Energy and Environmental Analysis, Inc.
an ICF International Company

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NYSERDA Case 1 Results

June 24, 2009

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ICF International

Review of GMM Results
(Presented March 2009)

Economic Assumptions

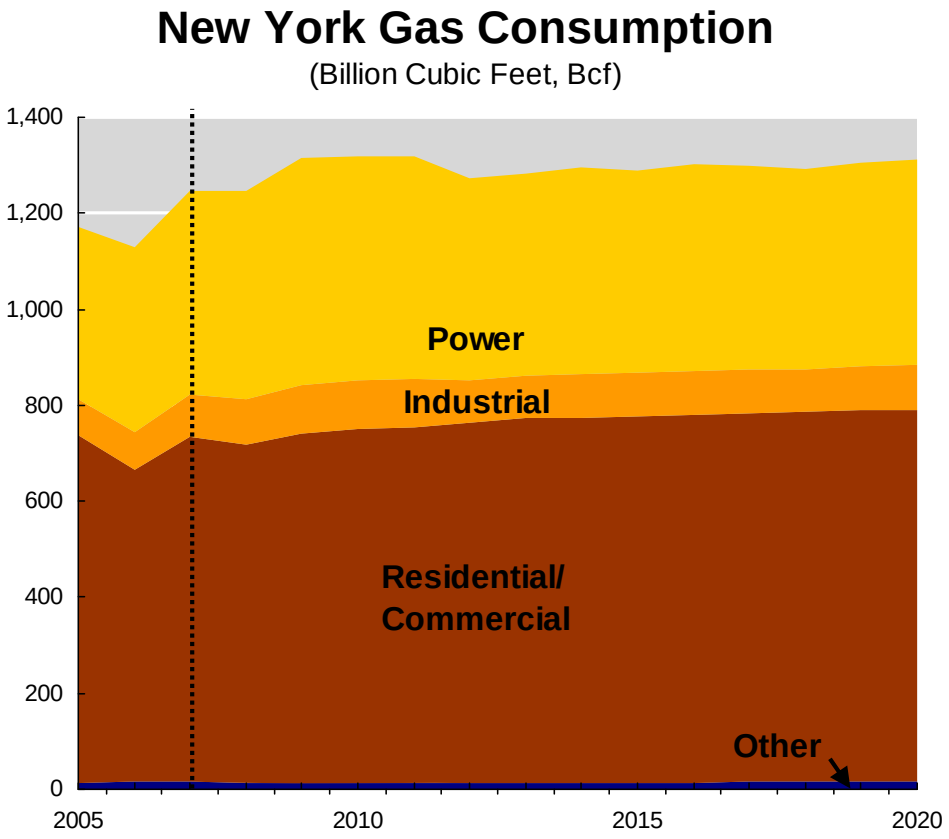
- U.S. GDP growth for the projection period is 3.0% annually.
  - No recession is assumed in the near-term.
  - GDP grows slower within the state of New York, which averages only 2.8% per year throughout the projection period.
- Long-term Refiners Acquisition Cost of Crude (RACC) prices are projected to be $65.00 in 2008 dollars (around $71 WTI).
- The case does not assume any carbon policy within the United States throughout the projection period.
- The case assumes normal weather throughout the projection period, based upon a 30-year average.

Gas Demand Efficiency Assumptions

- Gas demand in the residential, commercial, and industrial sectors assume that current efficiency trends continue through 2018.
  - Trends assume rules, regulations, and standards that are currently in place or enacted into law.
  - Trends does not assume any potential "15 by15" policies that may accelerate efficiency or other rules and regulations that have not yet been enacted.
- Gas consumption in the power sector is based on the IPM Base Case with the ISO projections.
  - Electricity sales projections assume electric demand efficiencies assumed do not meet the full "15 by 15" efficiency goal.

New York Gas Demand Outlook

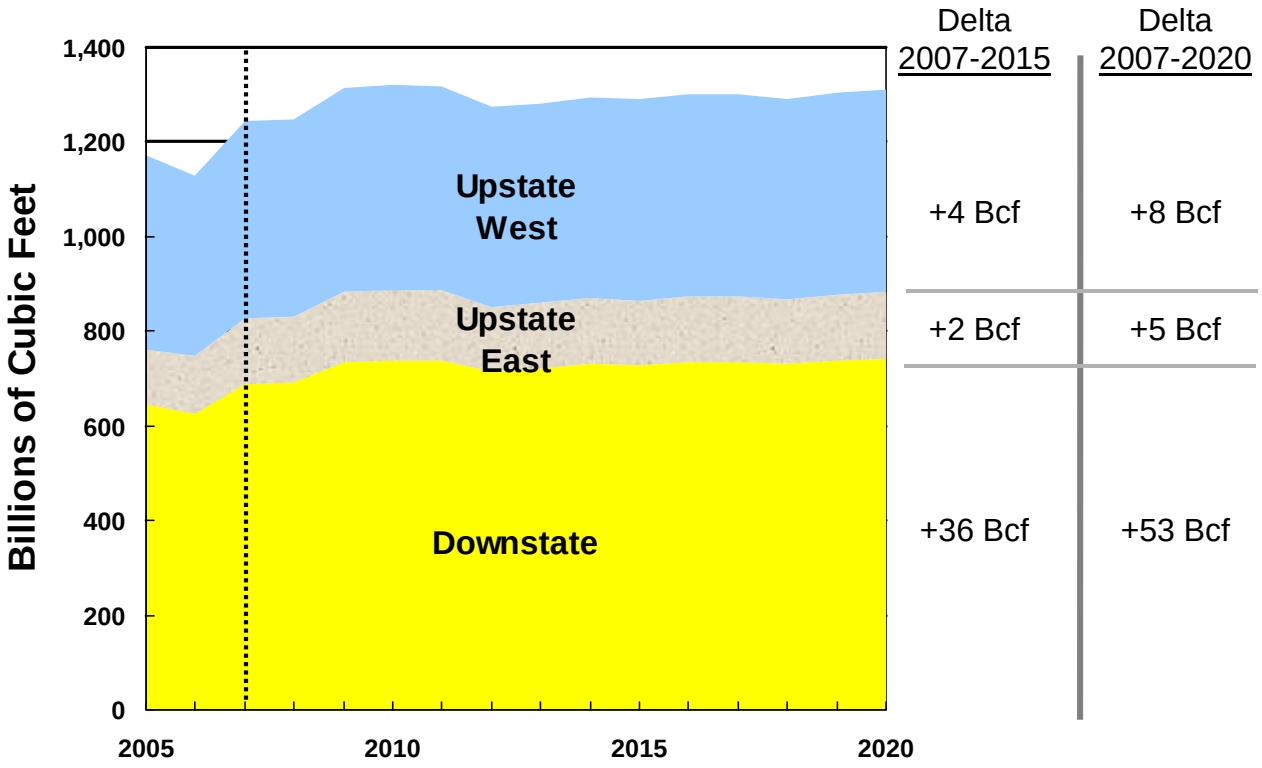
- New York State annual gas consumption is expected to grow by 66 Bcf (5 percent) by 2020 to about 1.3 Tcf.
- Gas consumption in the power sector remains relatively flat through 2020.
  - Slow growth in electricity demand combined with increasing renewables generation leads to flat demand for gas-fired power generation.
- The industrial sector is also essentially flat.
- Modest and steady growth in R/C gas consumption, which increases at a rate of 0.6% per year, mostly due to oil to gas unit conversion.



	Delta 2007-2015	Delta 2007-2020
Power	-4 Bcf	+4 Bcf
Industrial	+1 Bcf	+3 Bcf
Residential/ Commercial	+46 Bcf	+57 Bcf
Other	-1 Bcf	+2 Bcf
Totals	**+42 Bcf**	**+66 Bcf**

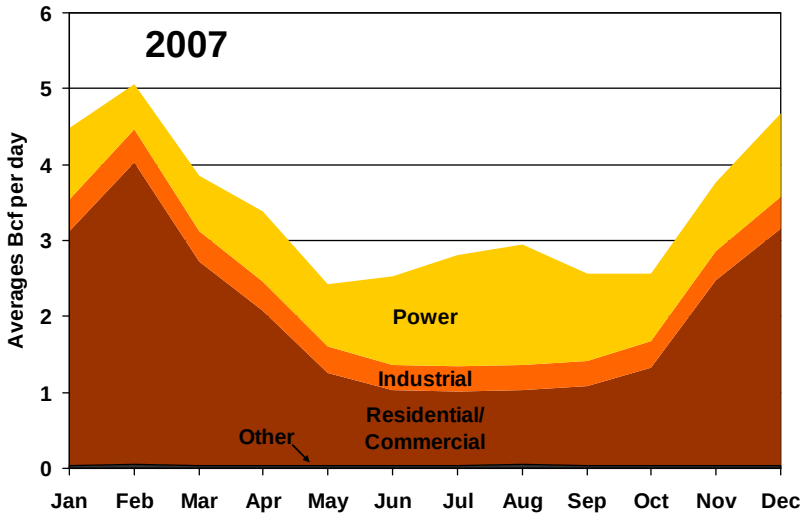
New York Regional Gas Demand Outlook

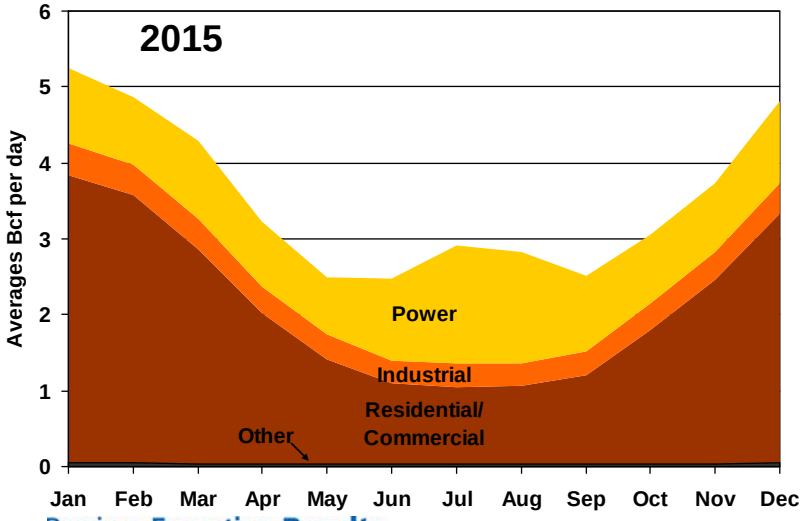
- Through 2020, over 80 percent of the growth in gas consumption for New York State is concentrated in the Downstate area.
- Annual gas consumption in both Upstate East and Upstate West remain relatively flat through 2020.

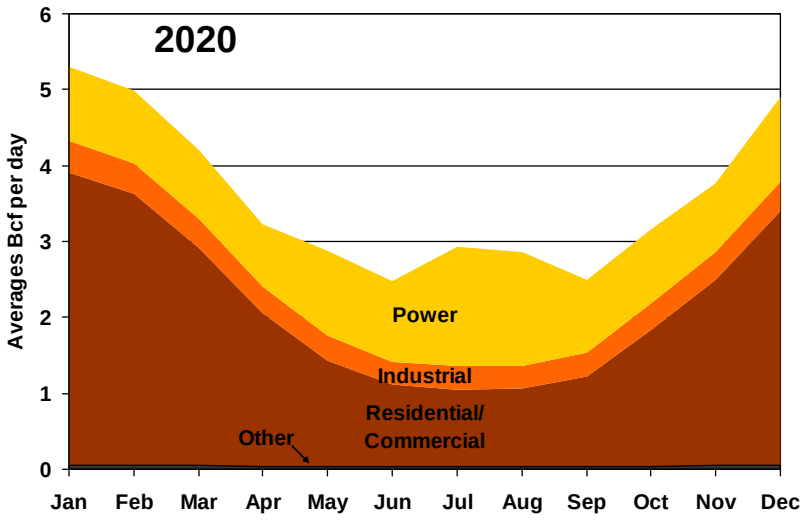


New York Seasonal Gas Demand

- New York is projected to remain a winter peaking gas market.
- The ratio of peak winter consumption (January) to peak summer consumption (July) stays between 1.6 and 1.8 throughout the forecast.
- Demand in the three peak winter months grows from about 4.7 Bcfd in 2007 to about 5.1 Bcfd in 2020.
- Demand in the two peak summer months stays fairly constant at about 2.9 Bcfd.

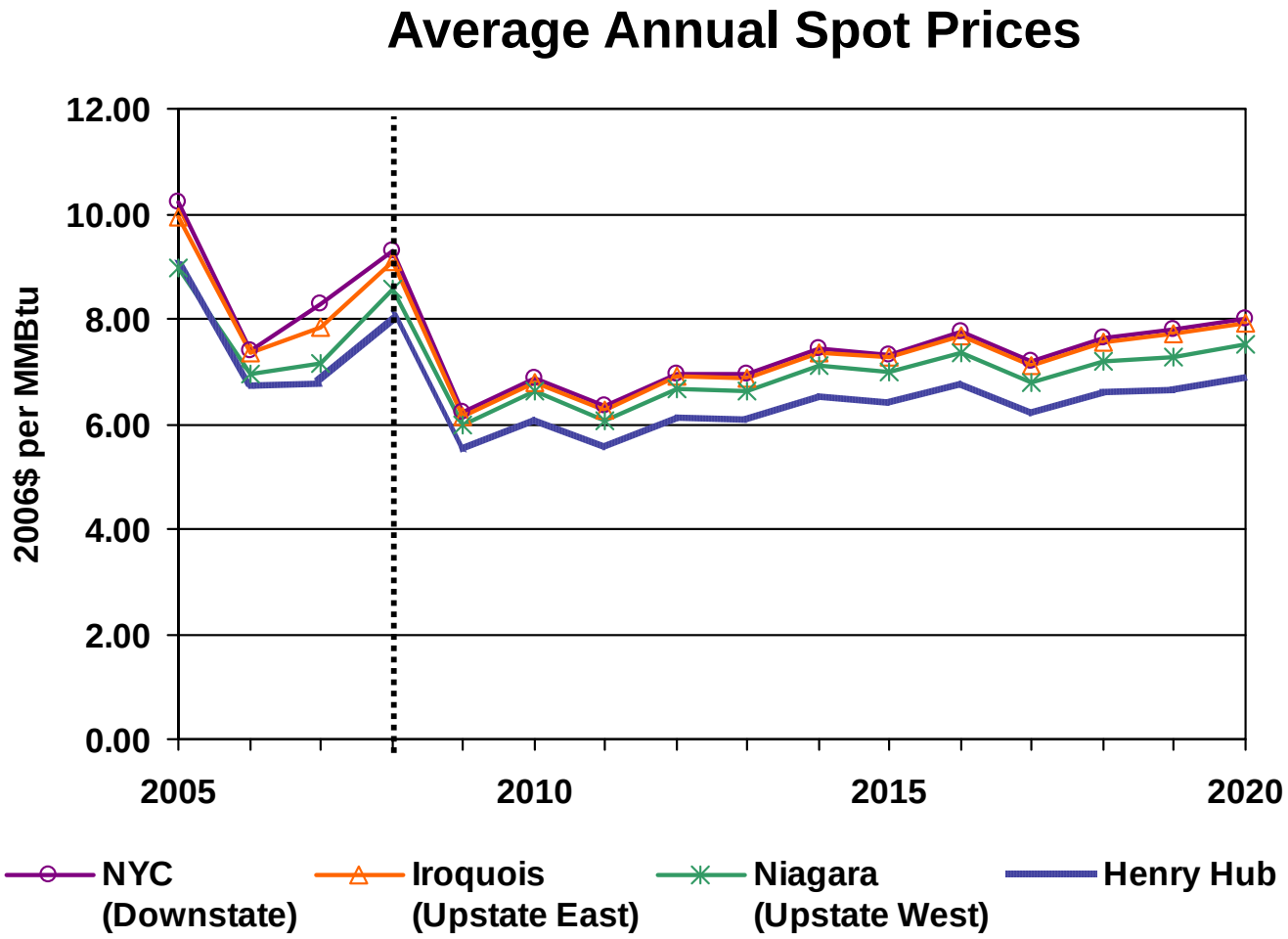






New York Gas Prices (2006$ per MMBtu)

