

Western Natural Gas Adequacy Assessment Workshop

Natural Gas Supply



**Presented by
Michael G. Purcell
California Energy Commission
October 19, 2004**



Topics

- **Reserve Categories;**
- **Reserve Definitions;**
- **Reserves for Western Study Area;**
- **Reserve Types;**
- **Reserve Estimates;**
- **Sample Supply Cost Curve;**
- **Data Sources;**
- **Issues for WIEB Study.**



Reserve Categories

Two Reserve Categories:

- **Proved;**
- **Potential.**



Reserve Definitions

Proved reserves:

- **Known and developed resources;**
- **Require only O&M for its production;**
- **Economical with today's technology.**



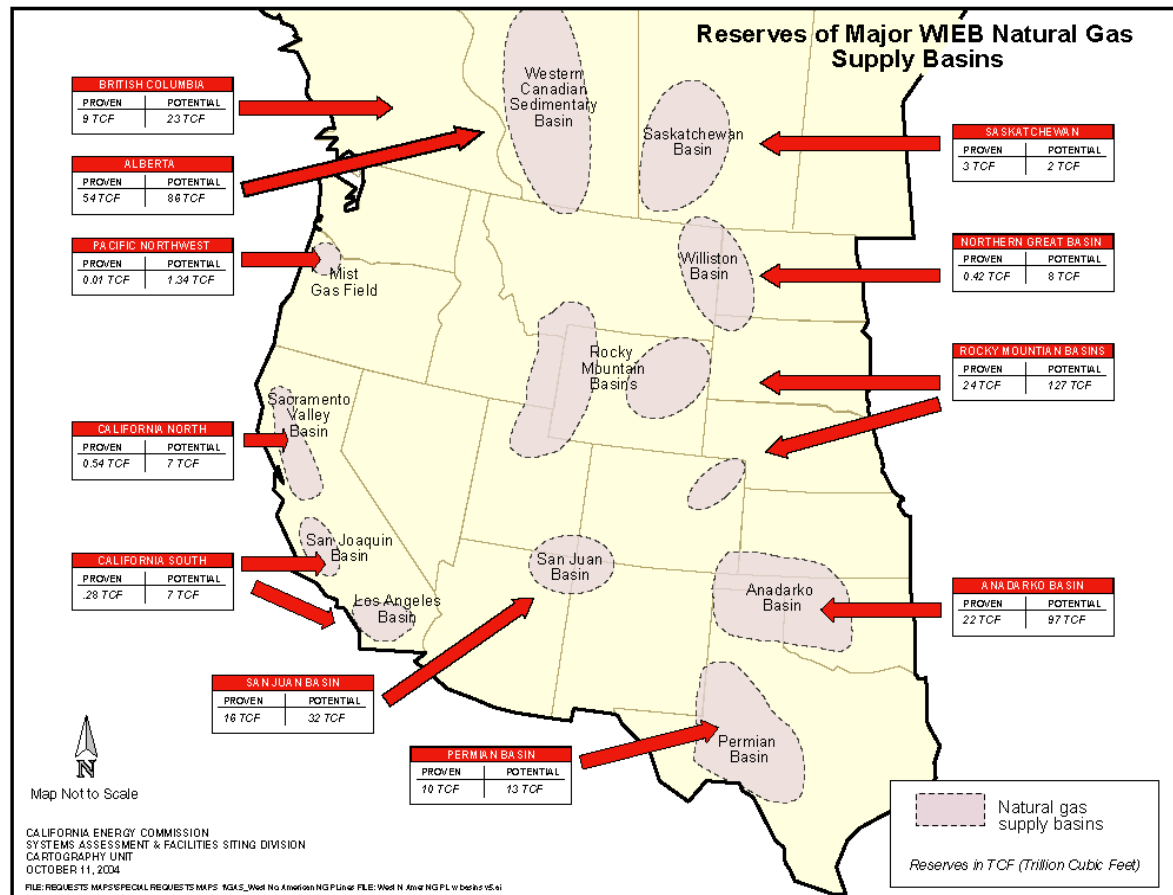
Reserve Definitions (cont'd)

Potential reserves:

- **Known, but not yet developed;**
- **Require both O&M and capital cost.**



Reserves For Western Study Area





Reserve Types

Reserve Types:

- **Conventional (both proved and potential);**
- **Unconventional**
 - coal bed methane (proved and potential),
 - tight sands (proved and potential),
 - shale (proved and potential),
 - gas hydrates (potential).



