

Electric and Gas Infrastructure

Natural Gas and Electricity Coordination Technical Conference

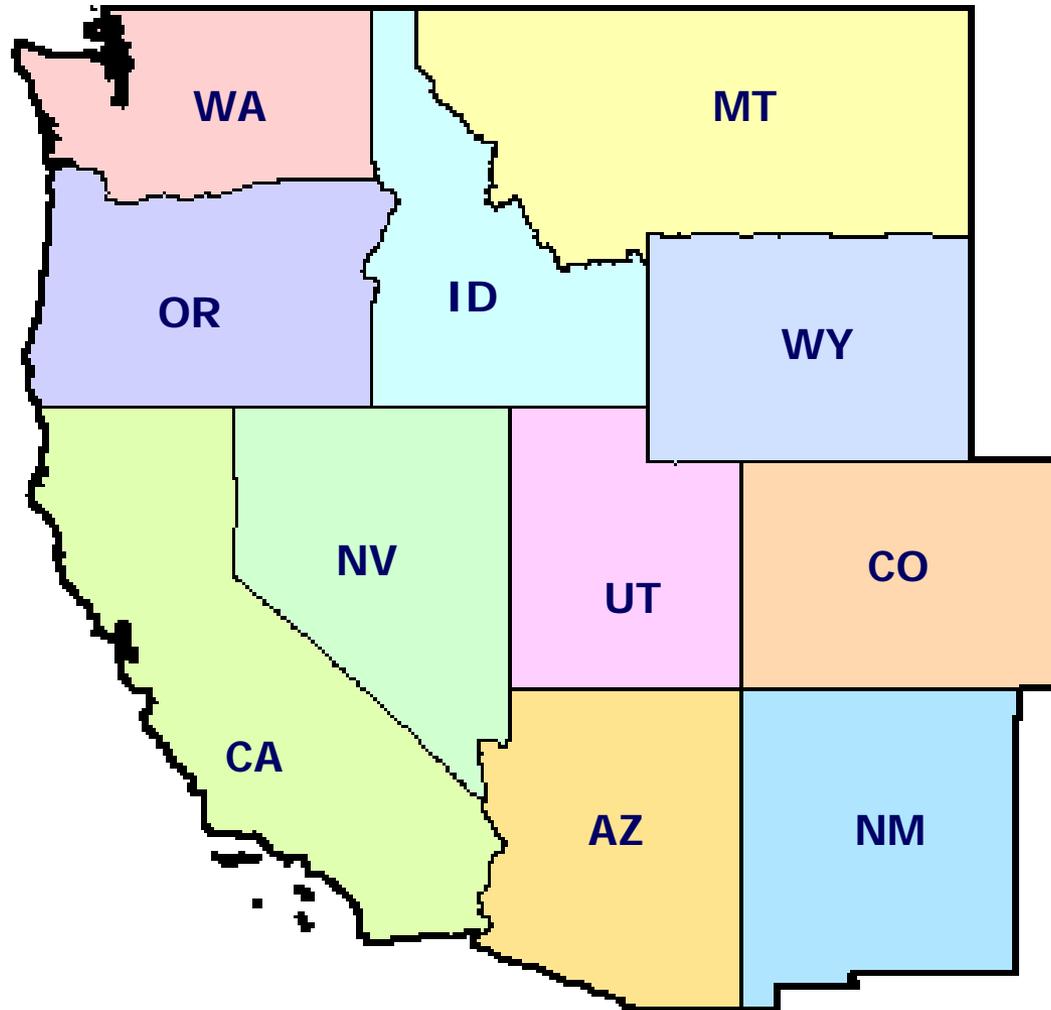
West Region



August 28, 2012

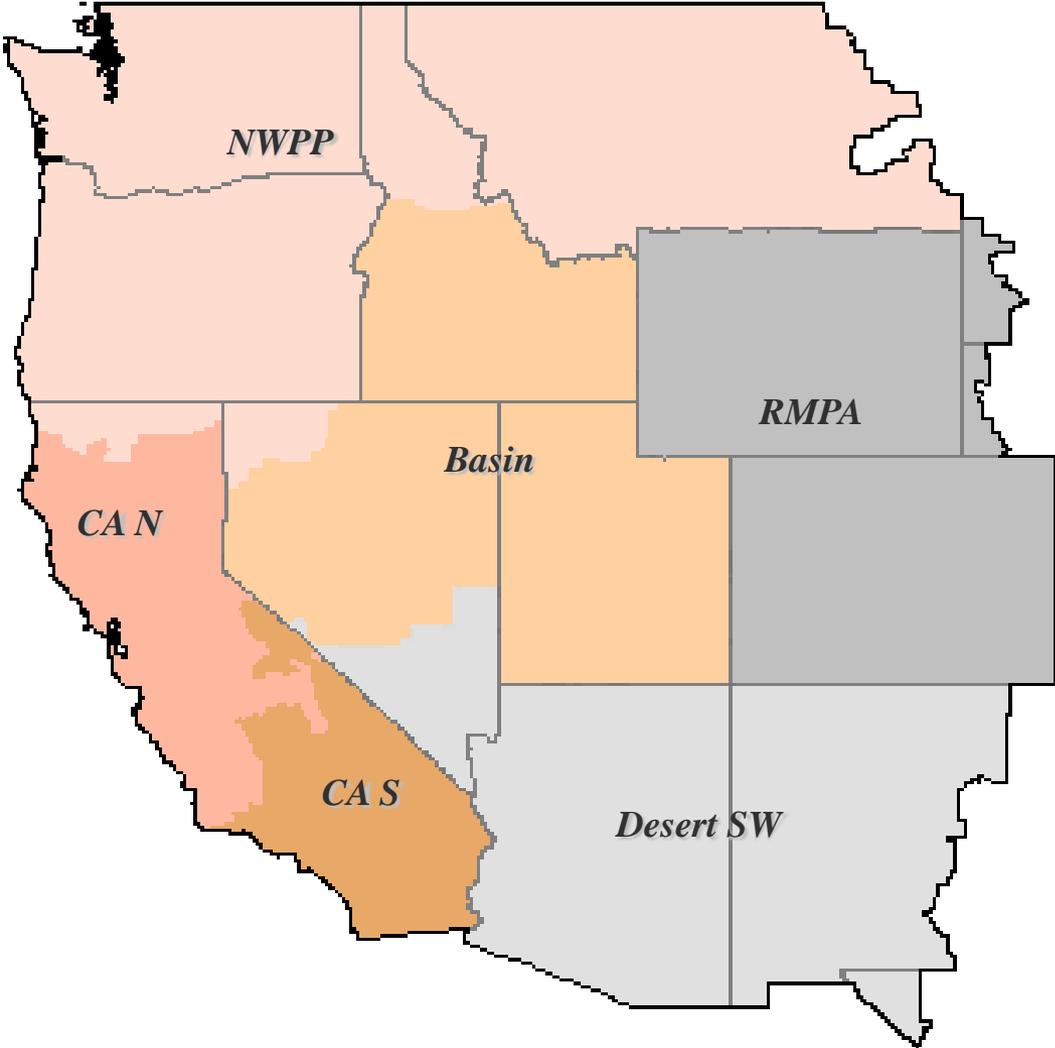
Portland, OR

West Region States

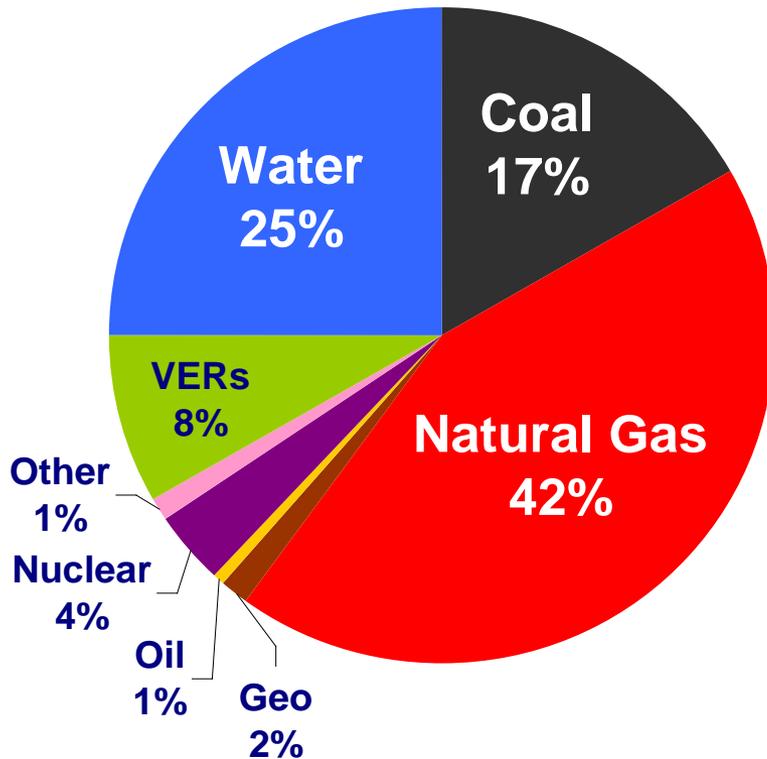


ELECTRIC INFRASTRUCTURE

