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Natural Gas Technology - Investment in a Healthy U.S. Energy Future

"A Utilities View on Meeting the 30 Tcf World"

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SDGE

Southern California Gas Company

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Combined Operations

Employees	10,000
Service territory	27,000 sq. miles
Assets	$8.8 billion
Operating revenues	$5.5 billion

	Gas	Electric
Customers (millions)	5.8	1.2
Pipes & wires (miles)	55,000	17,000

Throughput	1,100 billion cu ft 18.4 billion kWh
Storage Capacity	106 billion cu ft

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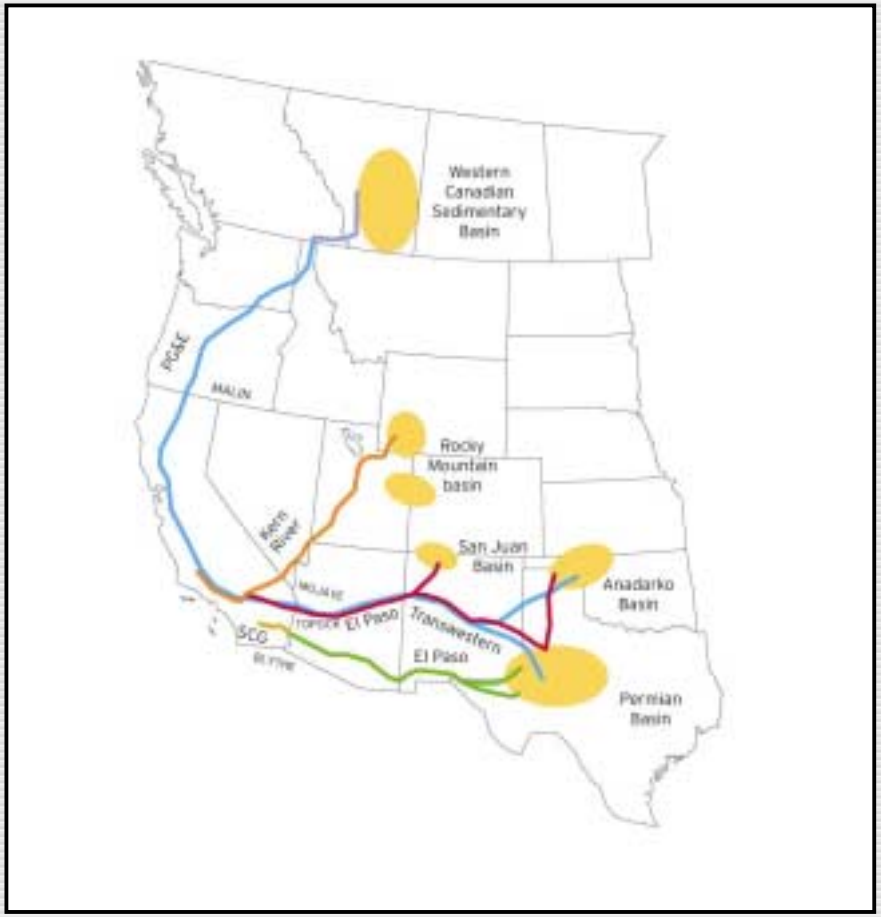
Pipeline Delivery Capacities into California



	Existing Firm Capacity (MMCF/D)	New Firm Capacity (MMCF/D)
PG&E GT-NW	1,850	354
Kern River	835	903
Transwestern	1,090	150
El Paso	3,290	
Questar		80
TOTAL	7,065	1,487