Reserve Estimates (Lower 48 & Alaska)

Reserve Estimates (as of December 2000):

- **Proved: 156 Tcf;**
- **Potential: 1116 Tcf.**



Reserve Estimates (Canada)

Reserve Estimates (as of December 2000):

- **Proved: 75 Tcf;**
- **Potential: 217 Tcf.**



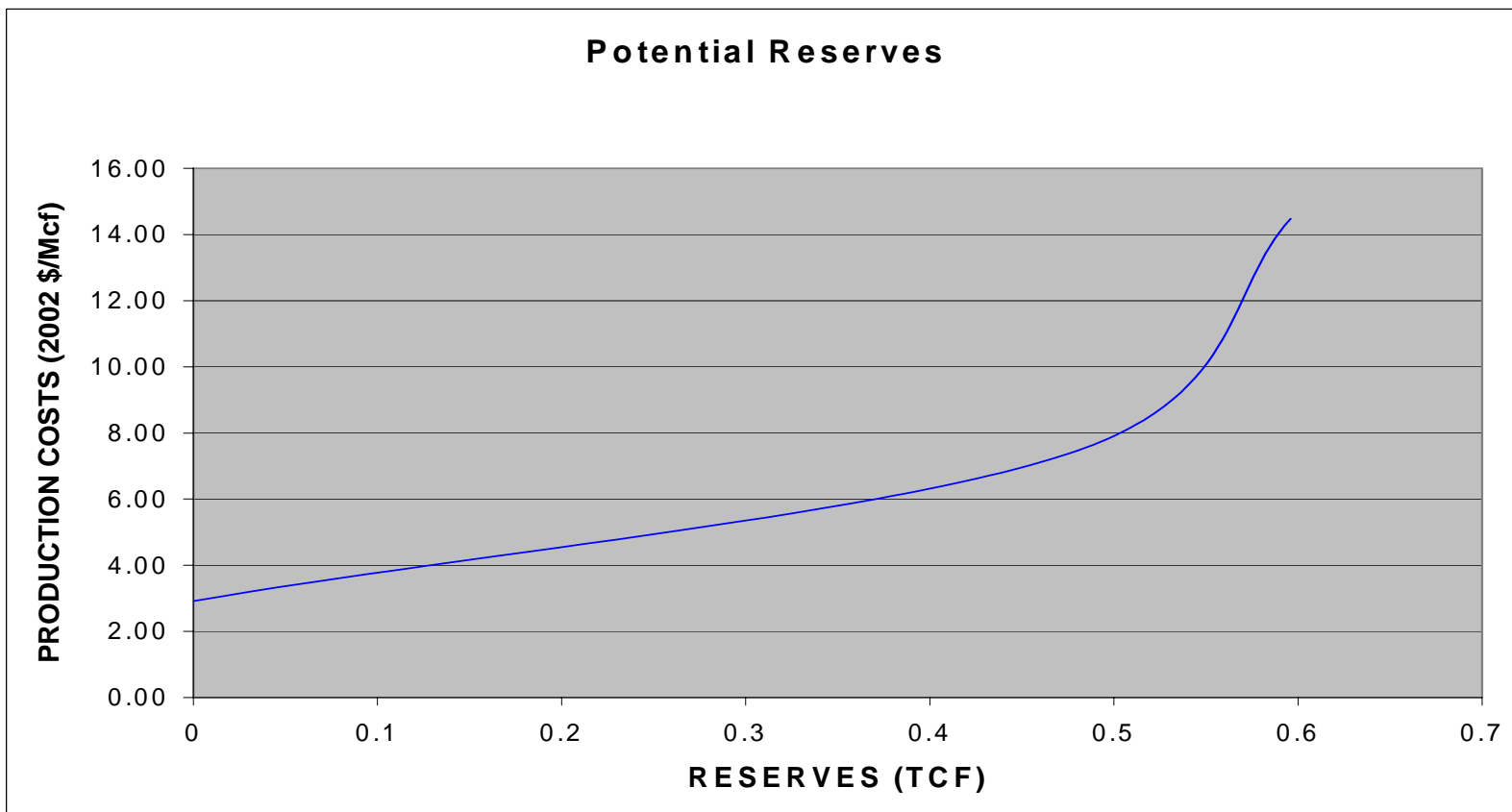
Reserve Estimates (Mexico)

Reserve Estimates (as of December 2000):

- **Proved: 40 Tcf;**
- **Potential: 48 Tcf.**



Sample Supply Cost Curve





Data Sources

Data Sources include:

- **National Petroleum Council;**
- **USGS;**
- **Canadian Provinces.**



Issues for WIEB Study

- **Accuracy of Resource Estimates;**
- **Impact of Technology Improvements;**
- **Constraints on Resource Development.**



Questions and Comments