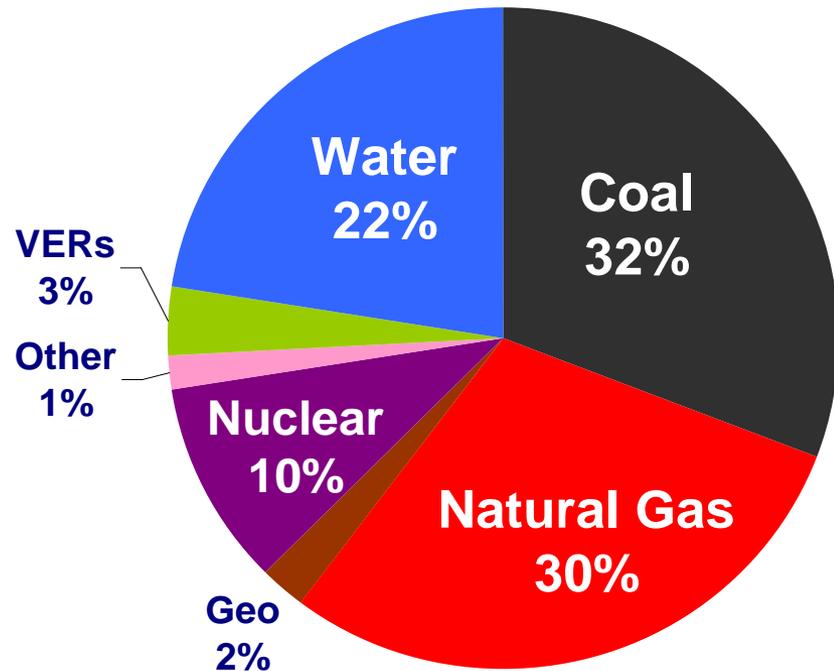
WECC Sub-Regions



Installed Capacity and Generation



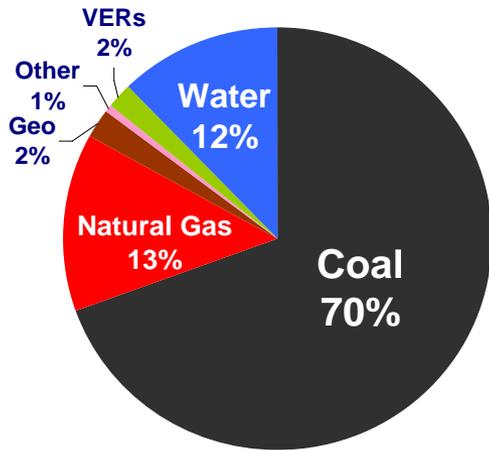
Current Installed Capacity
215,981 MW



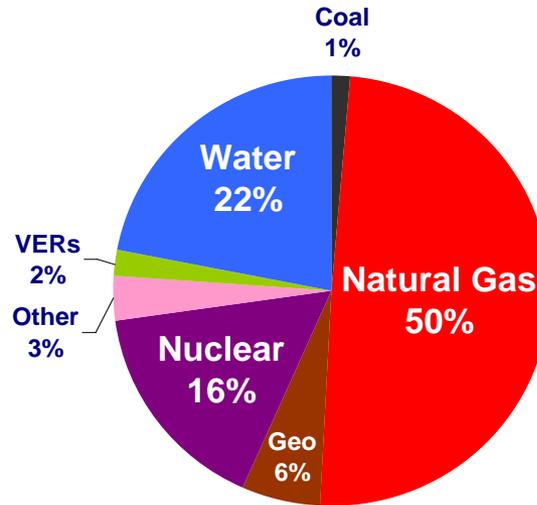
2010 Generation
724,321 GWh

Source: Based on data derived from Ventyx, Velocity Suite, August 2012.