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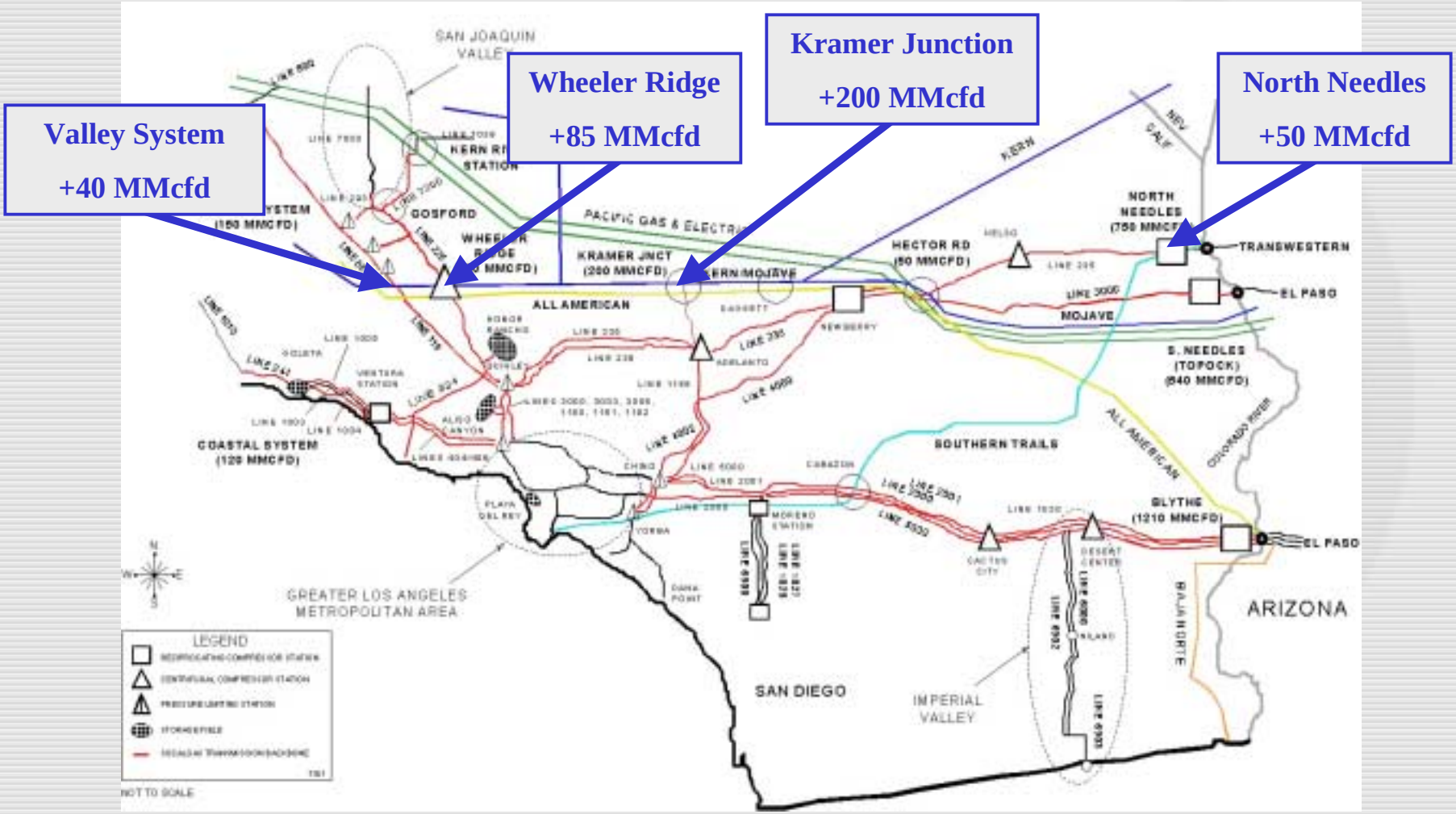
Expanded Takeaway Capacity

Southern California Gas Company Facilities



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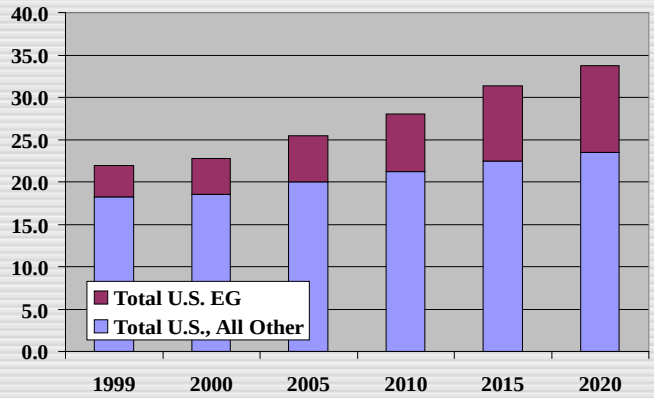
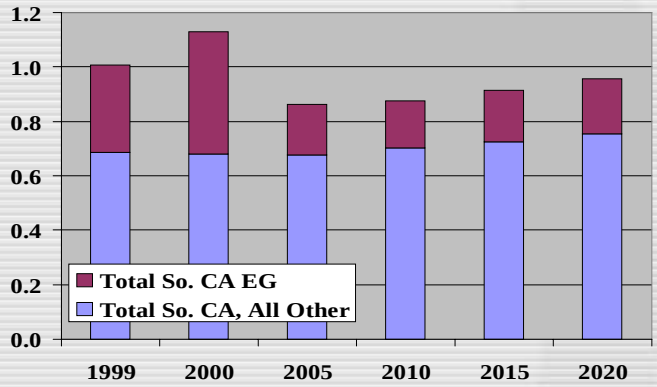
Natural Gas Demand, Tcf

Total U.S.