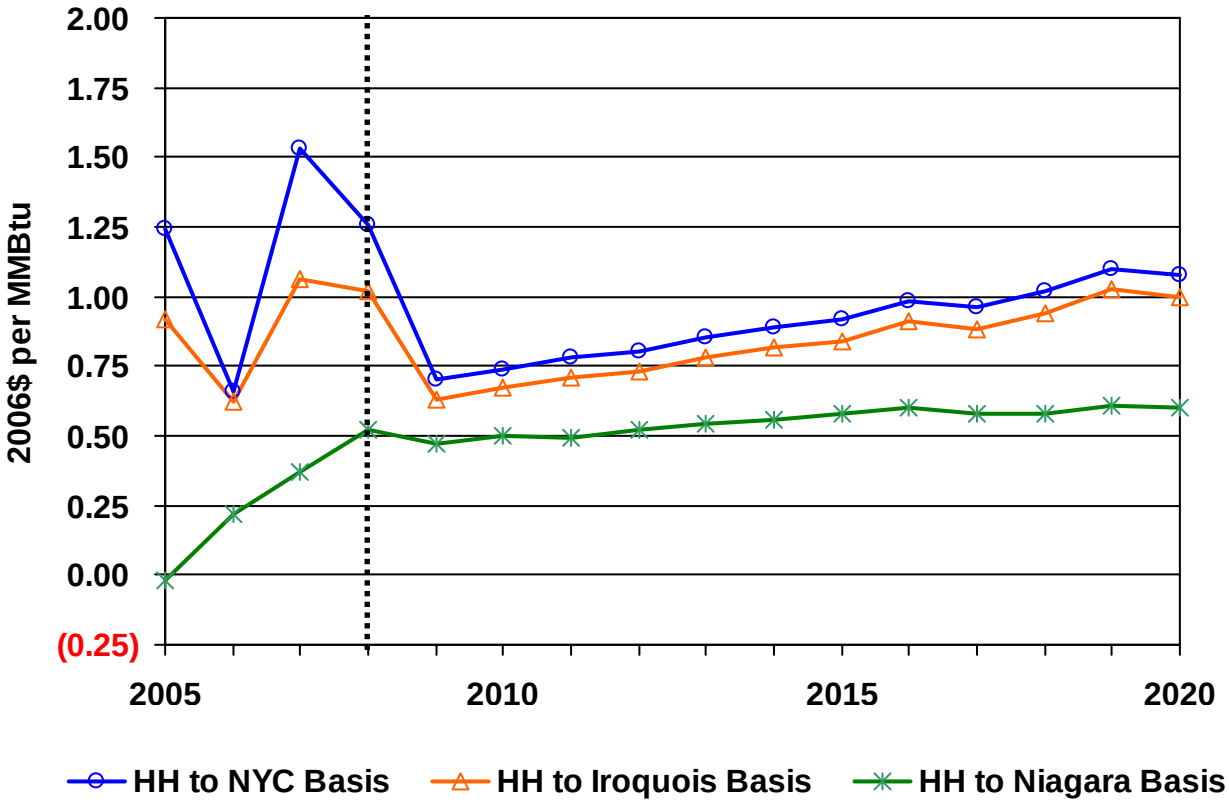
- All natural gas prices in New York will follow national trends, reflected by the Henry Hub price.
  - Because this case assumes no Federal carbon policy, there is little upward pressure on national gas prices from recent levels.
- New York prices range between $6 to $8 per MMBtu from 2009 forward.
- On average, New York State prices trade at a premium to Henry Hub of about $0.77 per MMBtu (see next slide).
- Prices are very sensitive to weather conditions.
  - This projection assumes normal (30-year average) weather.



New York Basis (2006$ per MMBtu)

- New York gas prices are projected to remain at a significant premium to Henry Hub prices.
- Basis into New York City, which averaged $1.14 per MMBtu between 2005 and 2007, will average $0.90 per MMBtu throughout the projection.
  - Basis projections are based on normal weather. Colder-than-normal winter weather can create significant price volatility and much higher basis.
  - Basis into New York City is also highly dependant on additional pipeline and / or added LNG infrastructure.
- Basis to Niagara, which averaged $0.19 per MMBtu between 2005 and 2007, will average $0.55 per MMBtu throughout the projection.

Average Annual Henry Hub to New York Basis



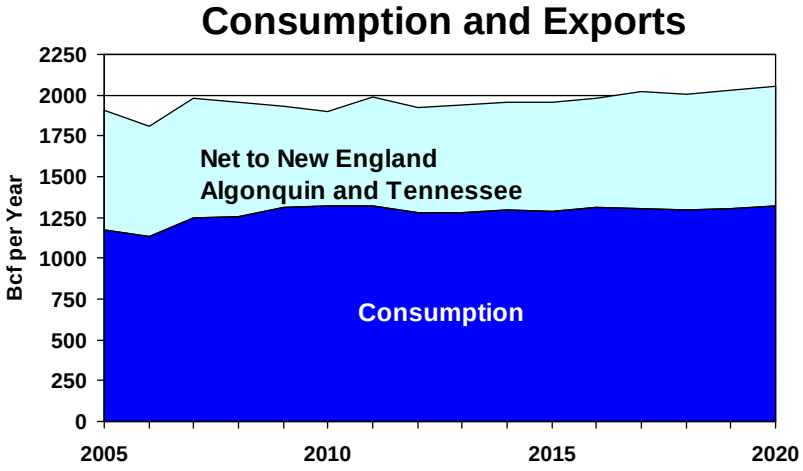
New York Infrastructure Additions

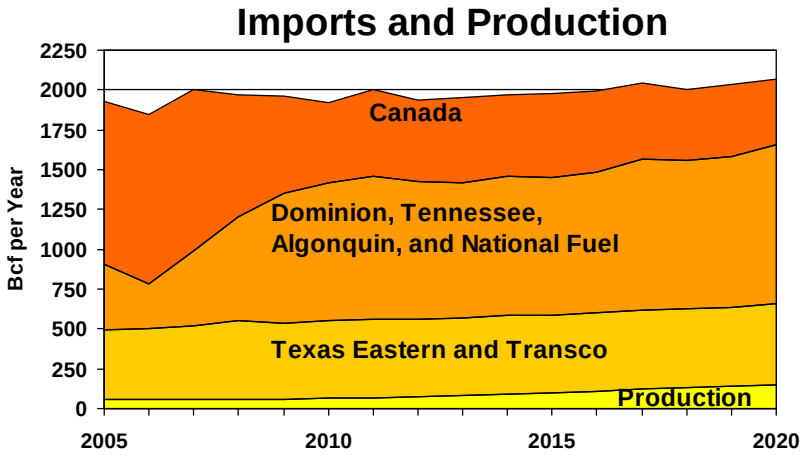
- NYSERDA Case 1 assumes that four pipeline projects are completed within the State of New York through 2009.
  - Pipeline Capacity Added Bringing Gas to Eastern New York:
    - Millennium Pipeline & Empire Connector – Niagara to Eastern New York
      - 534 MMcfd 2008
  - Pipeline Capacity Added Bringing Supply Into New York City and Long Island:
    - Transco Leidy to Long Island
      - 100 MMcfd 2008
    - Ramapo Expansion – Eastern New York to New York City
      - 325 MMcfd 2008
    - Iroquois 08/09 Expansion – Connecticut to Long Island
      - 200 MMcfd 2009
- NYSERDA Case 1 assumes 6 Bcfd of Storage Capacity Added in 2009.
  - 5.5 Bcf Thomas Corners – Western New York 2009
- Besides these planned projects, there are no other infrastructure expansions assumed within New York State.

Other Northeast Regional Infrastructure Additions Through 2020

- Pipeline Capacity Expansions
  - New England
    - Martimes & Northeast Phase 4 – Eastern Canada Offshore to New England
      - 418 MMcfd 2008
  - Pennsylvania and New Jersey
    - Texas Eastern TIME II – Lebanon to Leidy
      - 150 MMcfd 2008
- Storage Capacity Expansions
  - Pennsylvania
    - 12 Bcf - Steckman Ridge – Spectra 2009
    - 11.2 Bcf - Storage Factory – Dominion 2014

New York Gas Balance



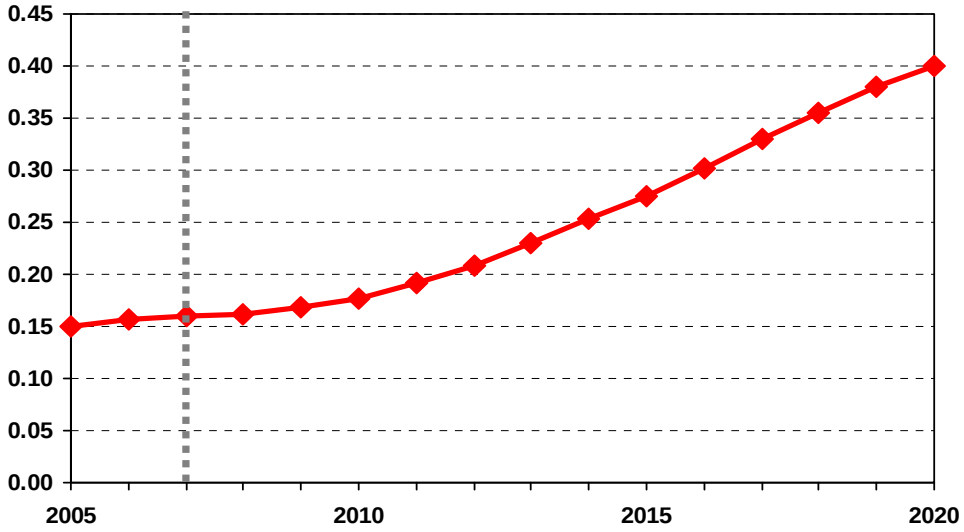


- Annual net exports to New England, which have averaged about 700 Bcf/y, decline through 2010 but then gradually rebound back to about 740 Bcf/y by 2020.
- Total annual pipeline imports into New York will remain relatively stable, but the sources of gas change over time .
  - Canadian imports decrease by about 590 Bcf/y, as production in Western Canada decreases and Canadian consumption increases.
  - Imports are projected to increase from the south and the west, as production from shales near the Gulf Coast and Rocky Mountain production replaces declining imports from Canada.
- Production in Western New York is projected to grow to about 150 Bcf/y per year by 2020, accounting for about 8 percent of New York's natural gas supply.

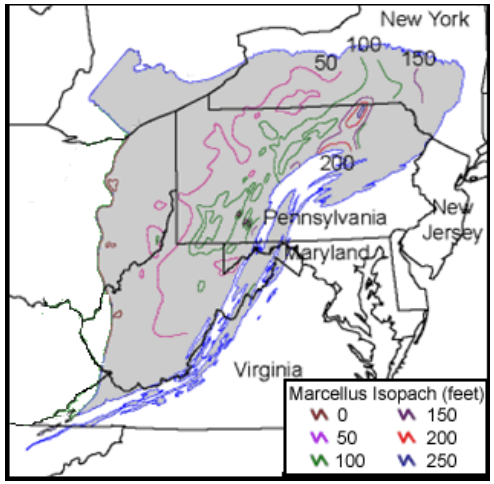
New York Gas Production

- Historically, natural gas production in New York has been a relatively small part of the State's total gas supply.
  - In 2007, production accounted for about 3% of New York's supply.
- Development of the Marcellus Shale, which extends into western and central New York, is projected to increase production significantly over the next 10 years.
  - By 2020, production is expected to account for almost 8% of the State's total gas supply.