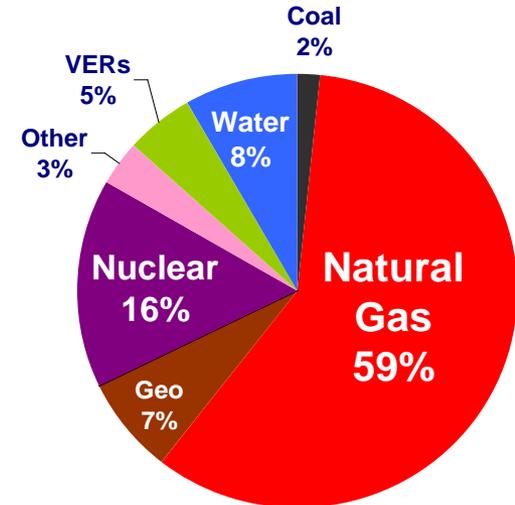
Electricity Generation by Sub Regions



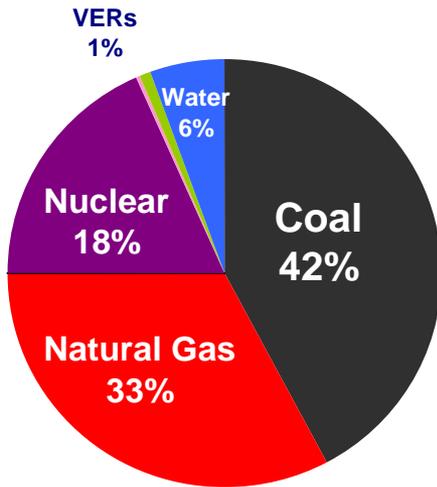
Basin 84,512 GWh



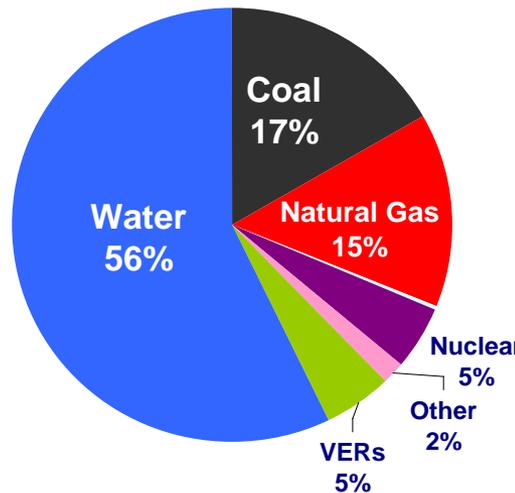
CA N 115,400 GWh



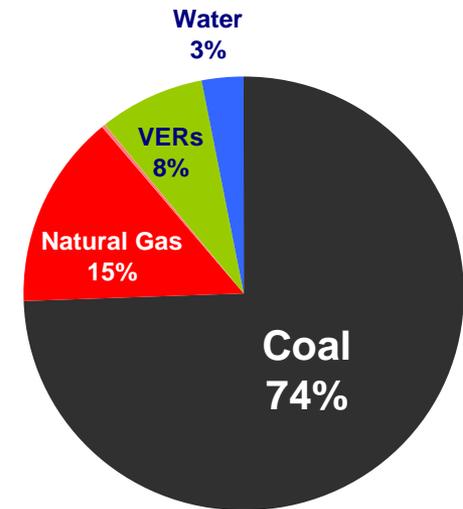
CA S 88,124 GWh



Desert SW 170,359 GWh



NWPP 188,778 GWh



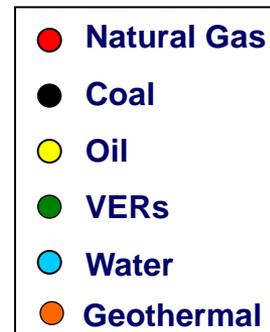
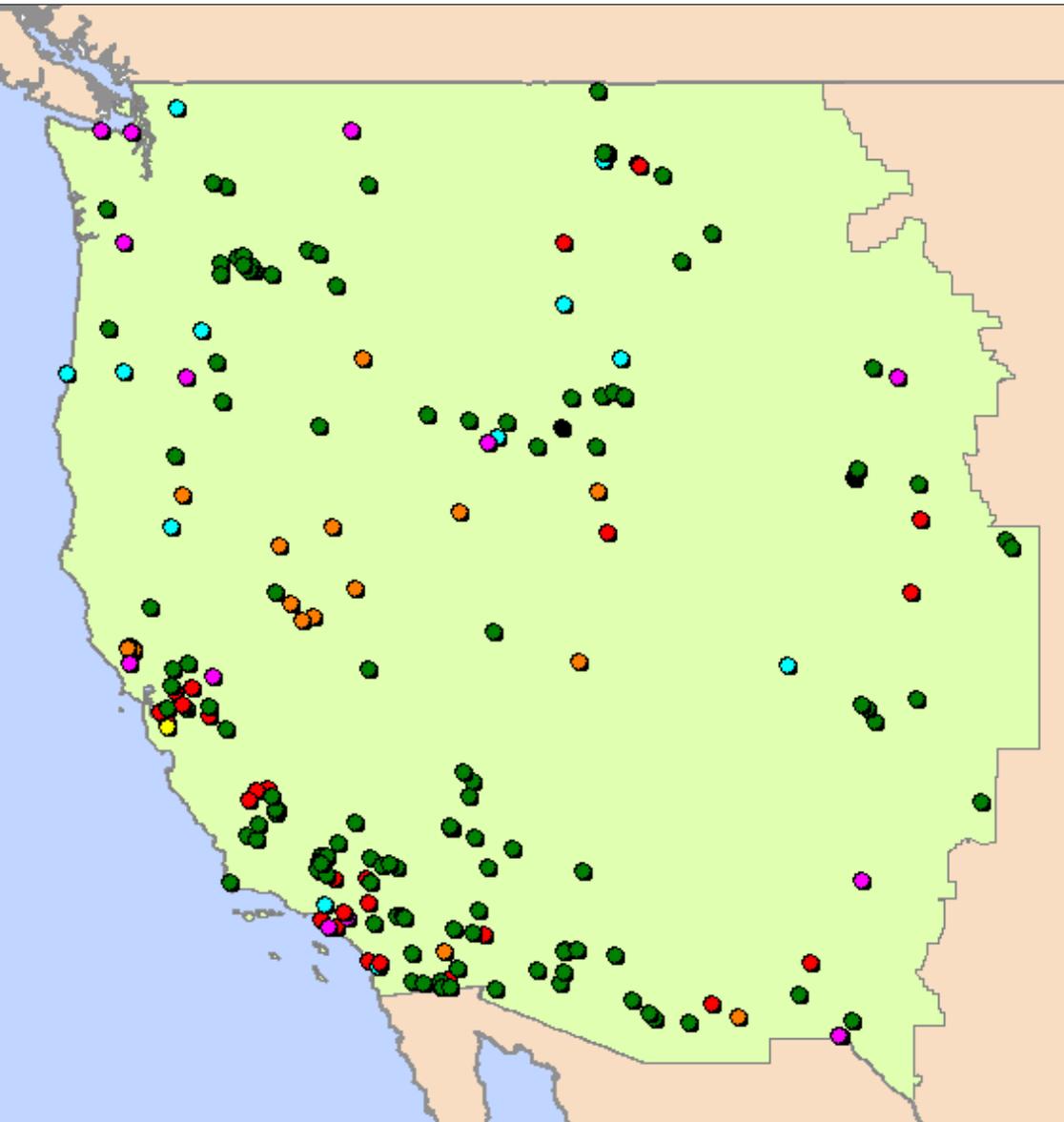
RMPA 77,148 GWh

Source: Based on data derived from Ventyx, Velocity Suite, August 2012.

