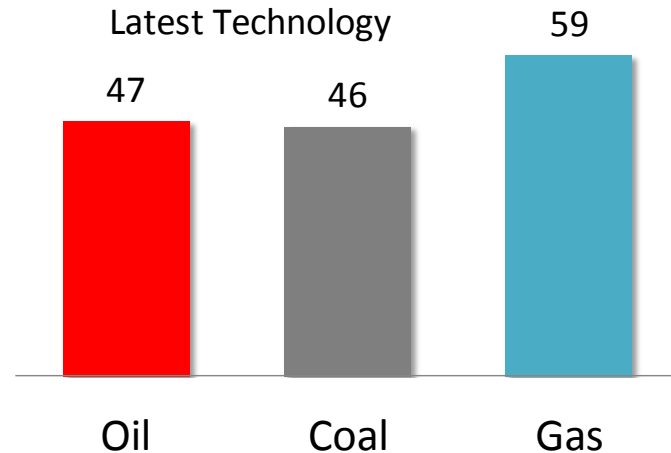
The Environmental Benefits of Gas

Unit: 1 tonne CO₂/TJ_{ncv}



Gas combustion **produces less CO₂**
per unit of heat

Unit: Percent Efficiency with
Latest Technology



Gas power plants are **more efficient**

➤ When efficiently burned:

✓ Gas produces much **less local air pollution** than coal

✓ Gas production is typically **less damaging to land and water resources**

➤ Gas electricity generation can be rapidly cycled on and off,

→ **nicely complements wind and solar generation**

The Natural Gas Potential in the APEC Region

APEC Economy	Technically Recoverable Resources (MTOE)			2009 Production (MTOE)	Years of Production
	Conventional Gas	Shale Gas	Conventional+ Shale Gas		
United States	30750	21550	52300	515	102
Canada	8650	9700	18350	140	131
Mexico	2375	17025	19400	45	431
Russia	86125	N/A	86125	475	181
China	5225	31875	37100	73	512
Australia	5700	9900	15600	43	326
Chile	87	1600	1687	1	>1600

Recoverable with today's technology

Availability > 100 years

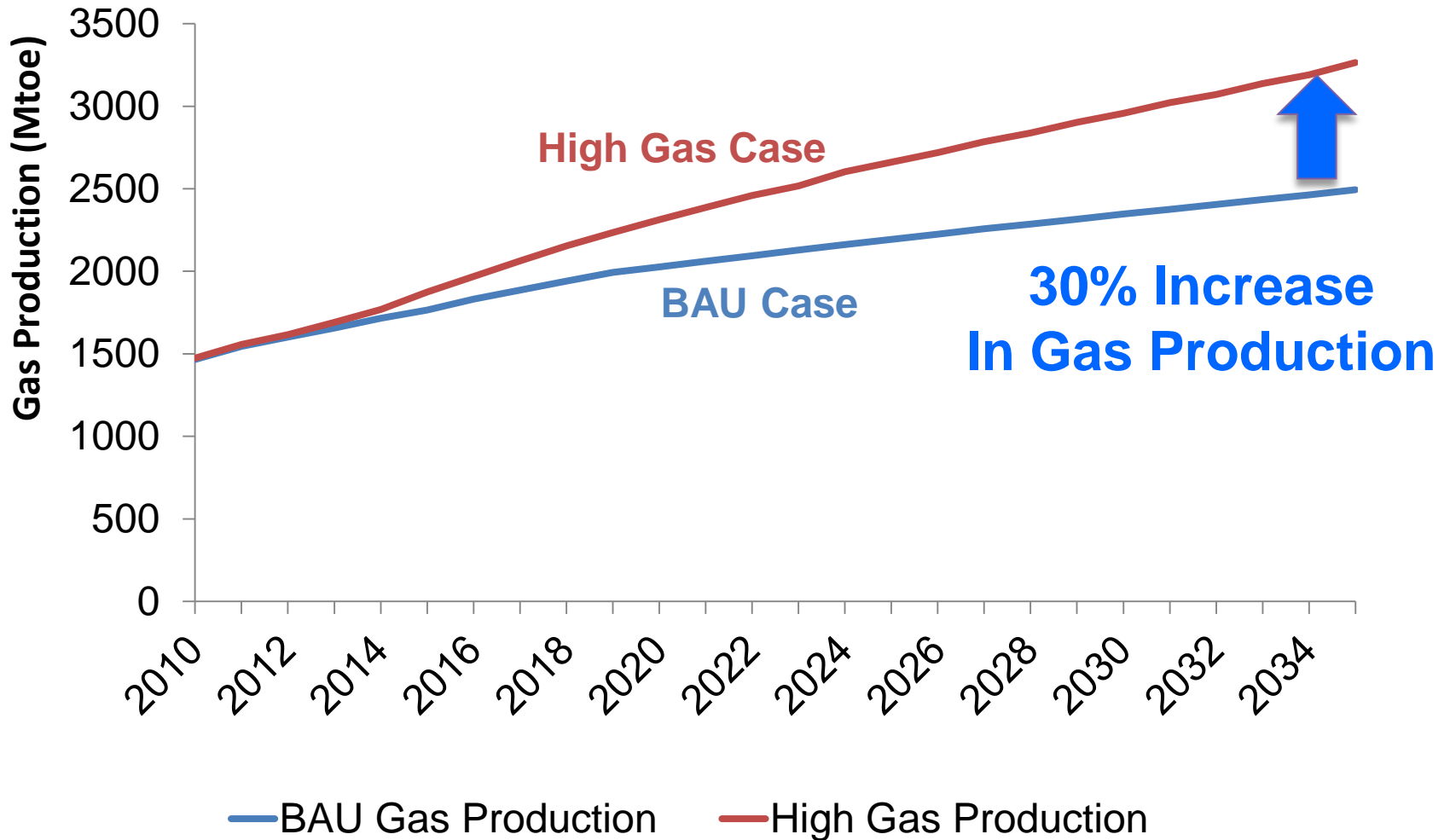
Sources: Conventional Gas :—MIT, The Future of Natural Gas, 2011
 Shale Gas :— USEIA, World Shale Gas Resources, 2011
 Production:- BP Statistical Review of World Energy 2011