New York State Gas Production, in Bcf per Day



Marcellus Shale

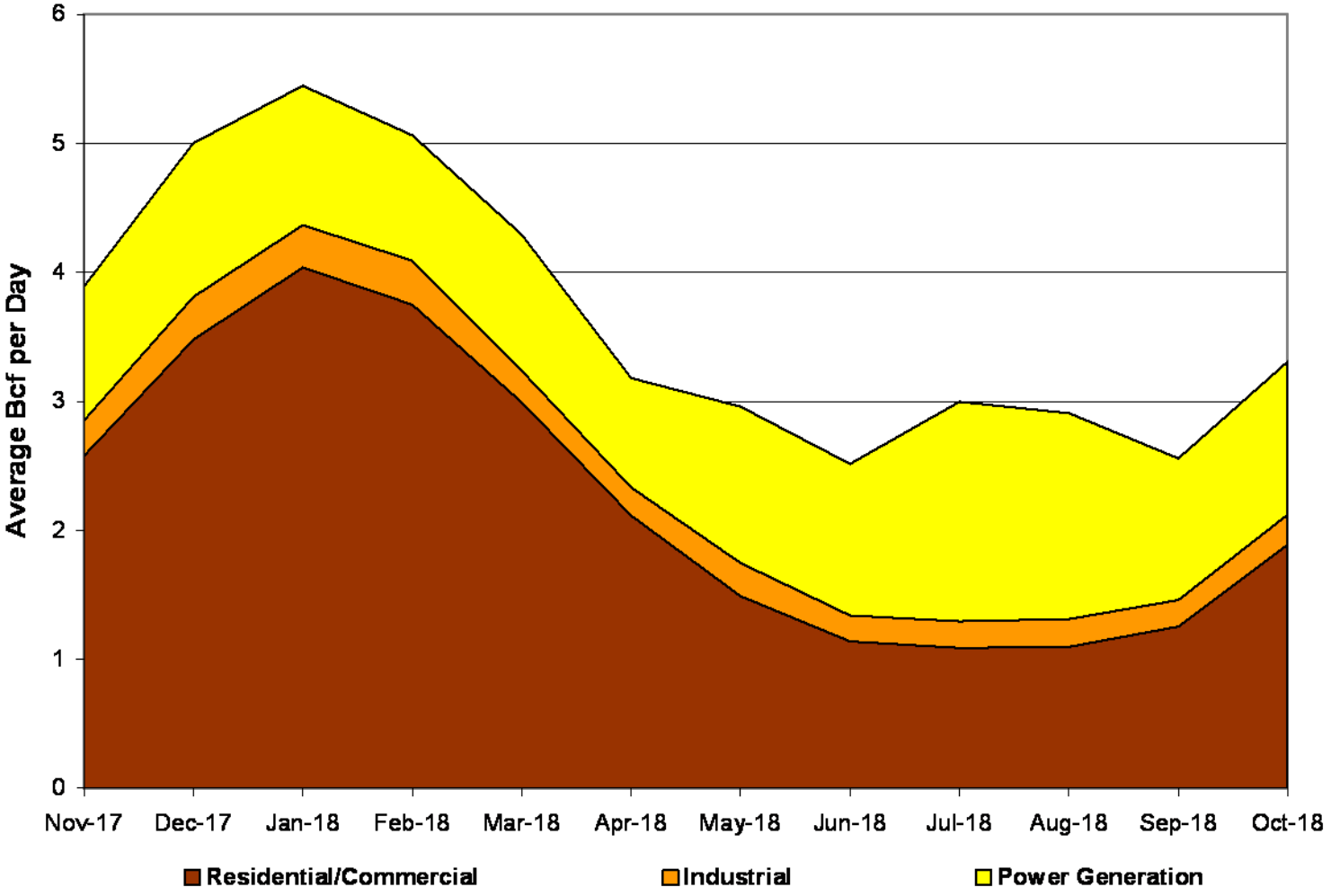


NYSERDA Case 1 Key Findings

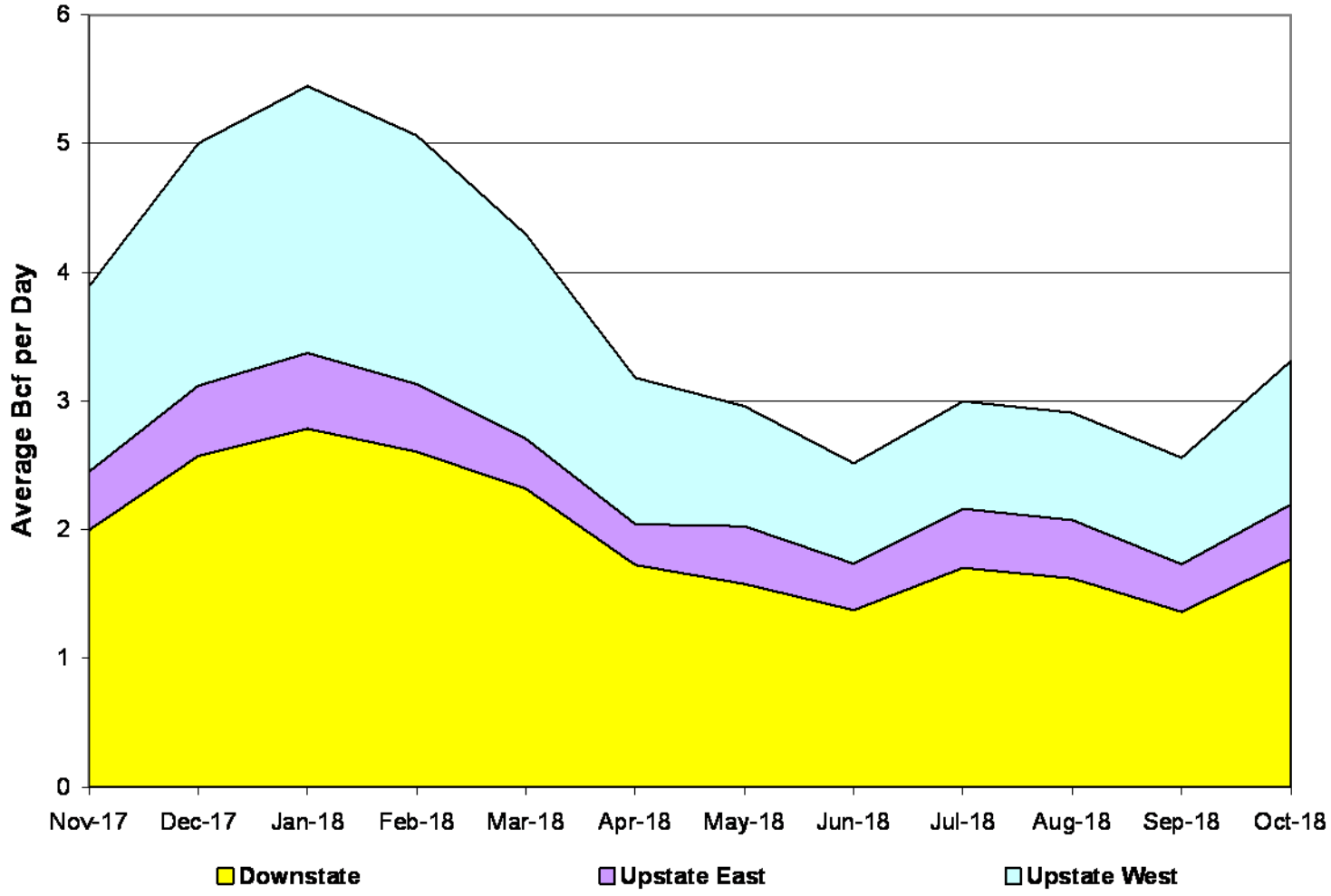
- New York annual gas consumption is anticipated to grow by 66 Bcf (5 percent) by 2020, with nearly all of the growth coming from the Residential and Commercial sectors.
  - Slow growth in electricity demand combined with increasing renewables generation leads to flat demand for gas-fired power generation.
- Over 80 percent of the State's total growth is projected to be downstate in the New York City / Long Island area.
- New York will remain a significant winter peaking market.
- New York natural gas prices average between $6 and $8 per MMBtu.
  - However, weather alone can significantly swing prices, especially in downstate markets.
- Basis to New York from Henry Hub is projected to average around $0.77 per MMBtu under normal weather conditions.
- There are four planned pipeline projects with a total capacity of 1.1 Bcfd for the State.
  - Over 600 MMcfd of additional capacity directed towards downstate New York.
- Supply sources shift as declining imports from Canada are replaced with new supplies from the south and west, as production increases in the shales near the Gulf Coast and in the Rocky Mountains.
  - In-state production is also up due to development of the Marcellus Shale.

Peak Day – RIAMS Results
January 2018

Seasonal Consumption by Sector with GE Maps Power Consumption: 2017 -2018



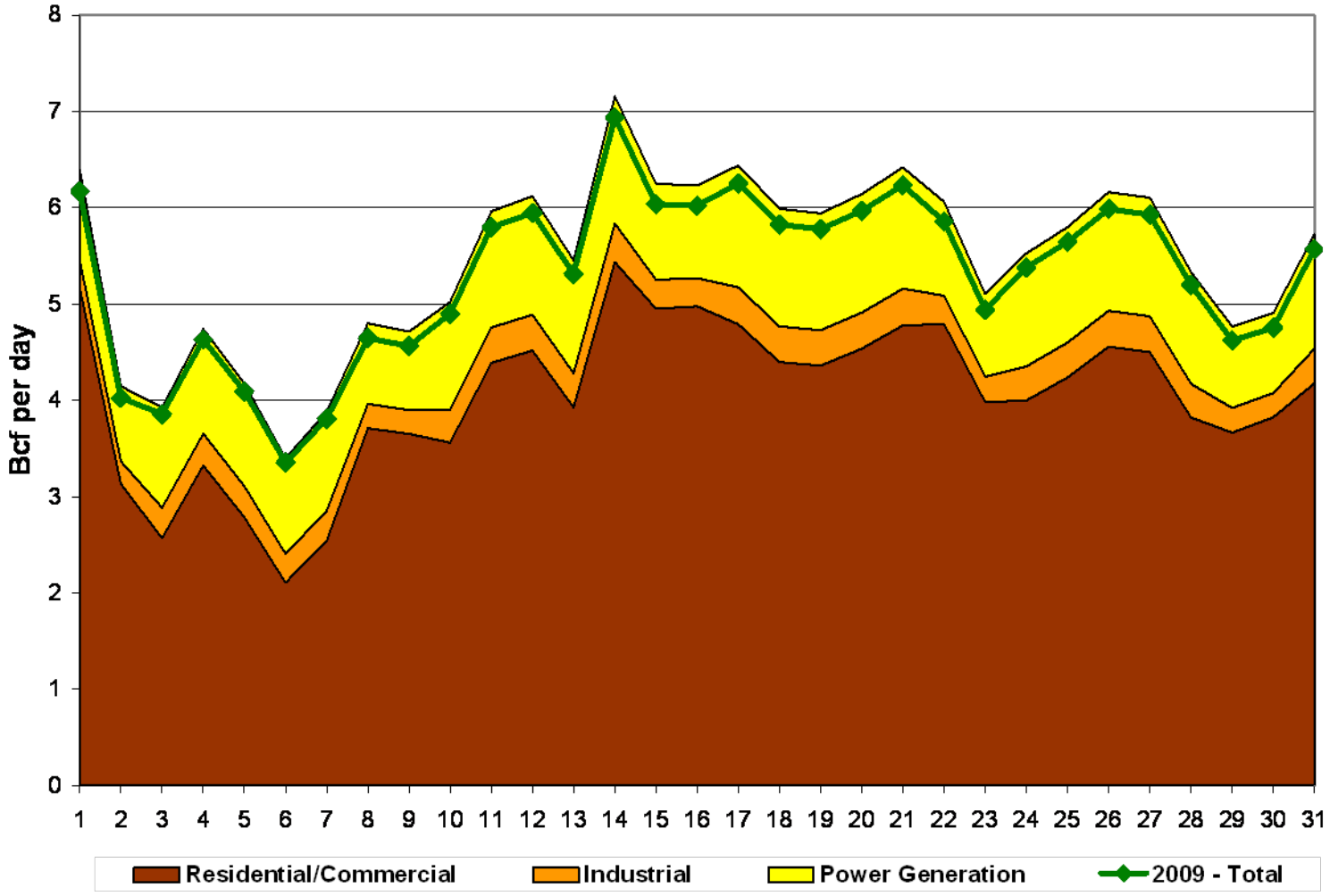
Seasonal Consumption by Region with GE Maps Power Consumption: 2017 -2018



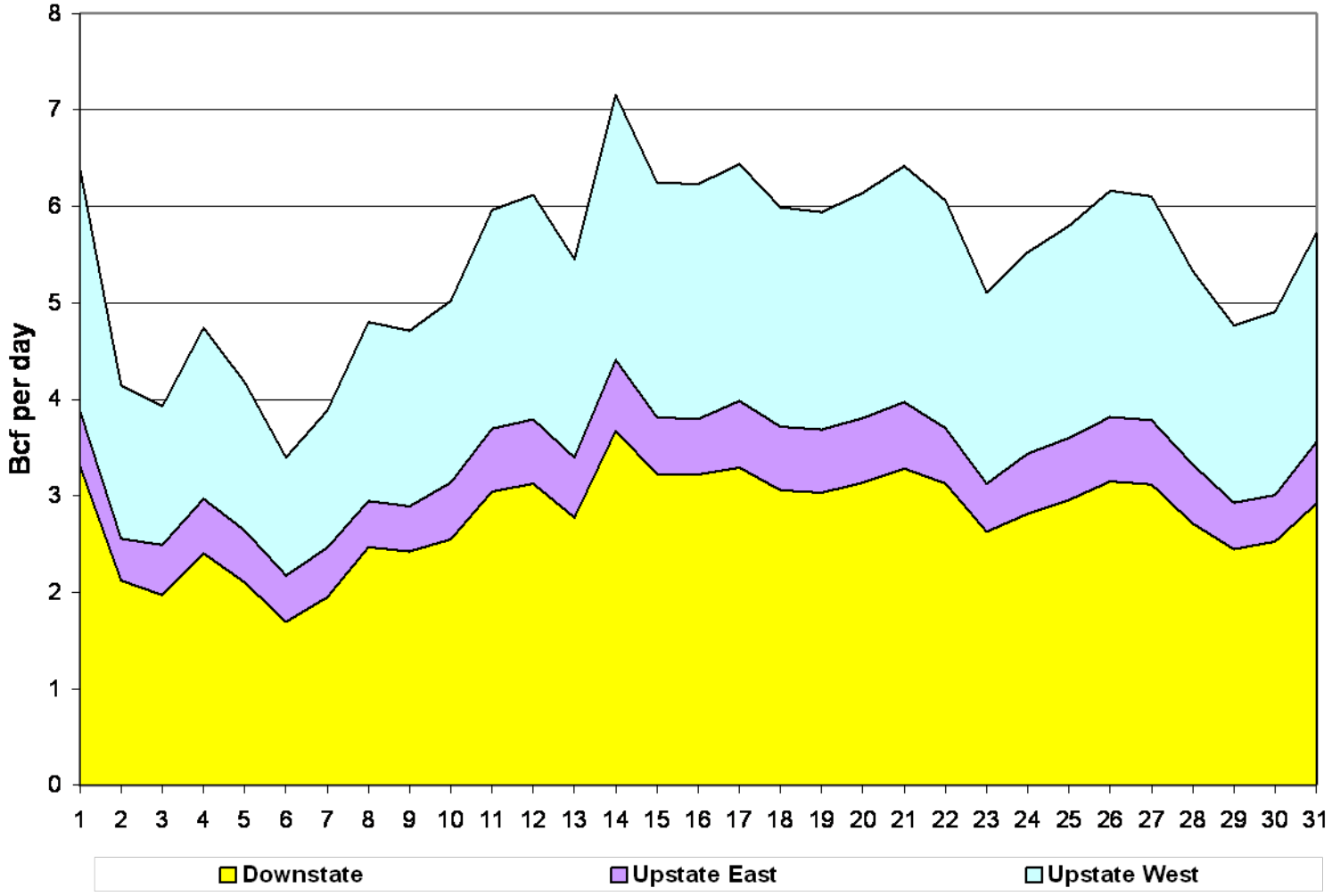
Daily RIAMS Conditions

- Projected for January 2018.
- Assumed temperatures on the peak day
  - New York City is 5 degrees Fahrenheit on the peak gas demand day
    - Average temperature in January is 33 degrees; Average minimum is 15 degrees
  - Buffalo is -3 degrees Fahrenheit on on the peak gas demand day
    - Average temperature in January is 25 degrees; Average minimum is 7 degrees