Power plants in advanced development and under construction

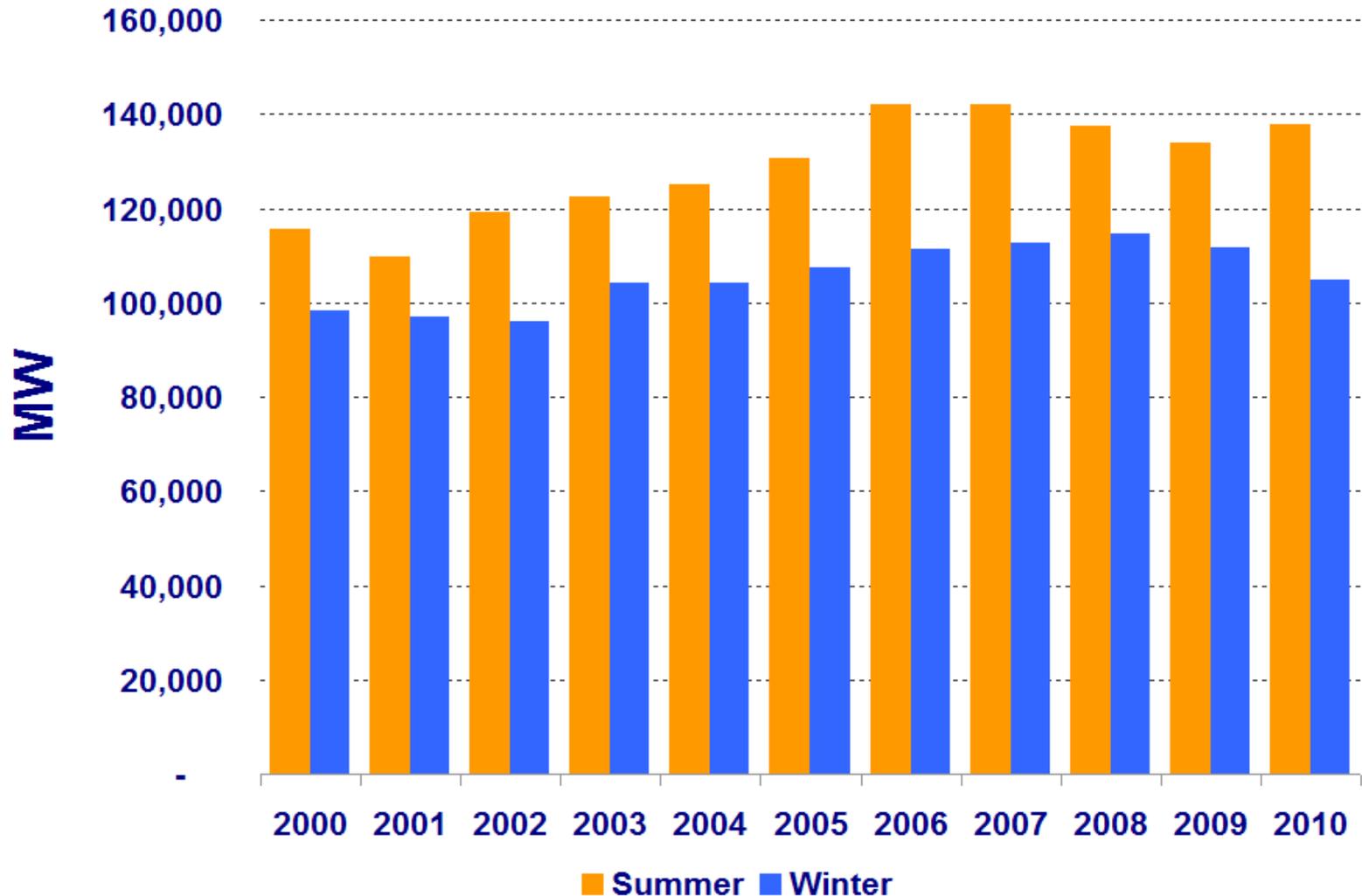
Projected Capacity Additions to 2020

- Projected capacity additions in advanced development and under construction total 27,750 MW.
- Another 64,678 MW are in early development stage.



Source: Based on data derived from Ventyx, Velocity Suite, August 2012.

Western Region Peak Demand

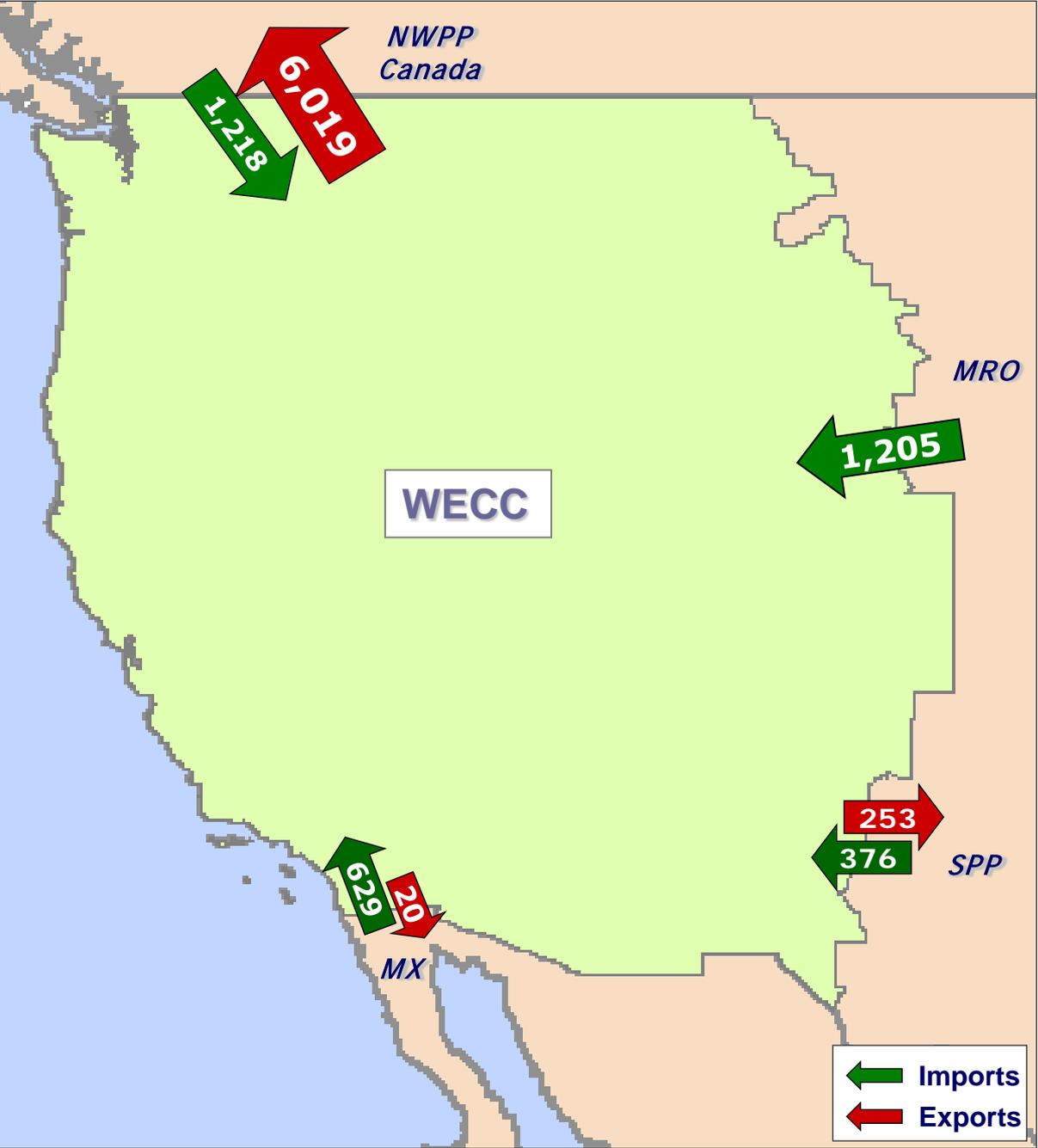


Source: The North American Electric Reliability Corporation's (NERC's) 2011 Electric Supply and Demand Database.

Net inter-regional deliverability 2010 (in GWh)

Imports	3,428 GWh
Exports	6,292 GWh
Net Exports	2,864 GWh

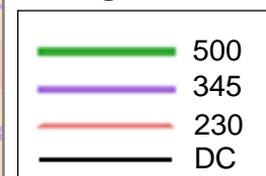
Source: Based on data derived from Ventyx, Velocity Suite, August 2012.