So. CA, excl. Direct Sales



- **California Demand Peaked in 2000**
- **Most New Power Plants Located on Interstate Pipelines or Outside California**
- **Southern California Gas System Positioned to Meet Customer Demands**

Source:
U.S. Data - EIA Annual Energy Outlook 2002
CA Data - California Gas Report 2000

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Role of Technology in Meeting the 30 Tcf World

- How to maintain the integrity and reliability of existing infrastructure/capacity.
- How to safely and efficiently get more out of the existing infrastructure.
- How to build-out new and replacement infrastructure to meet increased load - better, faster, cheaper.

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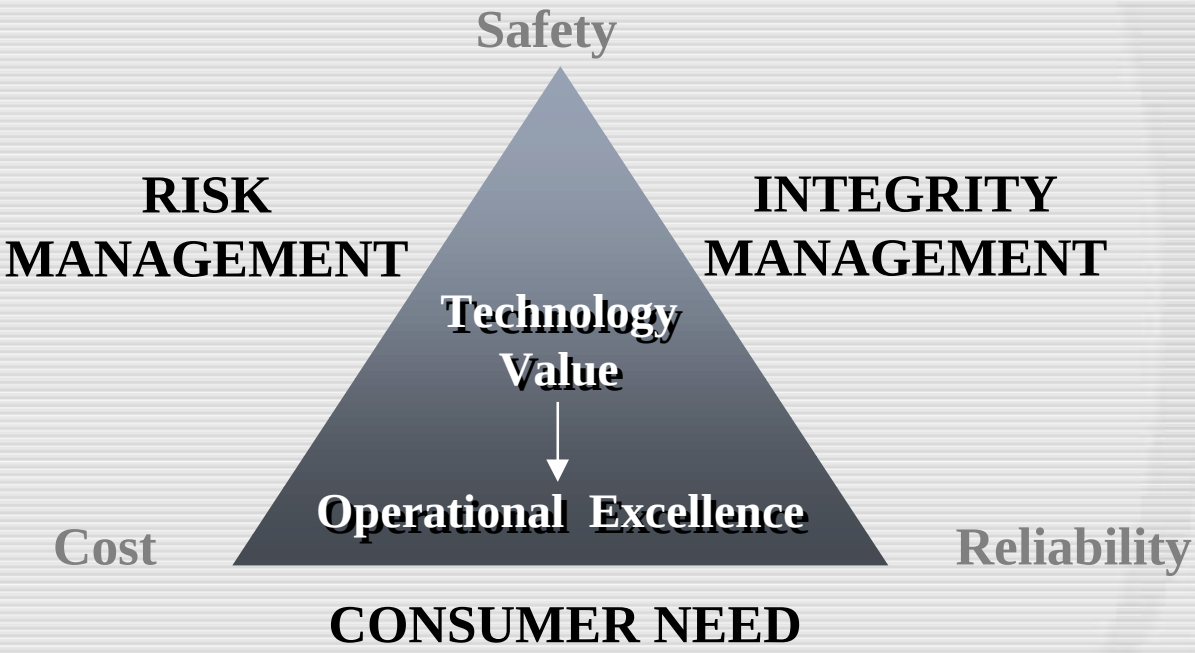
Improvement through a Blend of Elements



- Safety to the Public, Employees and the Environment
- Reliability for Customers and Suppliers
- Cost Minimization While Maintaining Safety and Reliability

Source: PRCI

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PRCI R&D Efforts

(39 Active Programs)

R&D Funding in Four Distinct but Interrelated Categories:

- **Category 1 - Integrity and reliability R&D for pipe currently in service.**
  - **Example:** ***Integrity of Non-Piggable Pipelines***
- **Category 2 - Integrity and reliability R&D for new pipeline construction.**
  - **Example:** ***Lowering Cost of New Construction thru New Materials & Welding Processes***
- **Category 3 - Specific R&D programs ("hard") for pipeline-related facilities and issues.**
  - **Example:** ***Reliability of Low NOx Equipment***
- **Category 4 - R&D ("soft") to support industry policy development and application and advocacy.**
  - **Example:** ***Implementing Integrity Standards***

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Technology - A Role for Everyone

- A collaborative pipeline R&D program yields maximum benefits at minimum cost.
  - Industry contributors.
  - Government co-funders, including Departments of Energy, Transportation, and Interior.
  - Pipeline service vendors, equipment manufacturers, contractors and other co-funders.
- Technology needs to be viewed as an “Investment” in the future and not just a “Cost” of doing business.
- We all benefit from a safer, more reliable and cost effective pipeline transportation system.