Daily Consumption by Sector with GE Maps Power Consumption: Jan 2018



Daily Consumption by Region with GE Maps Power Consumption: Jan 2018



New York Gas Peak and Average Day Imports/Exports

Location	Year	Capacity	Peak Day	Avg Day
Algonquin Exports to CT	2009	1,375	1,357	889
	2018	1,375	1,375	998
Algonquin Imports from NJ	2009	1,069	1,069	825
	2018	1,069	1,069	946
Columbia Imports from Western PA	2009	45	18	15
	2018	45	27	22
Dominion Imports from Western PA	2009	1,600	846	648
	2018	1,600	1,119	799
Empire State Receipts from Transcanada	2009	820	524	261
	2018	820	465	176
Iroquois Net Exports to CT	2009	1,000	179	272
	2018	1,000	420	308
Iroquois Deliveries to New York City	2009	753	742	564
	2018	753	437	362
Iroquois Receipts from Transcanada	2009	1,195	1,181	1,029
	2018	1,195	1,035	825
Millennium Deliveries to New York City	2009	167	151	28
	2018	167	167	26
National Fuel Imports from PA	2009	385	154	135
	2018	385	231	192
National Fuel Receipts from Transcanada	2009	426	190	95
	2018	426	99	38
Tennessee Exports to MA	2009	1,170	1,081	369
	2018	1,170	1,055	507
Tennessee Imports from NJ	2009	377	324	68
	2018	377	377	76
Tennessee Imports from Western PA	2009	774	415	312
	2018	774	550	393
Tennessee Receipts from Transcanada	2009	1,051	438	219
	2018	1,051	256	97
Texas Eastern Downstate Deliveries	2009	705	705	311
	2018	705	705	340
Transco NJ to Long Is & Staten Is	2009	689	578	284
	2018	689	578	325
Transco NJ to Manhattan	2009	1,007	1,007	836
	2018	1,007	1,007	819

New York Monthly Average Gas Imports/Exports

Location	Year	Capacity	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Algonquin Exports to CT	2008-09	1,375	1,044	1,164	1,174	1,175	1,100	992	624	550	712	637	631	886
	2017-18	1,375	1,010	1,283	1,362	1,278	1,086	1,054	843	735	782	765	733	1,063
Algonquin Imports from NJ	2008-09	1,069	1,008	1,041	985	982	975	1,036	639	494	641	544	641	920
	2017-18	1,069	1,069	1,069	1,069	1,069	1,069	1,069	860	743	760	777	742	1,069
Columbia Imports from Western PA	2008-09	45	18	18	18	18	18	27	9	9	9	9	9	18
	2017-18	45	27	27	27	27	27	18	18	18	18	18	18	27
Dominion Imports from Western PA	2008-09	1,600	772	714	819	840	760	684	593	401	481	438	590	693
	2017-18	1,600	960	996	998	960	960	767	640	633	592	640	640	817
Empire State Receipts from Transcanada	2008-09	820	125	421	524	316	347	91	91	226	362	443	91	91
	2017-18	820	114	146	465	263	113	113	113	113	242	201	113	113
Iroquois Net Exports to CT	2008-09	1,000	400	436	445	563	369	300	-	87	151	165	9	357
	2017-18	1,000	587	522	468	588	594	276	-	53	200	200	-	222
Iroquois Deliveries to New York City	2008-09	753	461	452	491	388	493	409	616	753	753	753	730	452
	2017-18	753	169	367	416	300	290	110	367	622	679	664	205	133
Iroquois Receipts from Transcanada	2008-09	1,195	1,092	1,188	1,184	1,161	1,161	851	730	954	1,103	1,066	863	993
	2017-18	1,195	858	1,123	1,040	1,093	1,147	471	484	761	1,086	1,005	324	501
Millennium Deliveries to New York City	2008-09	167	50	73	77	76	67	-	-	-	-	-	-	-
	2017-18	167	2	67	100	92	33	-	-	-	-	-	-	18
National Fuel Imports from PA	2008-09	385	154	154	154	154	154	154	154	77	77	77	154	154
	2017-18	385	231	231	231	231	231	154	154	154	154	154	154	231
National Fuel Receipts from Transcanada	2008-09	426	46	153	190	115	126	33	33	83	133	162	33	33
	2017-18	426	25	32	99	56	24	24	24	24	52	43	24	24
Tennessee Exports to MA	2008-09	1,170	389	737	928	702	474	239	173	13	225	183	151	220
	2017-18	1,170	487	1,006	1,120	1,067	691	408	103	59	234	122	234	576
Tennessee Imports from NJ	2008-09	377	66	66	87	66	66	66	66	63	65	66	66	66
	2017-18	377	66	66	200	66	66	66	66	57	66	66	61	66
Tennessee Imports from Western PA	2008-09	774	327	309	381	368	395	395	263	240	240	215	267	352
	2017-18	774	464	545	536	549	464	395	309	283	240	257	289	396
Tennessee Receipts from Transcanada	2008-09	1,051	105	352	438	265	290	76	76	190	305	373	76	76
	2017-18	1,051	61	79	256	145	62	62	62	62	133	111	62	62
Texas Eastern Downstate Deliveries	2008-09	705	282	564	564	564	423	282	134	141	241	200	63	282
	2017-18	705	417	564	627	564	423	314	282	26	102	79	282	405
Transco NJ to Long Is & Staten Is	2008-09	689	276	517	551	530	427	276	138	44	138	138	138	243
	2017-18	689	413	487	551	541	448	413	193	138	138	138	185	276
Transco NJ to Manhattan	2008-09	1,007	961	1,007	1,007	1,007	1,007	806	604	611	852	806	604	766
	2017-18	1,007	885	1,007	1,007	1,007	1,007	806	675	541	714	665	640	879

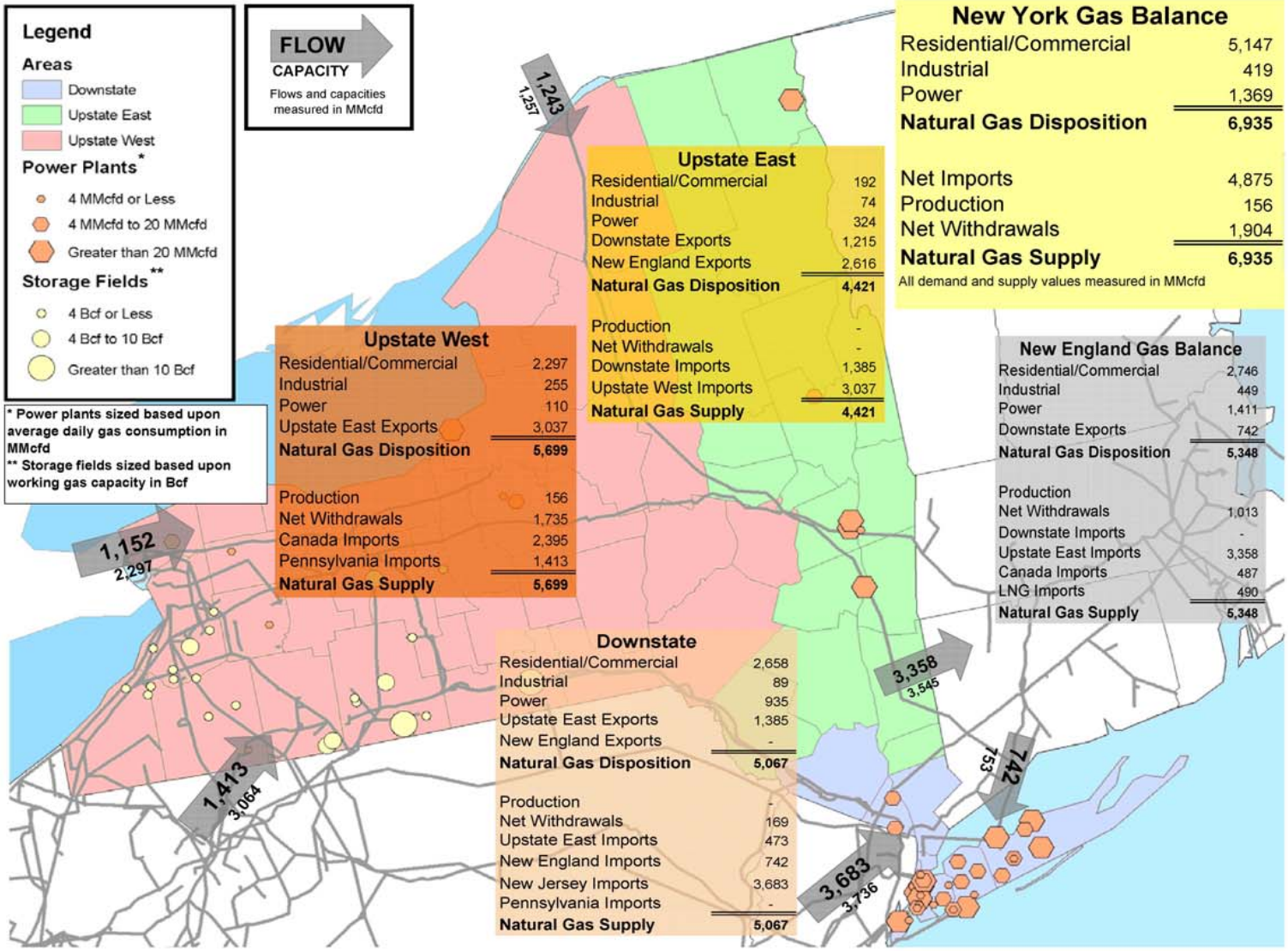
Peak Day Maps January 2009

(Normal weather pattern not actual Weather)

New York State Balance

NYSERDA Case 1

Peak Day 2009



New York Gas Balance

Residential/Commercial	5,147
Industrial	419
Power	1,369
Natural Gas Disposition	**6,935**
Net Imports	4,875
Production	156
Net Withdrawals	1,904
Natural Gas Supply	**6,935**

All demand and supply values measured in MMcfd

Upstate East

Residential/Commercial	192
Industrial	74
Power	324
Downstate Exports	1,215
New England Exports	2,616
Natural Gas Disposition	**4,421**
Production	-
Net Withdrawals	-
Downstate Imports	1,385
Upstate West Imports	3,037
Natural Gas Supply	**4,421**

Upstate West

Residential/Commercial	2,297
Industrial	255
Power	110
Upstate East Exports	3,037
Natural Gas Disposition	**5,699**
Production	156
Net Withdrawals	1,735
Canada Imports	2,395
Pennsylvania Imports	1,413
Natural Gas Supply	**5,699**

New England Gas Balance

Residential/Commercial	2,746
Industrial	449
Power	1,411
Downstate Exports	742
Natural Gas Disposition	**5,348**
Production	-
Net Withdrawals	1,013
Downstate Imports	-
Upstate East Imports	3,358
Canada Imports	487
LNG Imports	490
Natural Gas Supply	**5,348**

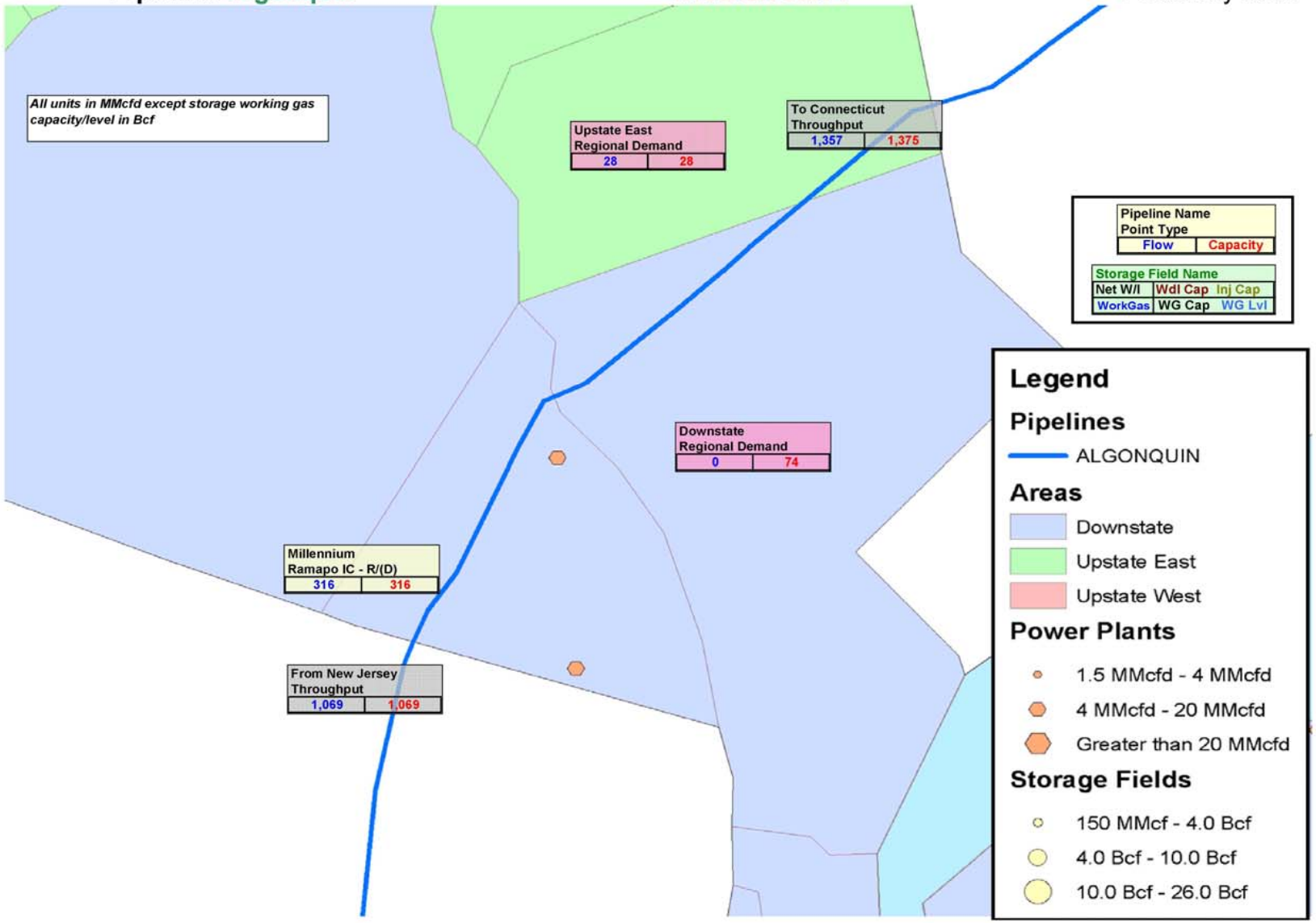
Downstate

Residential/Commercial	2,658
Industrial	89
Power	935
Upstate East Exports	1,385
New England Exports	-
Natural Gas Disposition	**5,067**
Production	-
Net Withdrawals	169
Upstate East Imports	473
New England Imports	742
New Jersey Imports	3,683
Pennsylvania Imports	-
Natural Gas Supply	**5,067**