West Region Existing Transmission

Voltage (kV)	Line Length (Miles)
230	34,921
345	11,620
500	16,616
DC	1,651
Total	64,808

Voltage kV

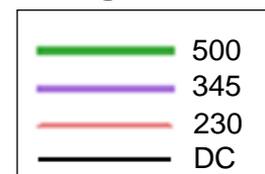


Source: Based on 2011 NERC Electric Supply and Demand Database, data derived from Ventyx, Velocity Suite, June 2012 and Staff Database.

Projected Transmission Projects through 2030

Voltage (kV)	Line Length (Miles)	Investment Cost (Millions \$)
230	3,630	4,821
345	2,288	4,212
500	12,640	33,230
DC	4,878	15,320
Total	23,436	57,583

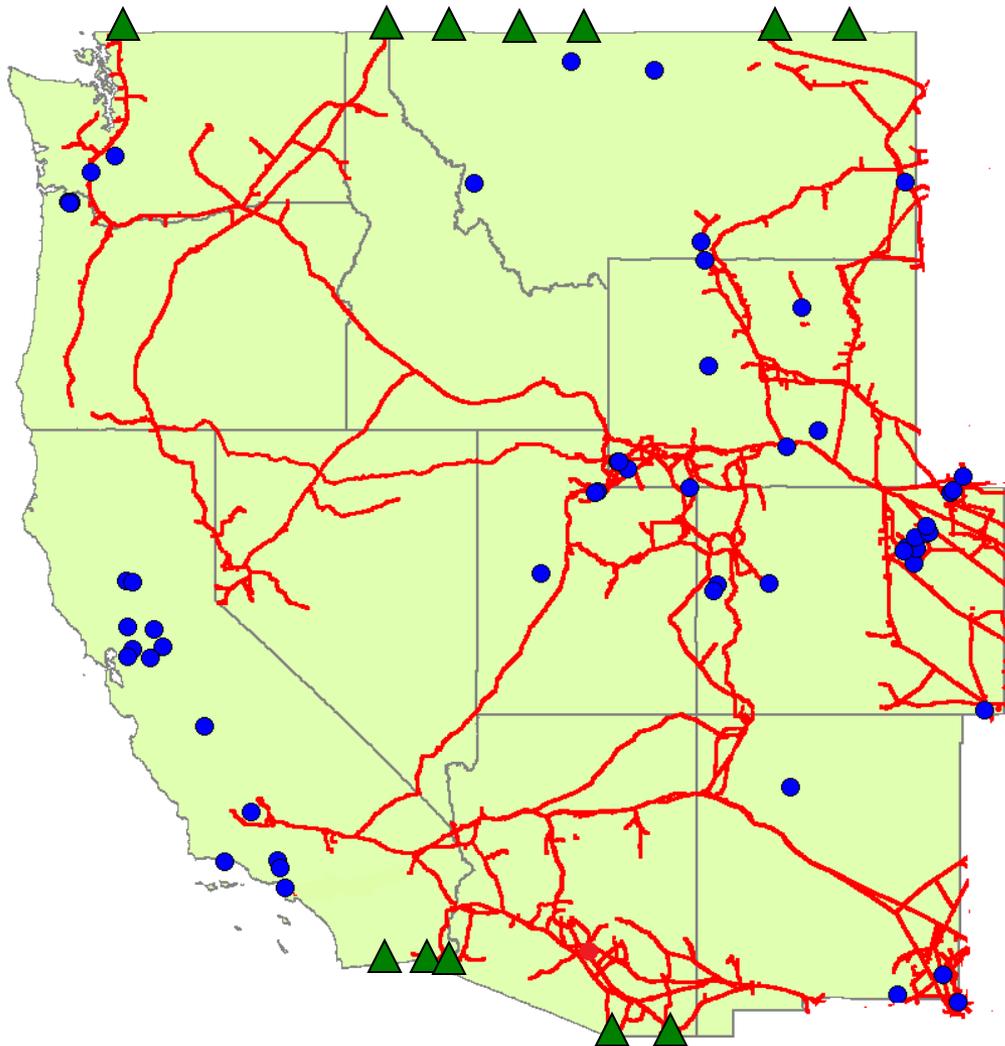
Voltage kV



Source: Based on 2011 NERC Electric Supply and Demand Database, The C Three Group Database, data derived from Ventyx, Velocity Suite, July 2012 and Staff Database.

GAS INFRASTRUCTURE

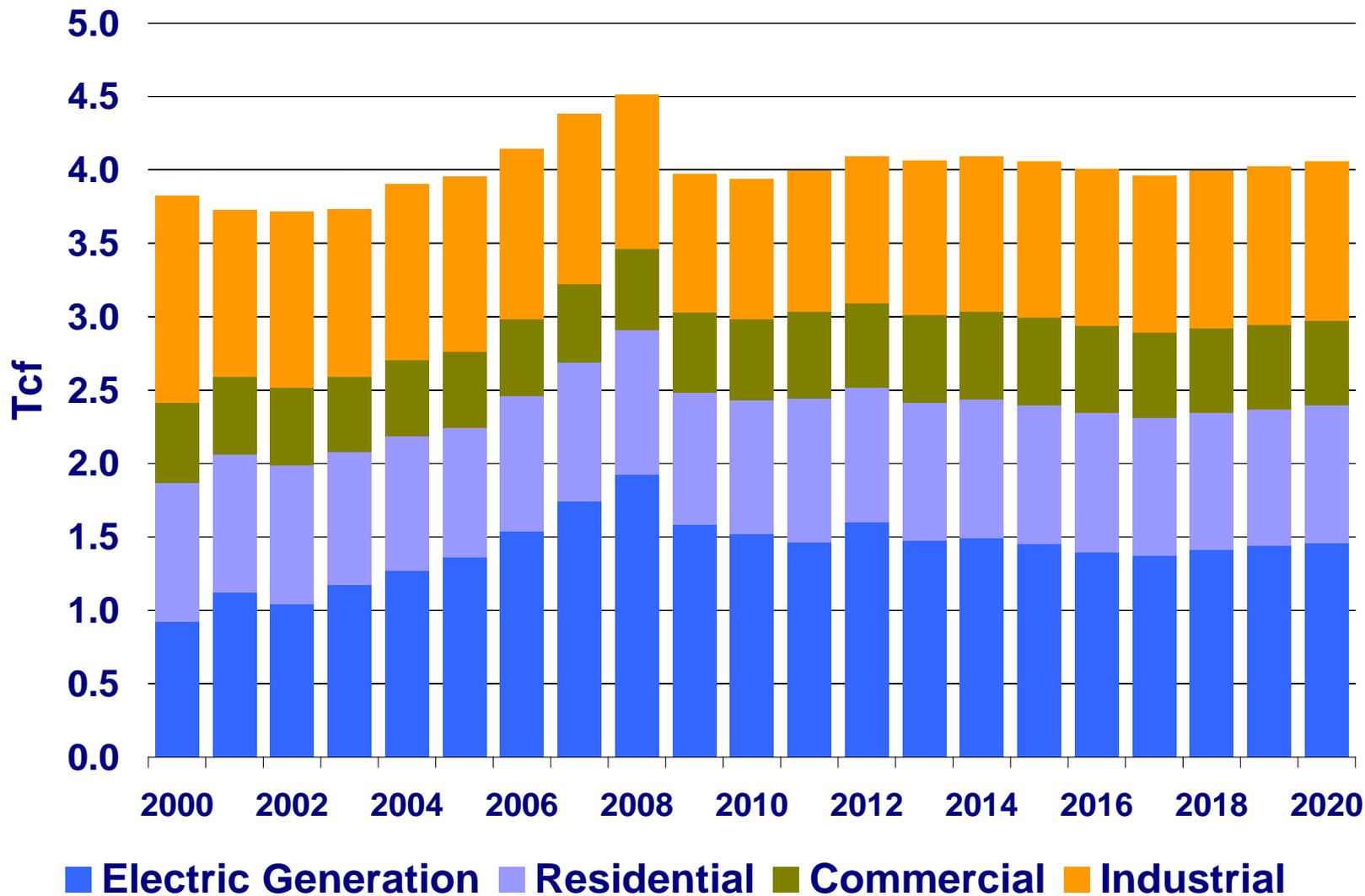
Natural Gas Infrastructure



- Interstate Natural Gas Pipelines
- Natural Gas Storage Facilities
- ▲ Natural Gas Import/Export Points With Canada and Mexico