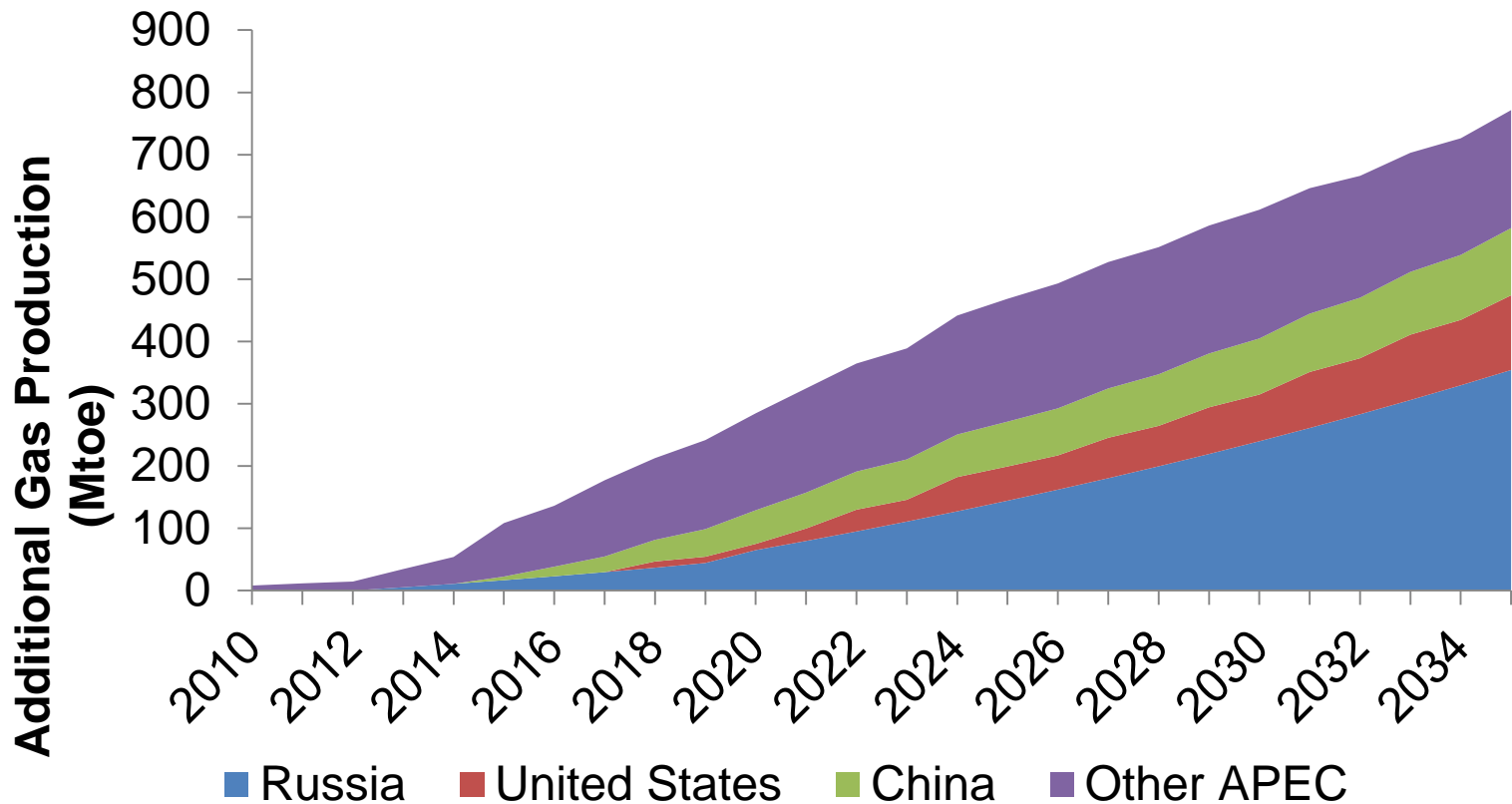
Some Potential Constraints on Gas Production and Trade