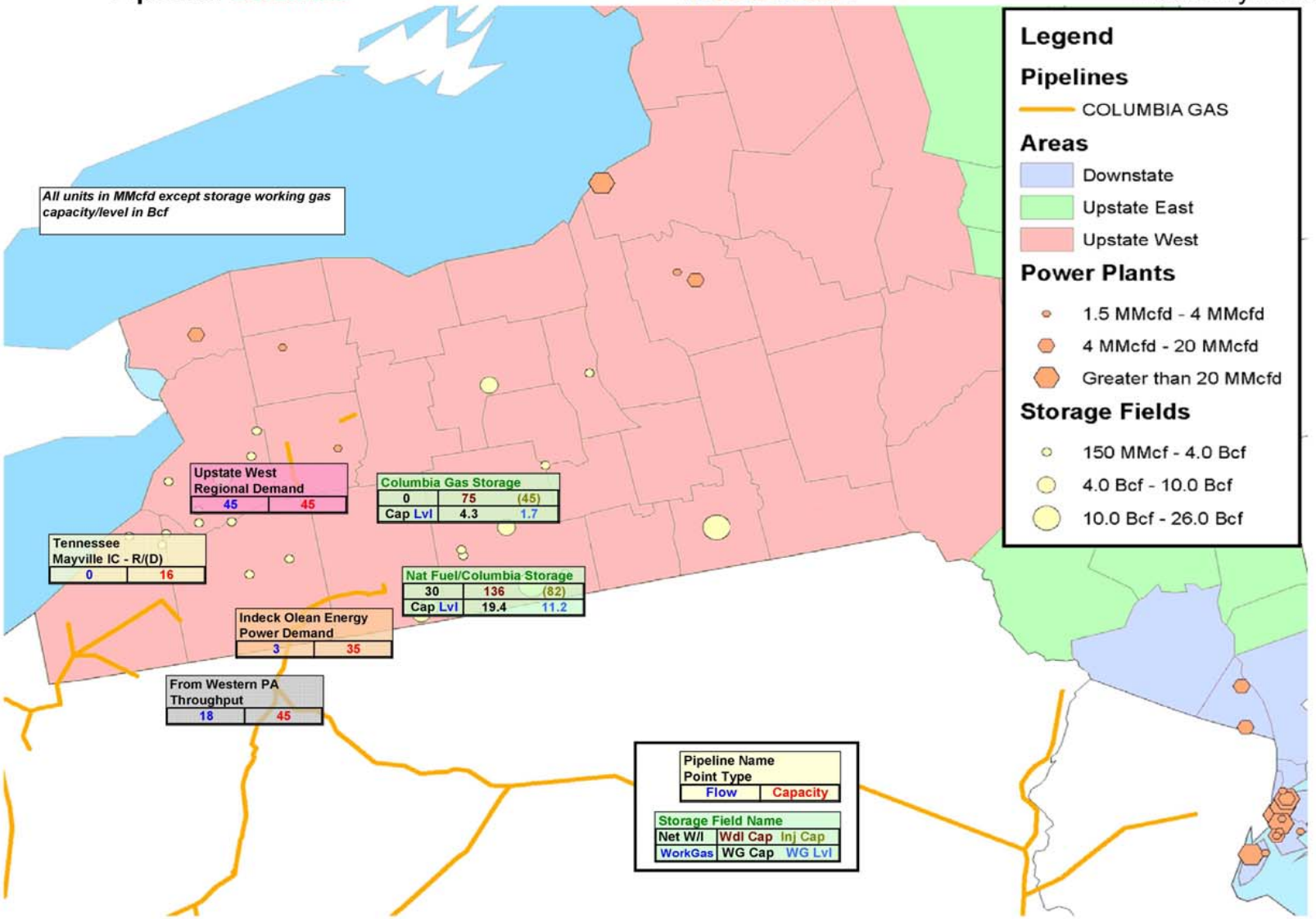
Pipeline: Algonquin

NYSERDA Case 1

Peak Day 2009



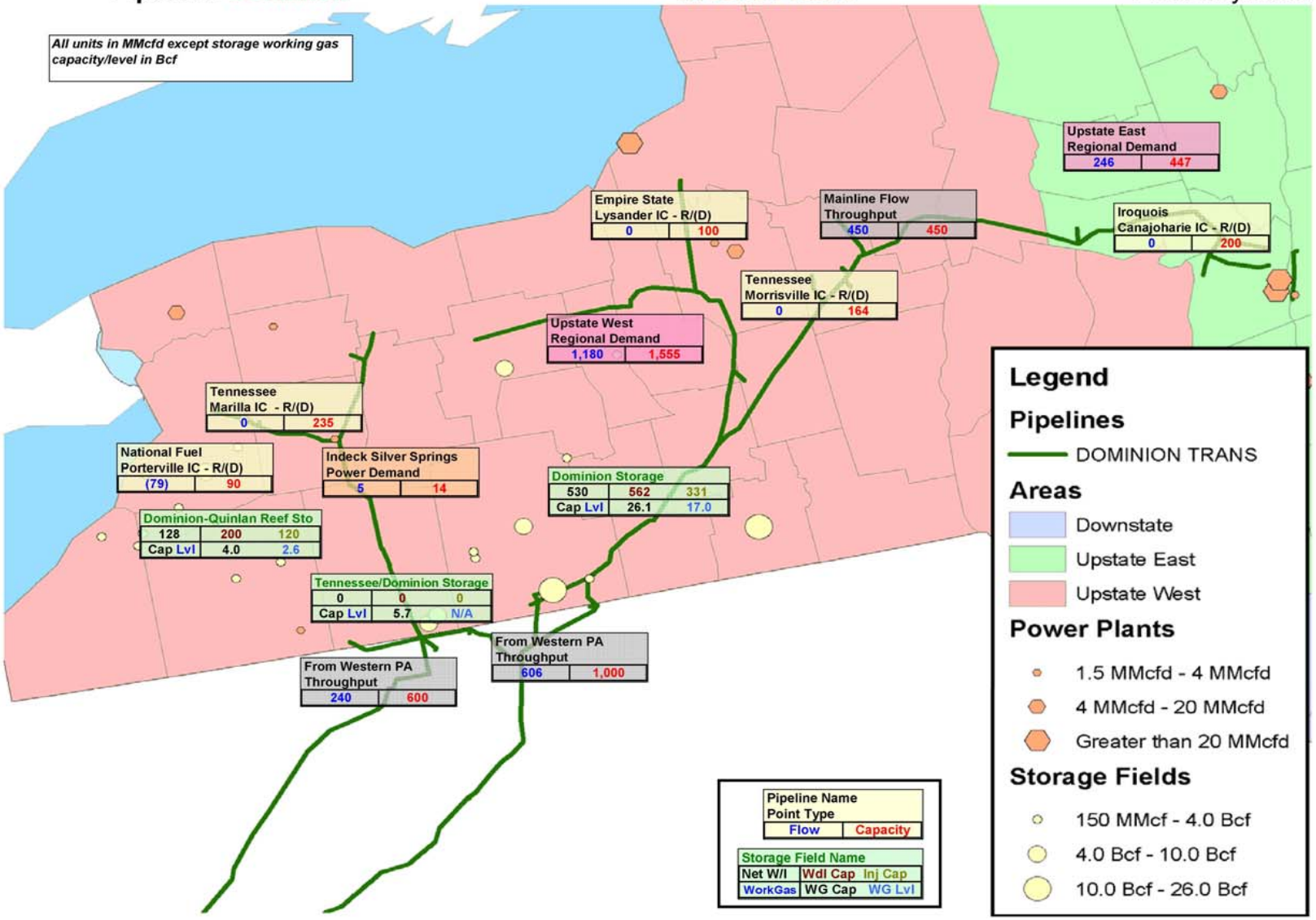
Pipeline: Columbia NYSERDA Case 1 Peak Day 2009