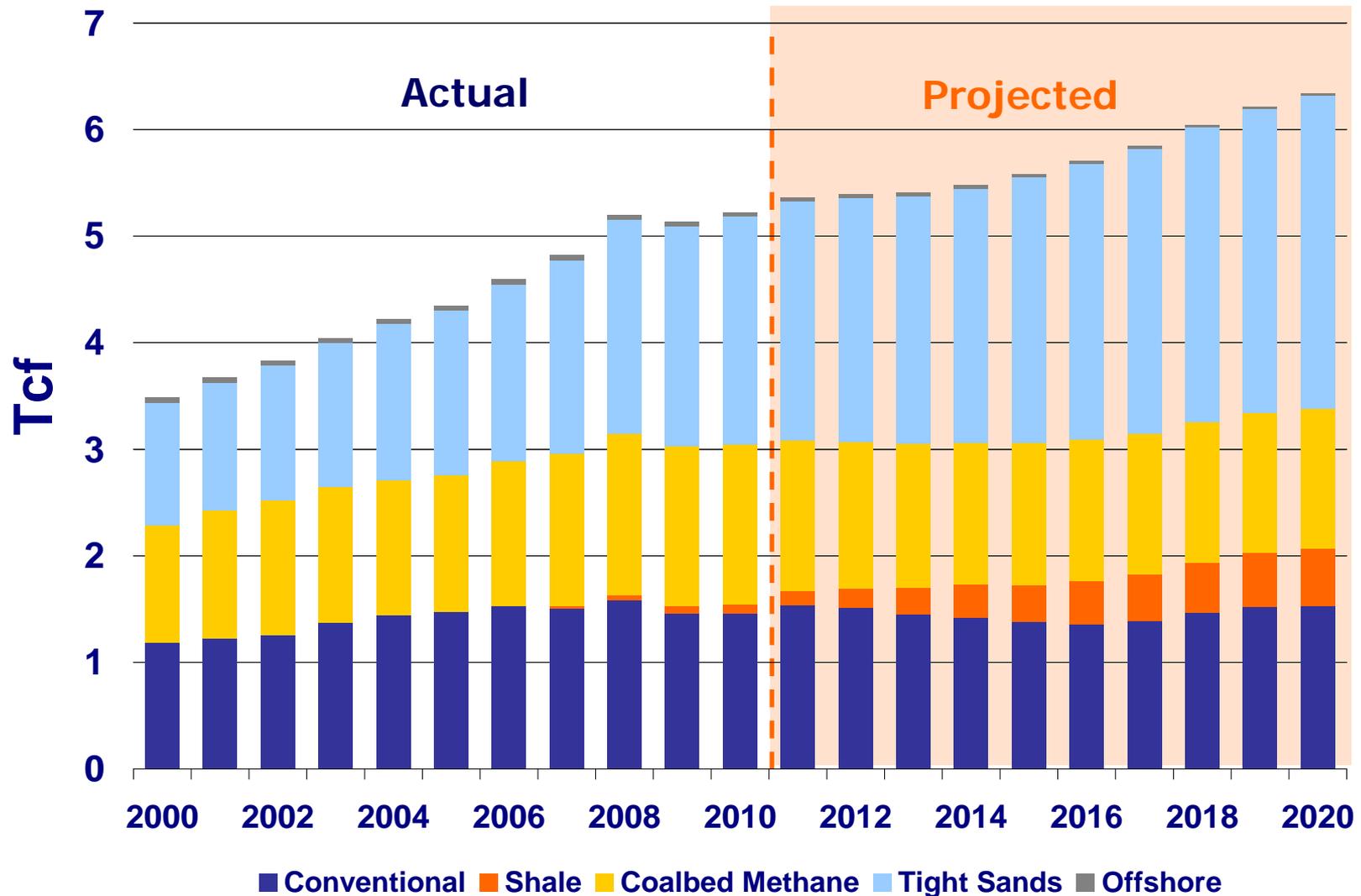
Source: Based on data from Ventyx, Velocity Suite June 2012; ICF International April 2012 Data Base; EIA Storage Spreadsheet; and Fossil Energy 4th Quarter Report 2011

Natural Gas Consumption



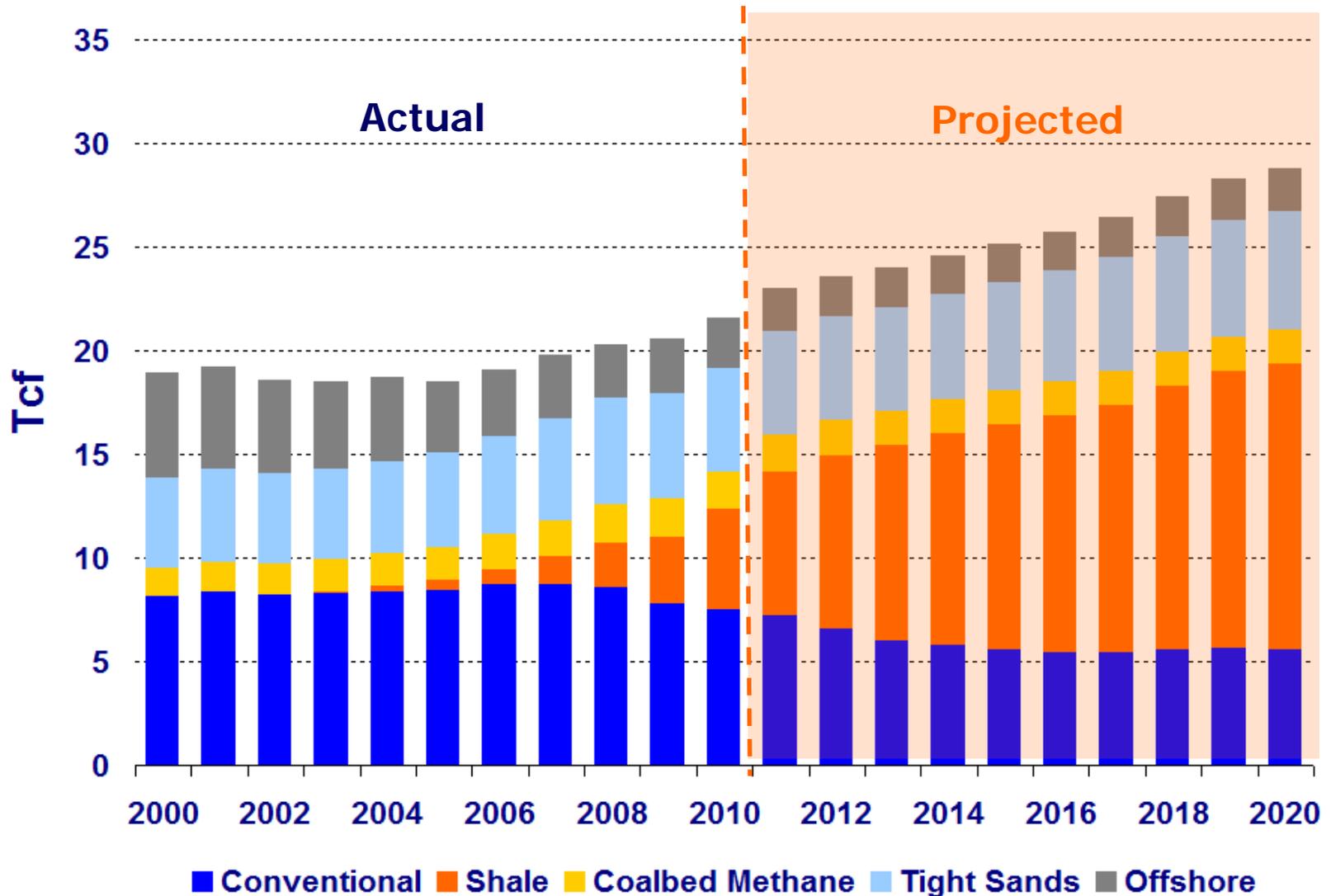
Source: ICF International April 2012 Data Base and Compass Report