1. Policies requiring a **domestic price of gas below market levels** (a form of subsidy), thereby limiting the profitability of gas development and making investment in gas development less attractive.
2. **Limited technology** in some economies for gas development, especially unconventional and deepwater gas development.
3. Policies **restricting the export of gas**
4. Policies granting a **monopoly on gas development** to certain domestic firms, or limiting the participation of foreign-owned firms, or otherwise limiting competition in gas development
5. **Slow and cumbersome regulatory approvals** and land access processes for gas producers

The APEC High Gas Case - Potential Natural Gas Production -



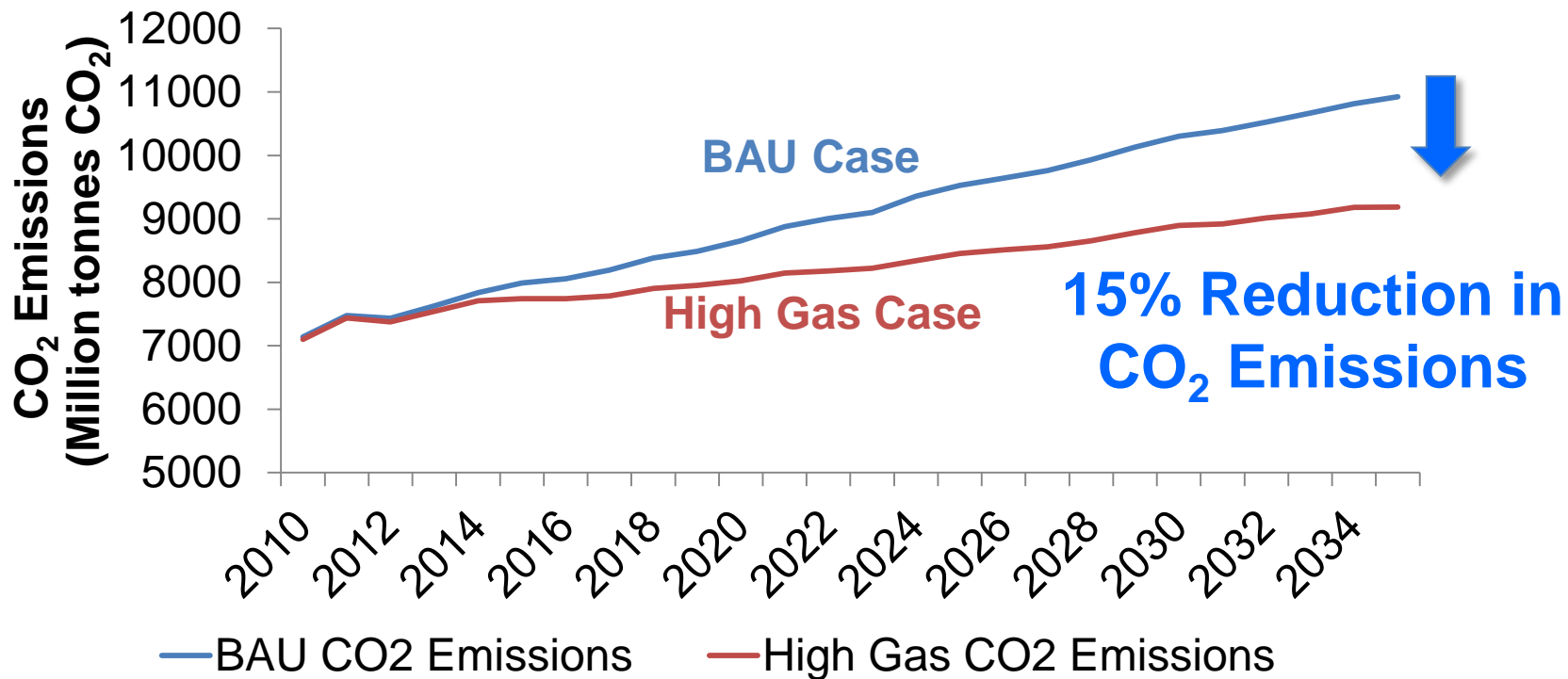
Sources of Additional Gas Production for High Gas Case