Pipeline: Dominion

NYSERDA Case 1

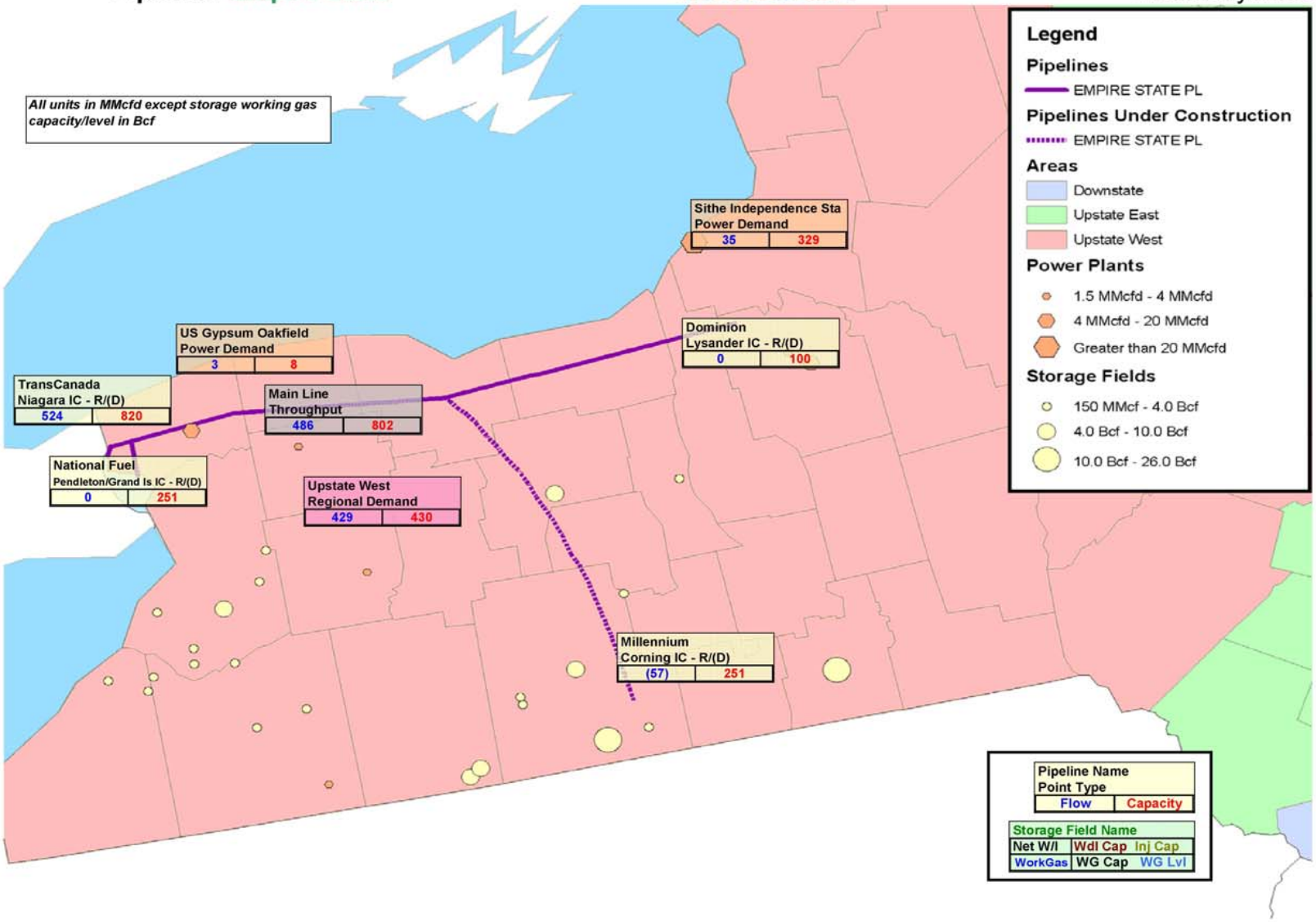
Peak Day 2009

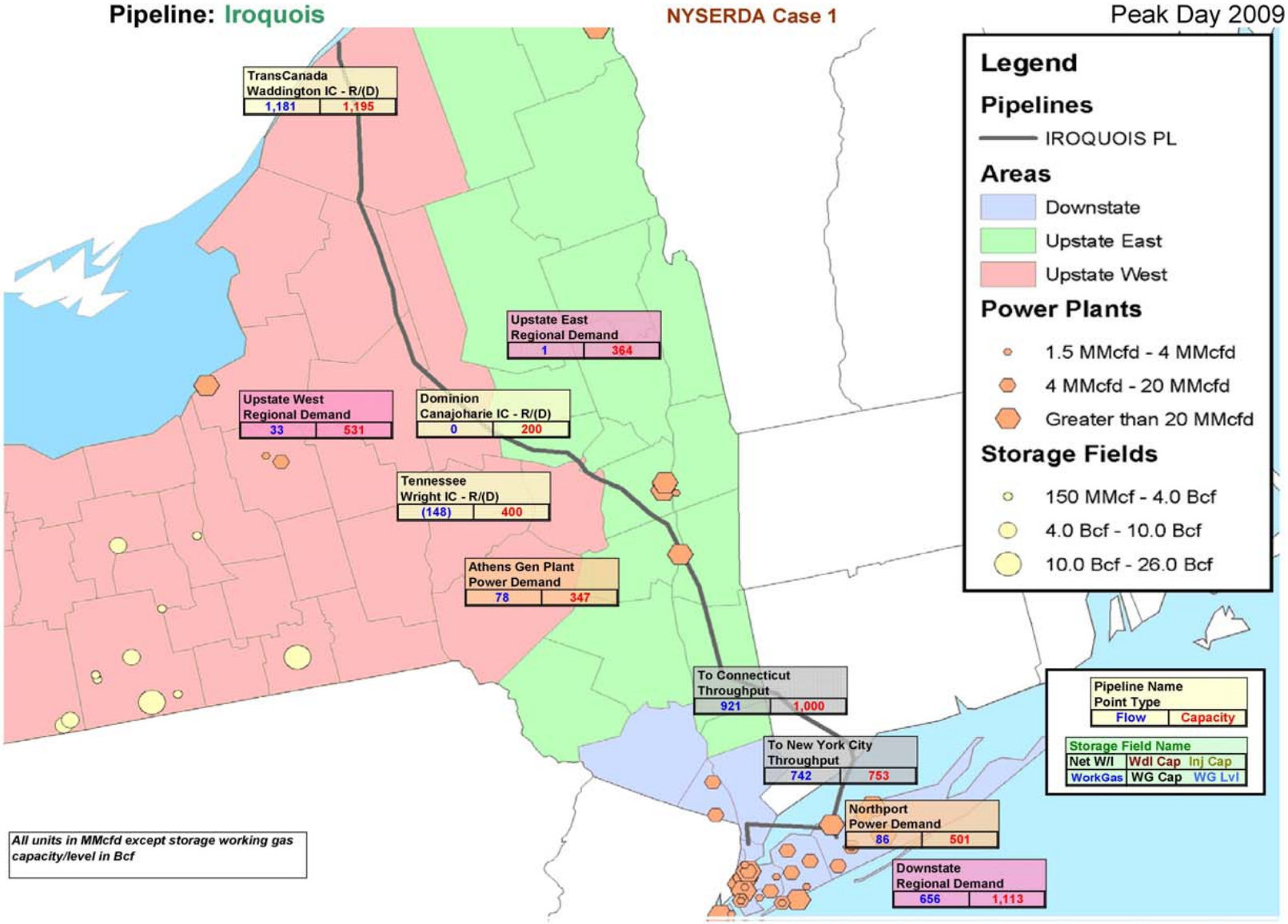


Pipeline: Empire State

NYSERDA Case 1

Peak Day 2009

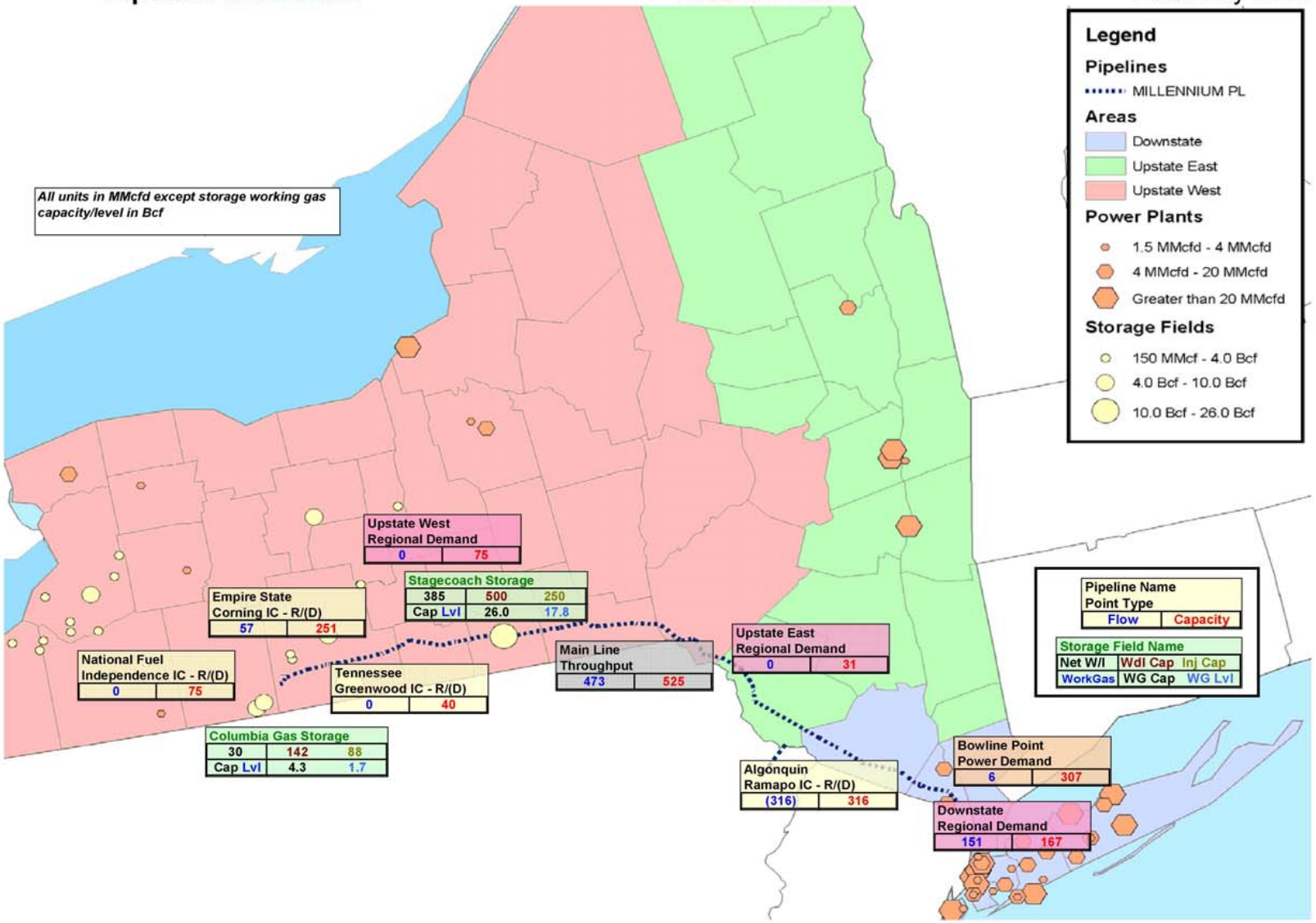



Pipeline: Iroquois
NYSERDA Case 1
Peak Day 2009
TransCanada
Waddington IC - R/(D)
1,181
1,195
Upstate East
Regional Demand
1
364
Upstate West
Regional Demand
33
531
Dominion
Canajoharie IC - R/(D)
0
200
Tennessee
Wright IC - R/(D)
(148)
400
Athens Gen Plant
Power Demand
78
347
To Connecticut
Throughput
921
1,000
To New York City
Throughput
742
753
Northport
Power Demand
86
501
Downstate
Regional Demand
656
1,113
Legend
Pipelines
IROQUOIS PL
Areas
Downstate
Upstate East
Upstate West
Power Plants
1.5 MMcfd - 4 MMcfd
4 MMcfd - 20 MMcfd
Greater than 20 MMcfd
Storage Fields
150 MMcf - 4.0 Bcf
4.0 Bcf - 10.0 Bcf
10.0 Bcf - 26.0 Bcf
Pipeline Name
Point Type
Flow
Capacity
Storage Field Name
Net W/I
Wdl Cap
Inj Cap
WorkGas
WG Cap
WG Lvl
All units in MMcfd except storage working gas capacity/level in Bcf