Natural Gas Production by Type



Source: ICF International April 2012 Data Base and Compass Report

U.S Natural Gas Production by Type



Source: ICF International April 2012 Data Base and Compass Report

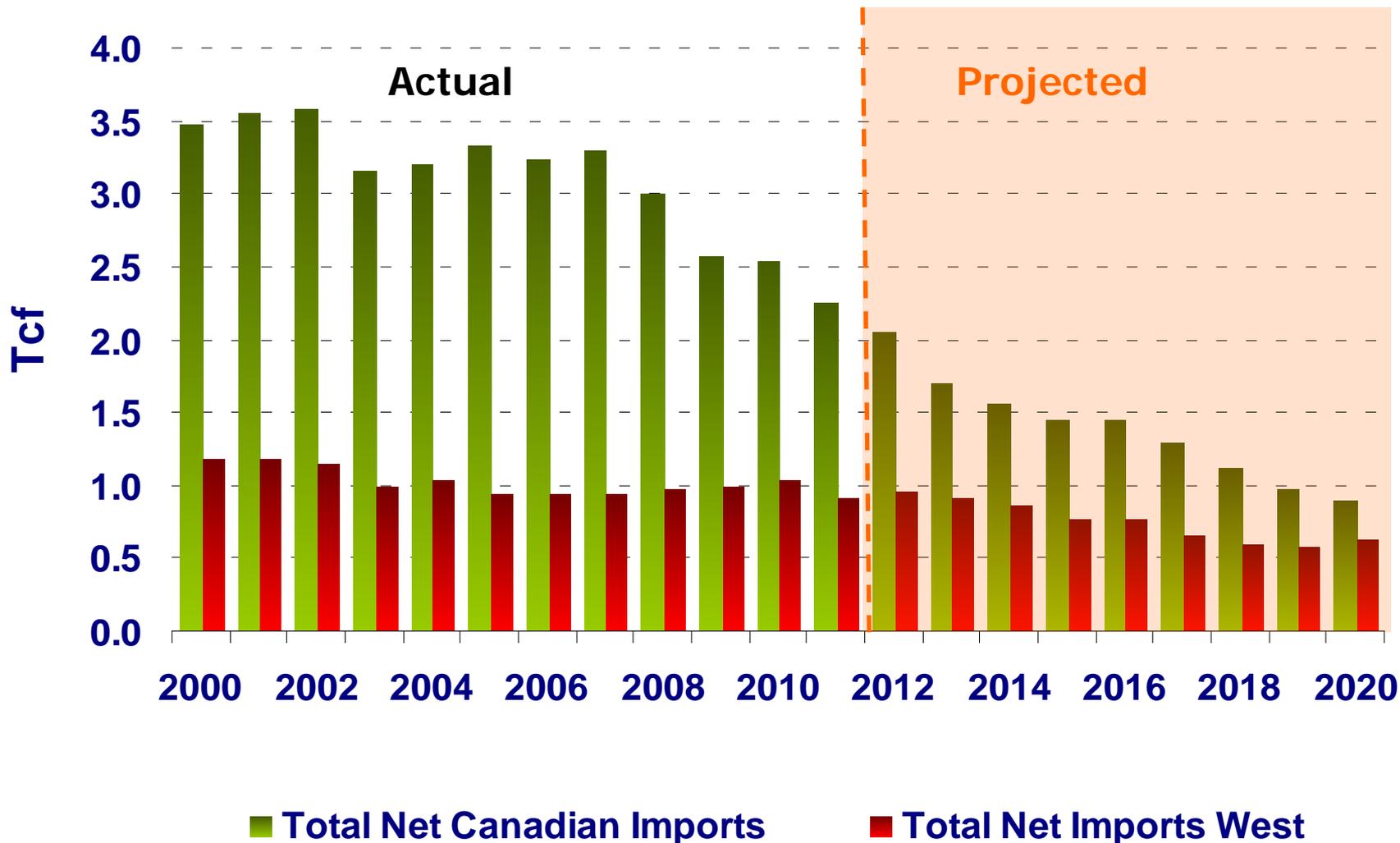
Gas Facts

(In Tcf)

	2010		2020	
	United States	West	United States	West
Total Gas Consumption	23.8	4.4	27.7	4.6
Total Gas Production	21.5	5.2	28.8	6.3
Total Working Storage Capacity	4.2	0.5	4.8	0.7
Total LNG Imports	0.43	0.0	0.32	0.0
Total LNG Exports	0.0	0.0	1.10	0.0
Total Net Imports from CN	2.5	1.0	0.9	0.6
Total Net Exports to MX	0.3	0.1	0.6	0.2