* Note that gas imports from outside APEC region is not considered

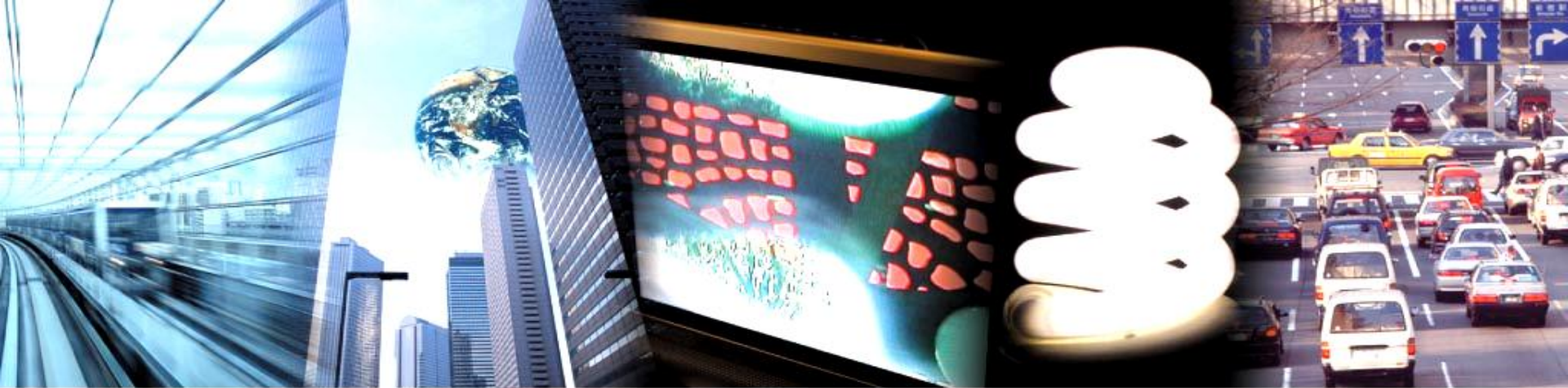
Impact on Electricity Sector CO₂ Emissions

Key Assumption: All additional gas is used to **replace coal** in electricity generation → Environmental benefits



How Can APEC Help Promote the Use of Gas?

1. Continue to encourage member economies to **rationalise and phase out fossil fuel subsidies** in accord with APEC Leaders' Declarations; these subsidies can discourage gas development especially when they take the form of price controls on gas producers
2. Include goods and services for gas industry development in the definition of 'environmental goods and services', and continue to encourage member economies to **reduce existing barriers and refrain from introducing new barriers to trade and investment in environmental goods and services**
3. Encourage member economies to **reform policies that discourage the export of gas**
4. Cooperate to **promoting best practices in gas industry regulation** (safety, environmental protection, economics)



Thank you for your kind attention

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