Pipeline: Millennium

NYSERDA Case 1

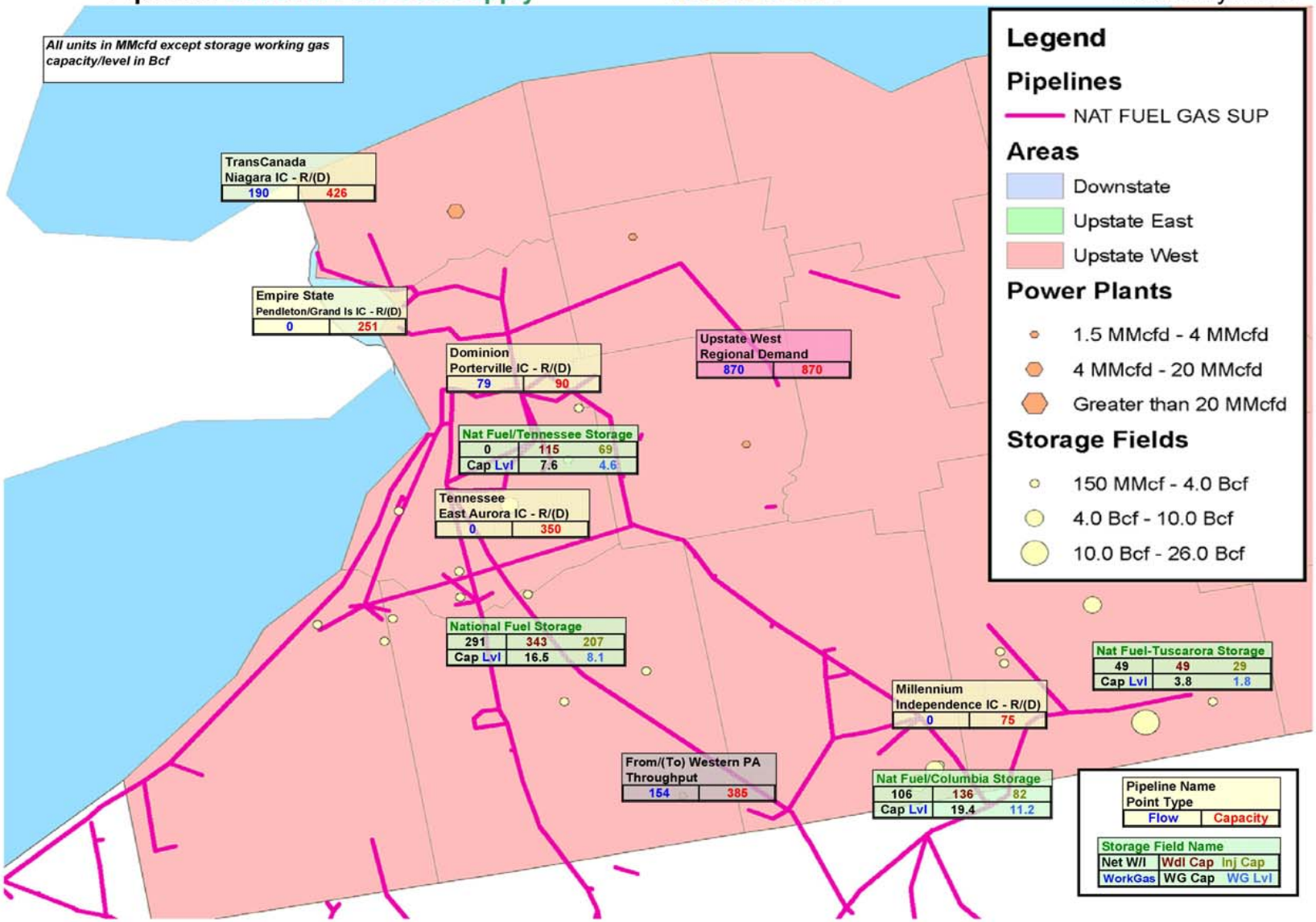
Peak Day 2009



Pipeline: National Fuel Gas Supply

NYSERDA Case 1

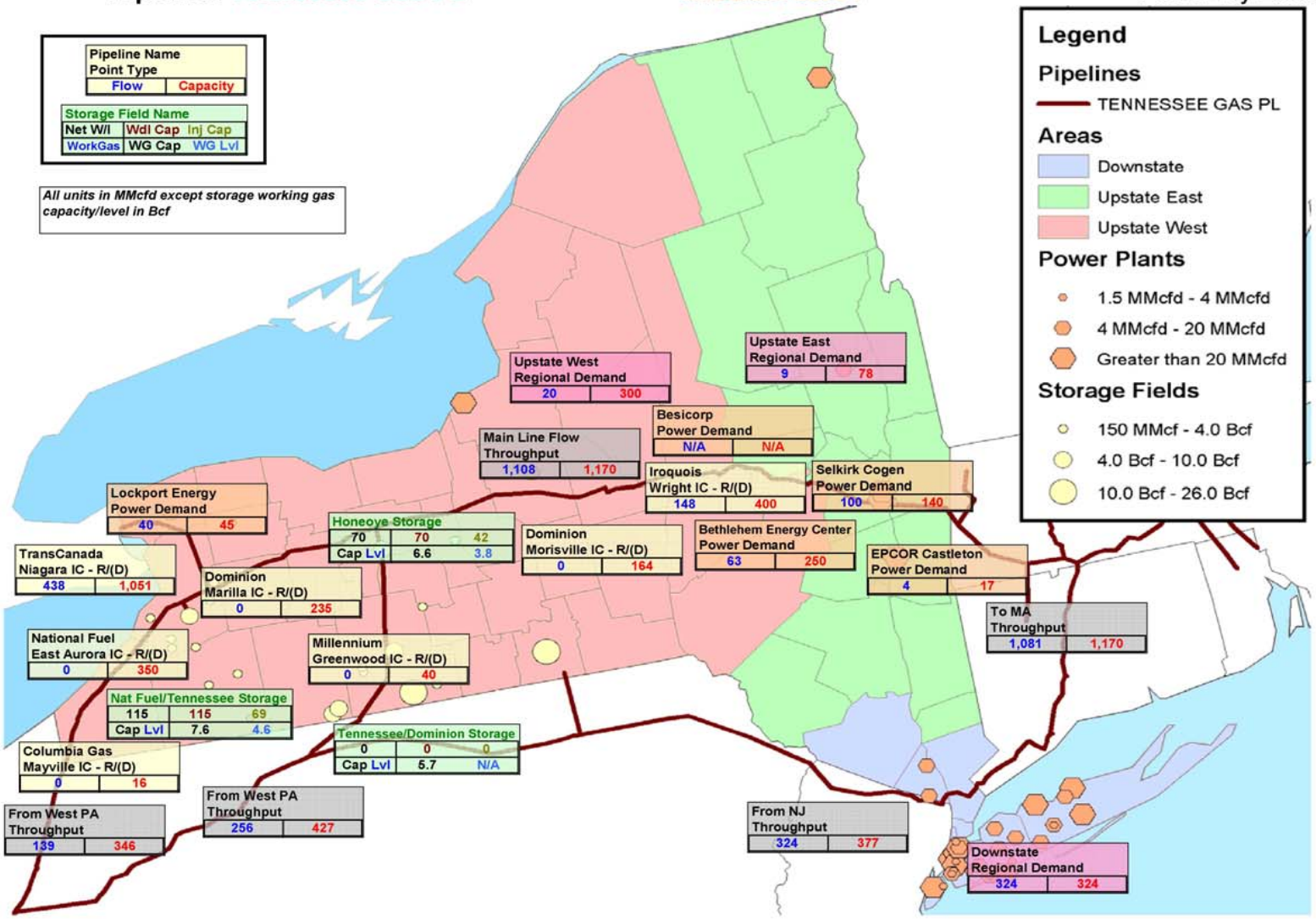
Peak Day 2009



Pipeline: Tennessee Gas PL

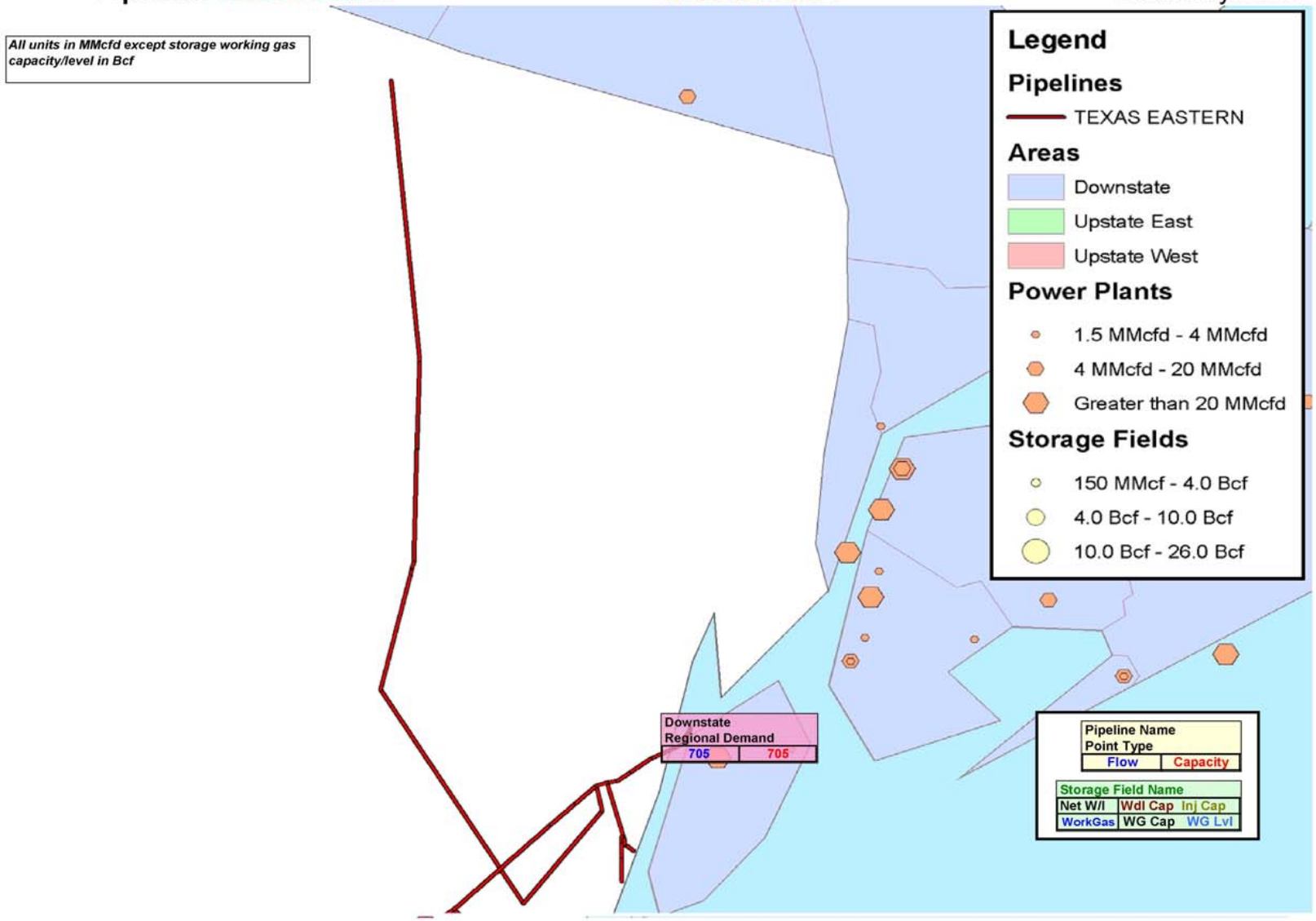
NYSERDA Case 1

Peak Day 2009

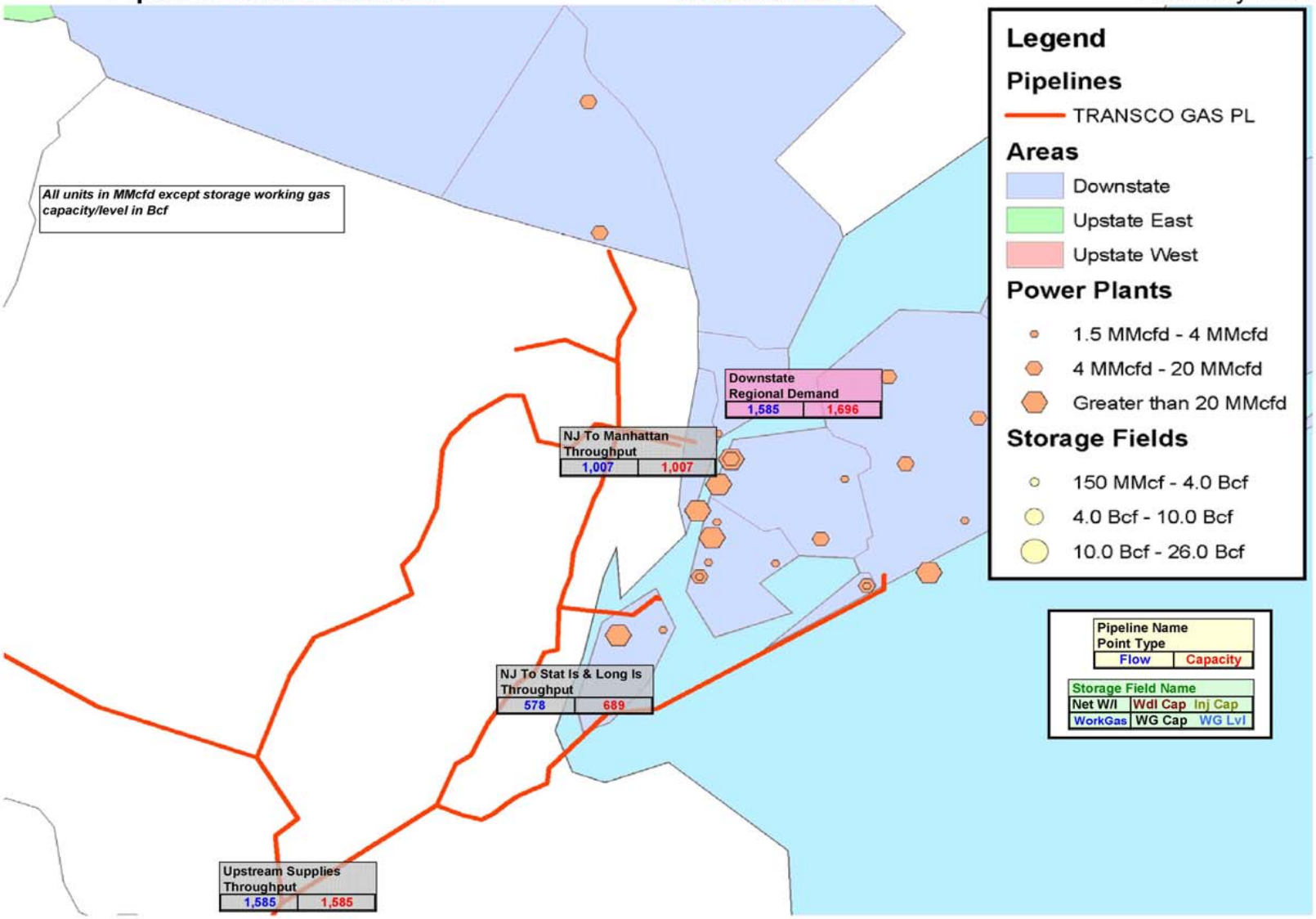


Pipeline: Texas Eastern NYSERDA Case 1 Peak Day 2009

All units in MMcfd except storage working gas capacity/level in Bcf



Pipeline: Transcontinental NYSERDA Case 1 Peak Day 2009

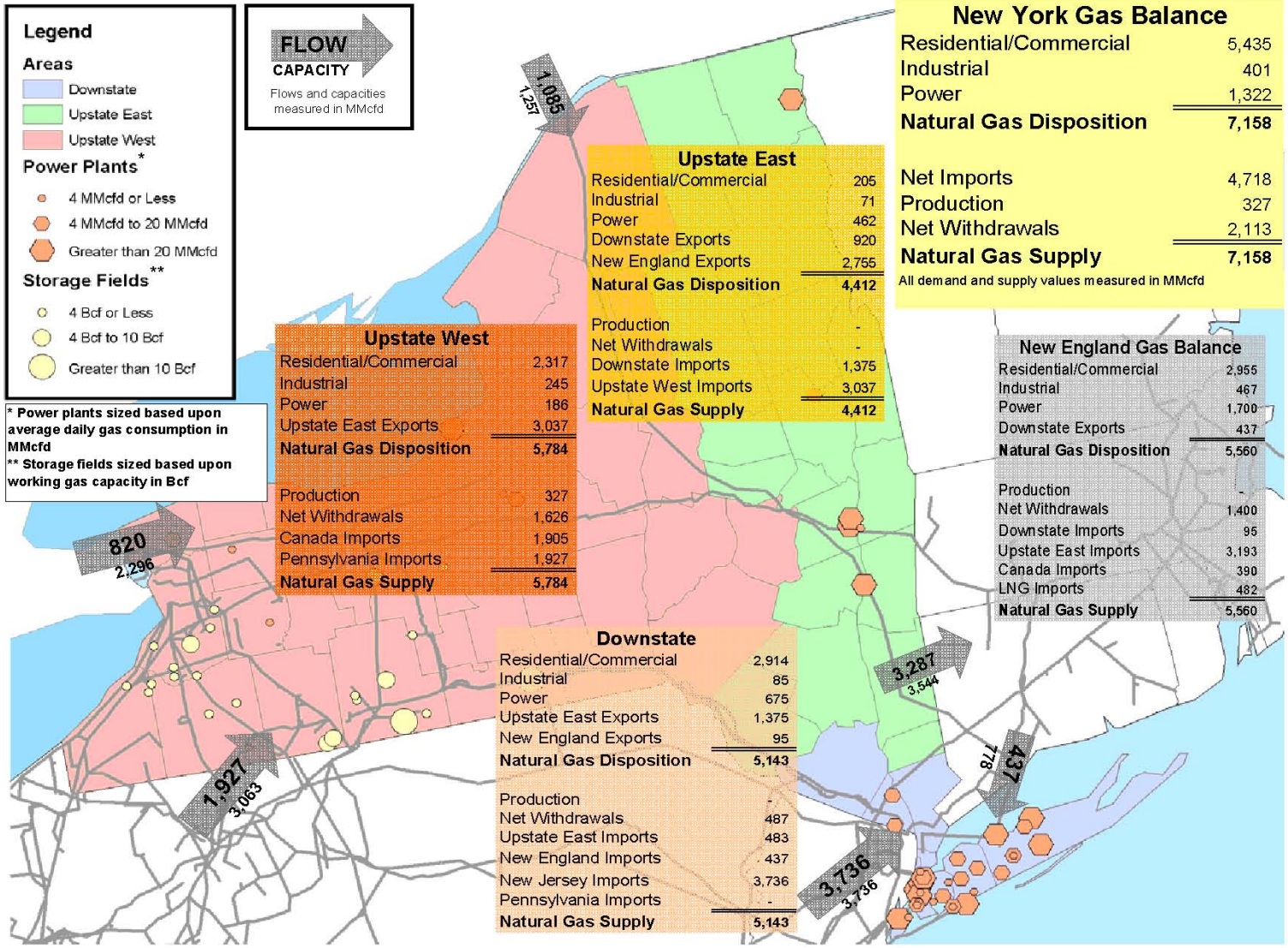


Peak Day Maps January 2018

New York State Balance

NYSERDA Case 1

Peak Day 2018



New York Gas Balance

Residential/Commercial	5,435
Industrial	401
Power	1,322
Natural Gas Disposition	**7,158**
Net Imports	4,718
Production	327
Net Withdrawals	2,113
Natural Gas Supply	**7,158**

All demand and supply values measured in MMcfd

Upstate East

Residential/Commercial	205
Industrial	71
Power	462
Downstate Exports	920
New England Exports	2,755
Natural Gas Disposition	**4,412**
Production	-
Net Withdrawals	-
Downstate Imports	1,375
Upstate West Imports	3,037
Natural Gas Supply	**4,412**

Upstate West

Residential/Commercial	2,317
Industrial	245
Power	186
Upstate East Exports	3,037
Natural Gas Disposition	**5,784**
Production	327
Net Withdrawals	1,626
Canada Imports	1,905
Pennsylvania Imports	1,927
Natural Gas Supply	**5,784**

New England Gas Balance

Residential/Commercial	2,955
Industrial	467
Power	1,700
Downstate Exports	437
Natural Gas Disposition	**5,560**
Production	-
Net Withdrawals	1,400
Downstate Imports	95
Upstate East Imports	3,193
Canada Imports	390
LNG Imports	482
Natural Gas Supply	**5,560**

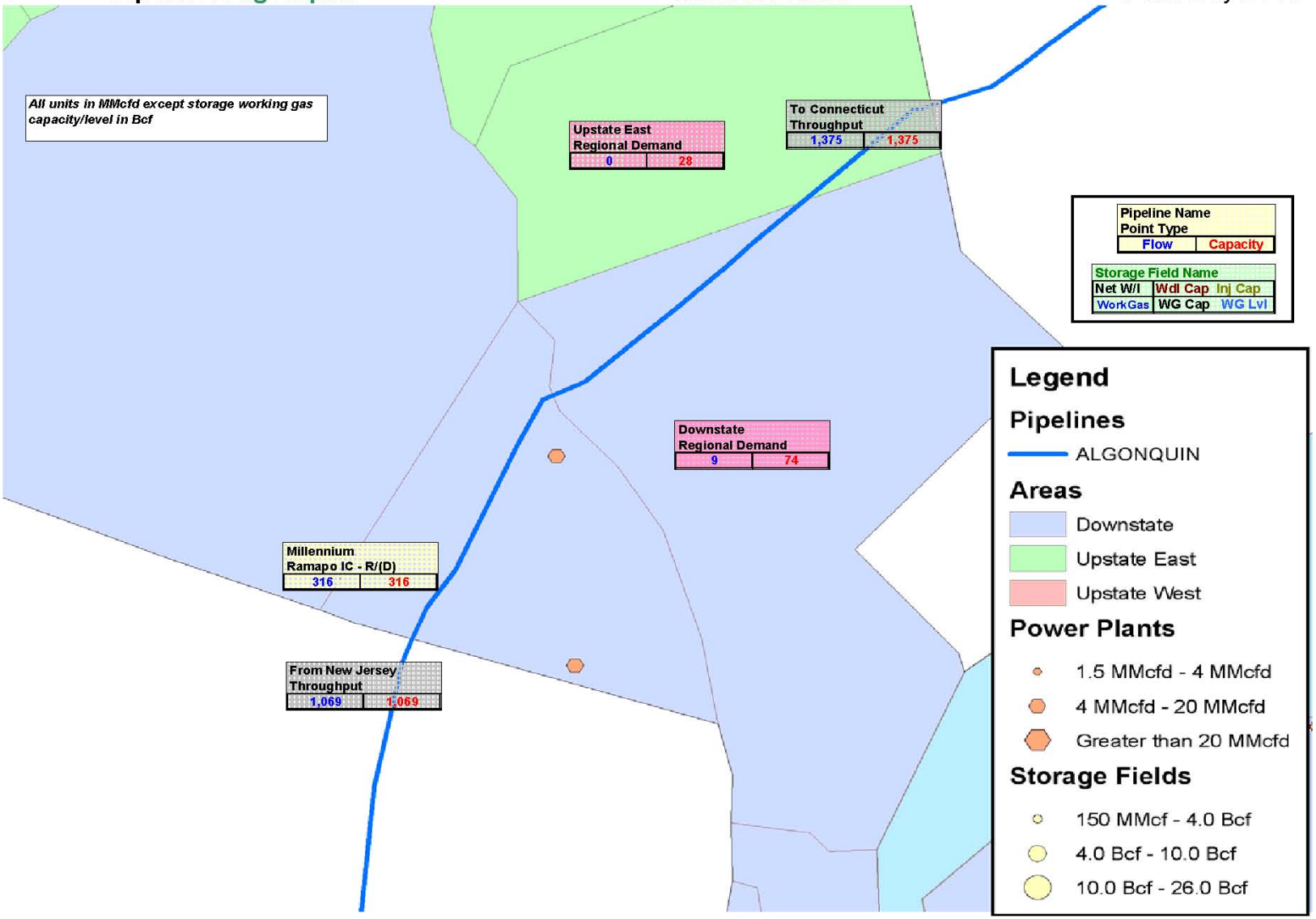
Downstate

Residential/Commercial	2,914
Industrial	85
Power	675
Upstate East Exports	1,375
New England Exports	95
Natural Gas Disposition	**5,143**
Production	-
Net Withdrawals	487
Upstate East Imports	483
New England Imports	437
New Jersey Imports	3,736
Pennsylvania Imports	-
Natural Gas Supply	**5,143**