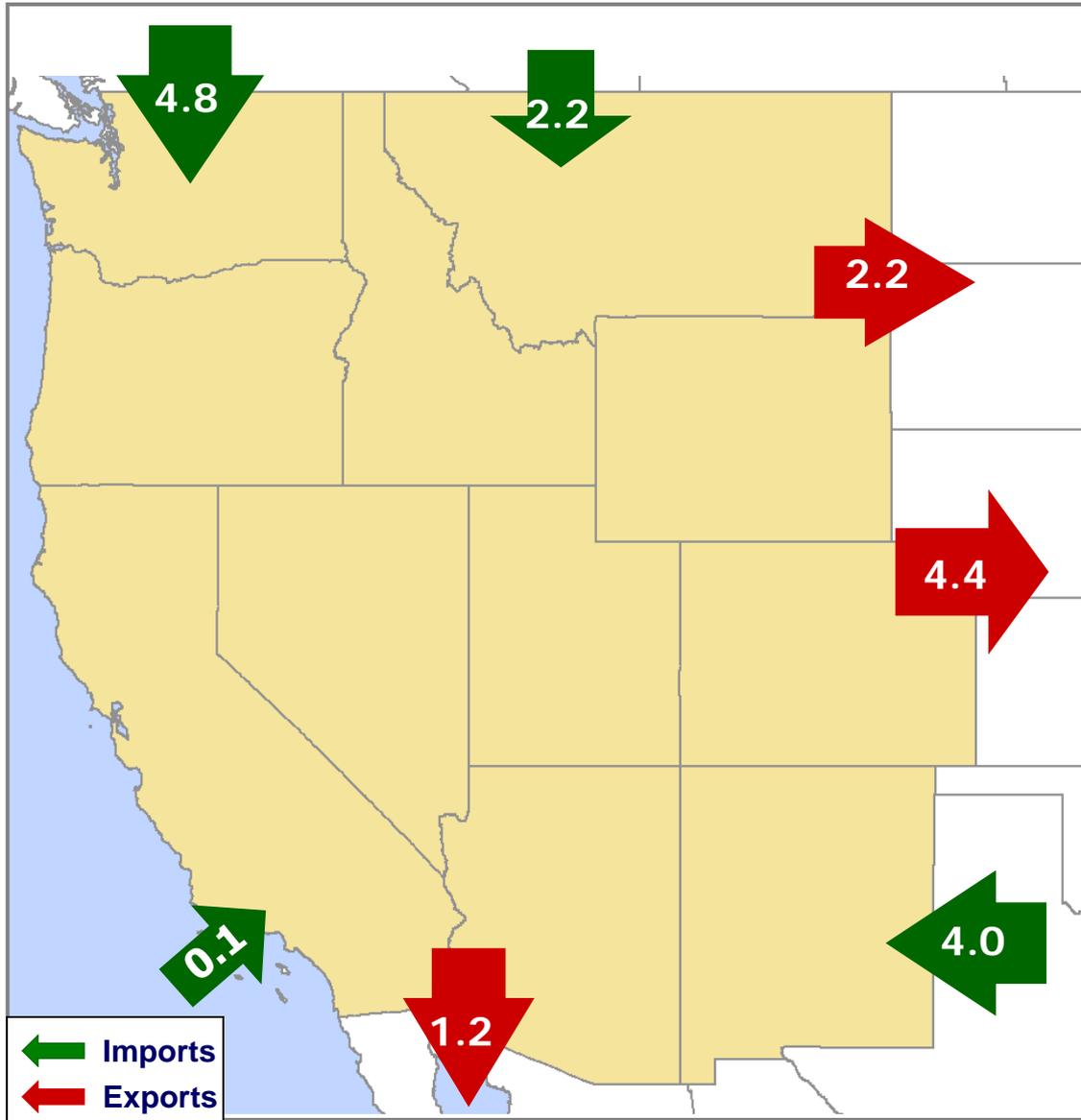
Source: ICF International April 2012 Data Base and Compass Report, EIA Spreadsheets & Fossil Energy's Quarter Reports for 2010

Actual and Projected Net Canadian Imports/Exports



Source: ICF International April 2012 Data Base and Compass Report; EIA Natural Gas Annuals and Spreadsheets; and Fossil Energy 4th Quarter Report for 2010

Pipeline Capacity 2010 (in Bcfd)

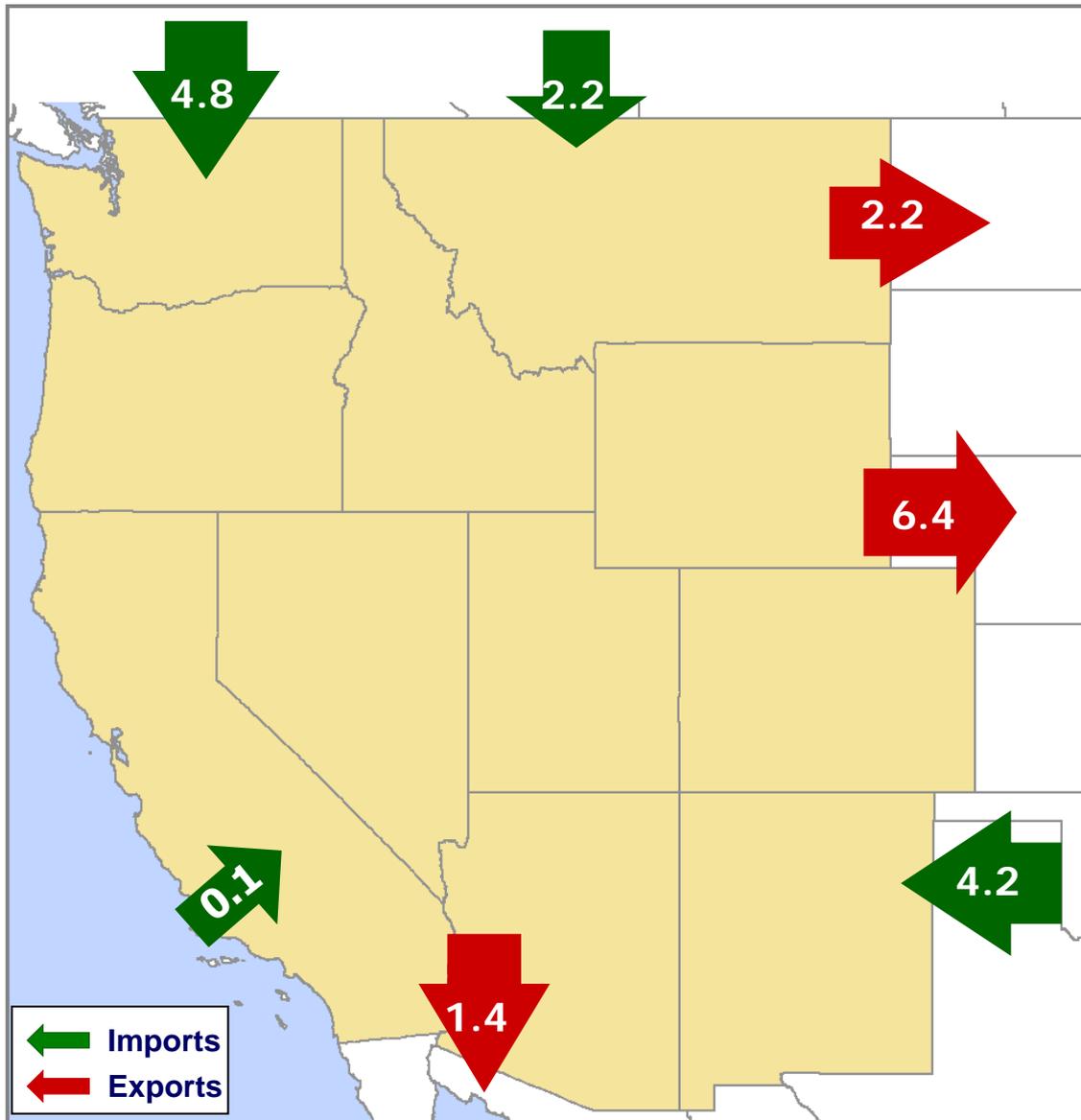


**Imports Capacity
11.1 Bcfd**

**Export Capacity
7.8 Bcfd**

Source: ICF International April 2012 Data Base and Compass Report,

Projected Pipeline Capacity 2020 (in Bcfd)



Imports Capacity
11.3 Bcfd

Export Capacity
10.0 Bcfd

Source: ICF International April 2012 Data Base and Compass Report,