Pipeline: Algonquin

NYSERDA Case 1

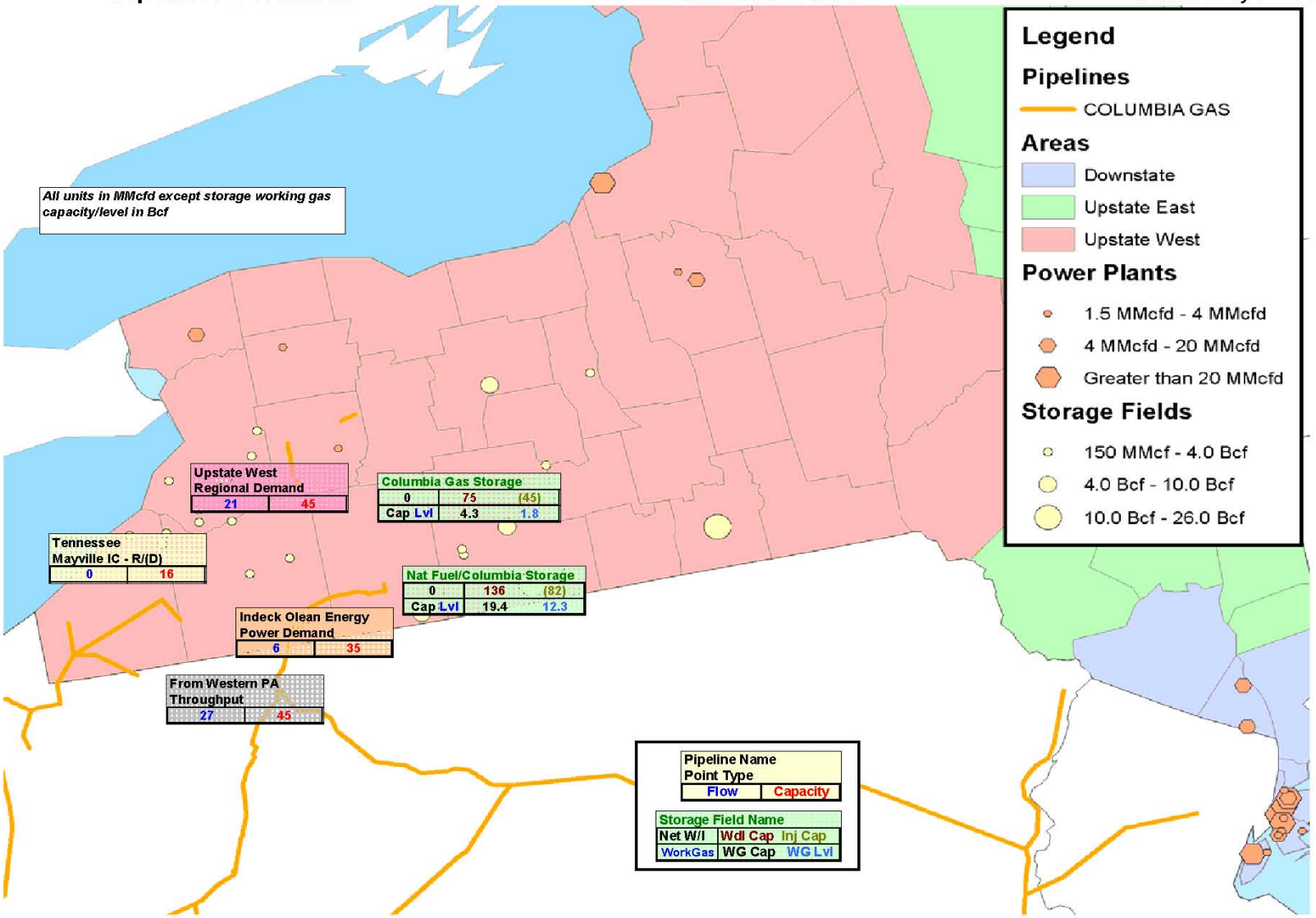
Peak Day 2018



Pipeline: Columbia

NYSERDA Case 1

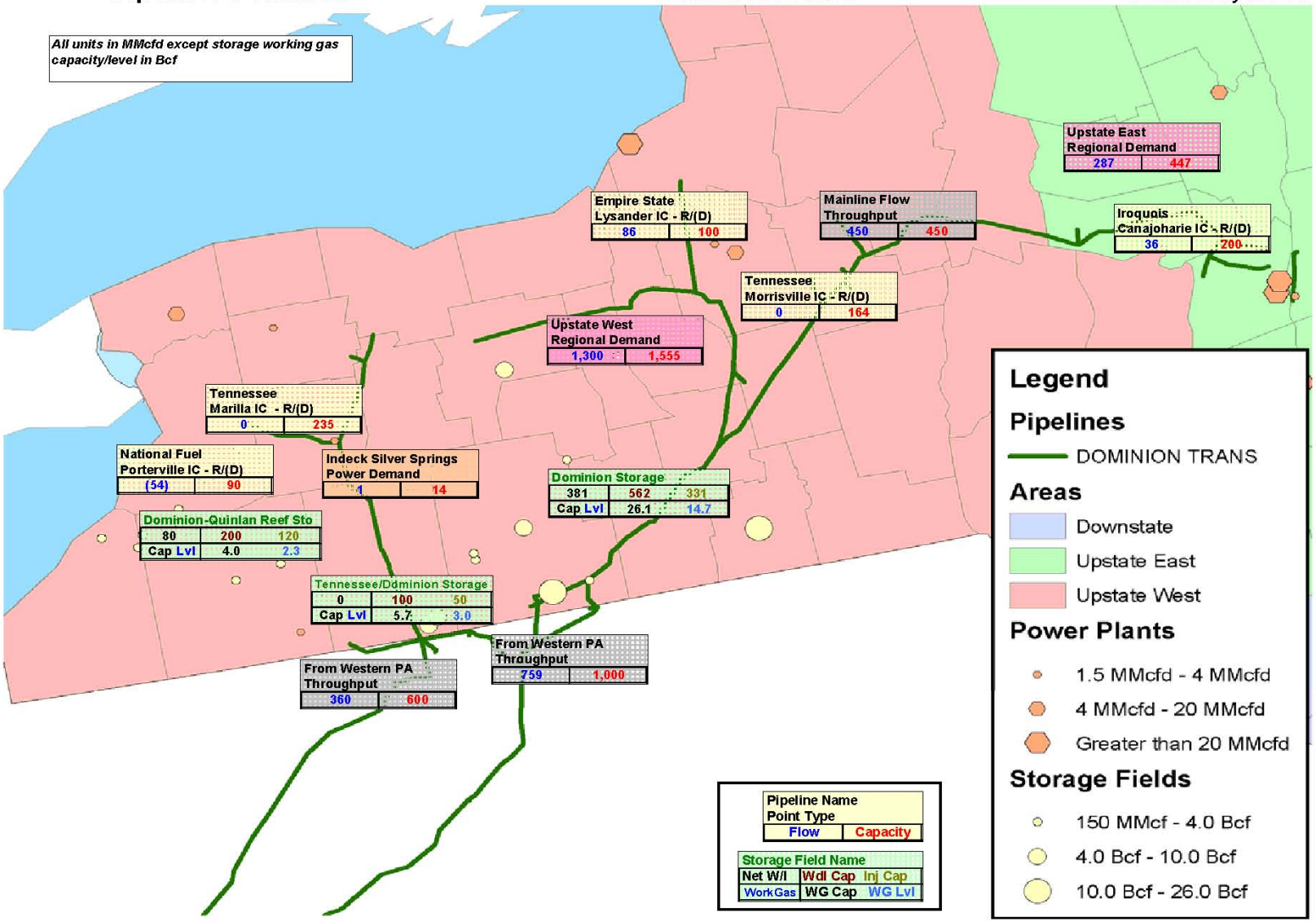
Peak Day 2018



Pipeline: Dominion

NYSERDA Case 1

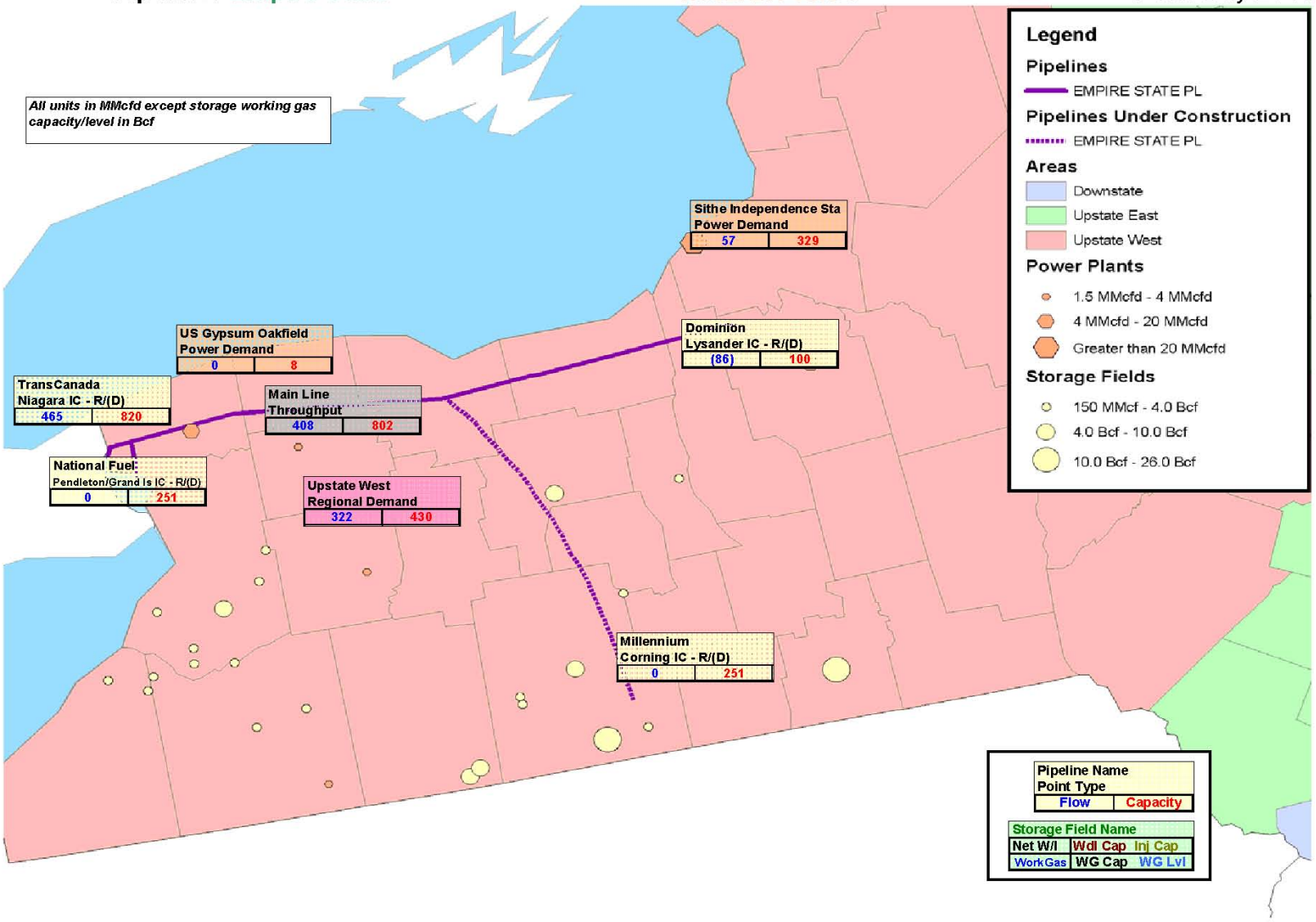
Peak Day 2018

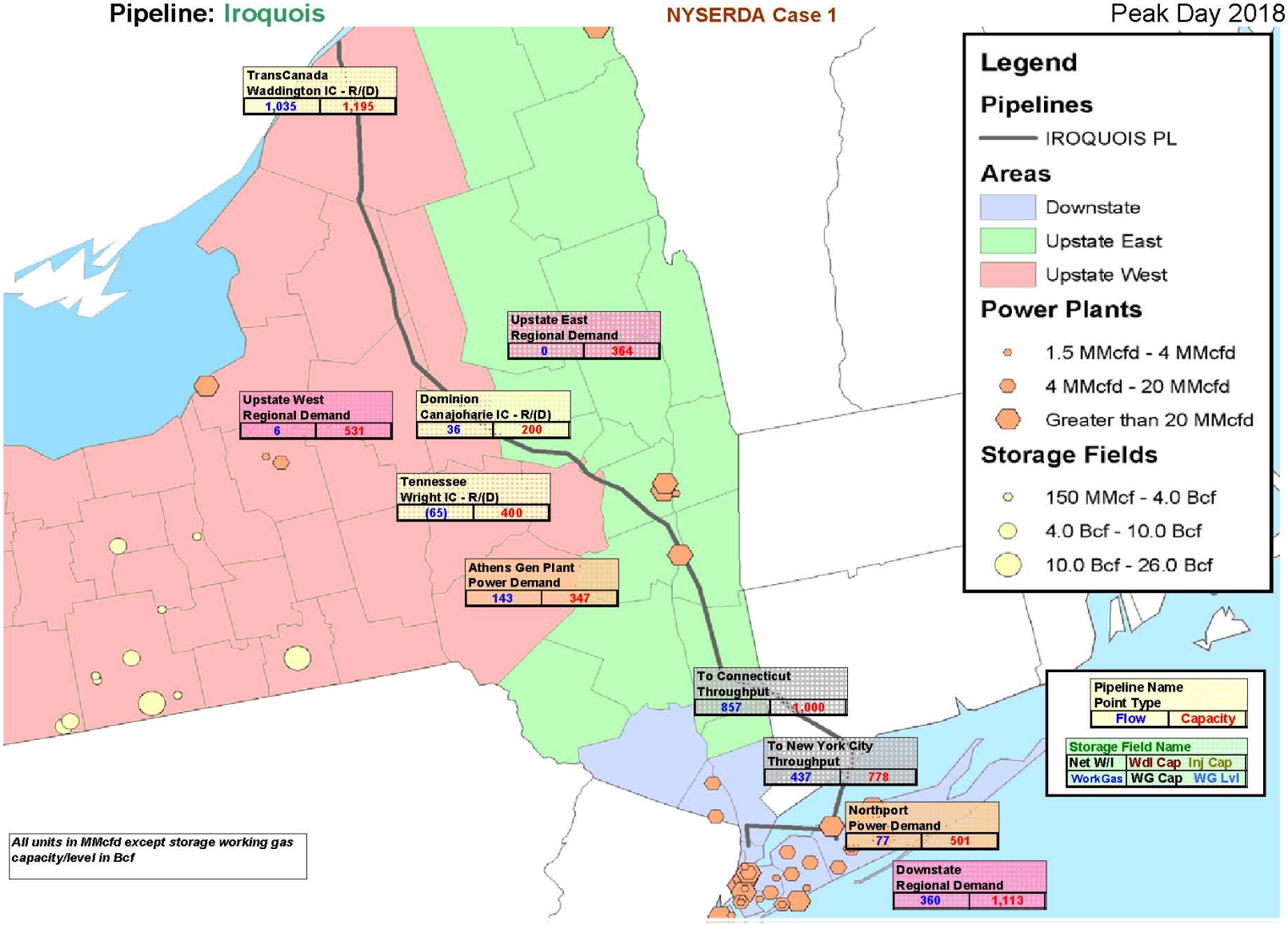


Pipeline: Empire State

NYSERDA Case 1

Peak Day 2018

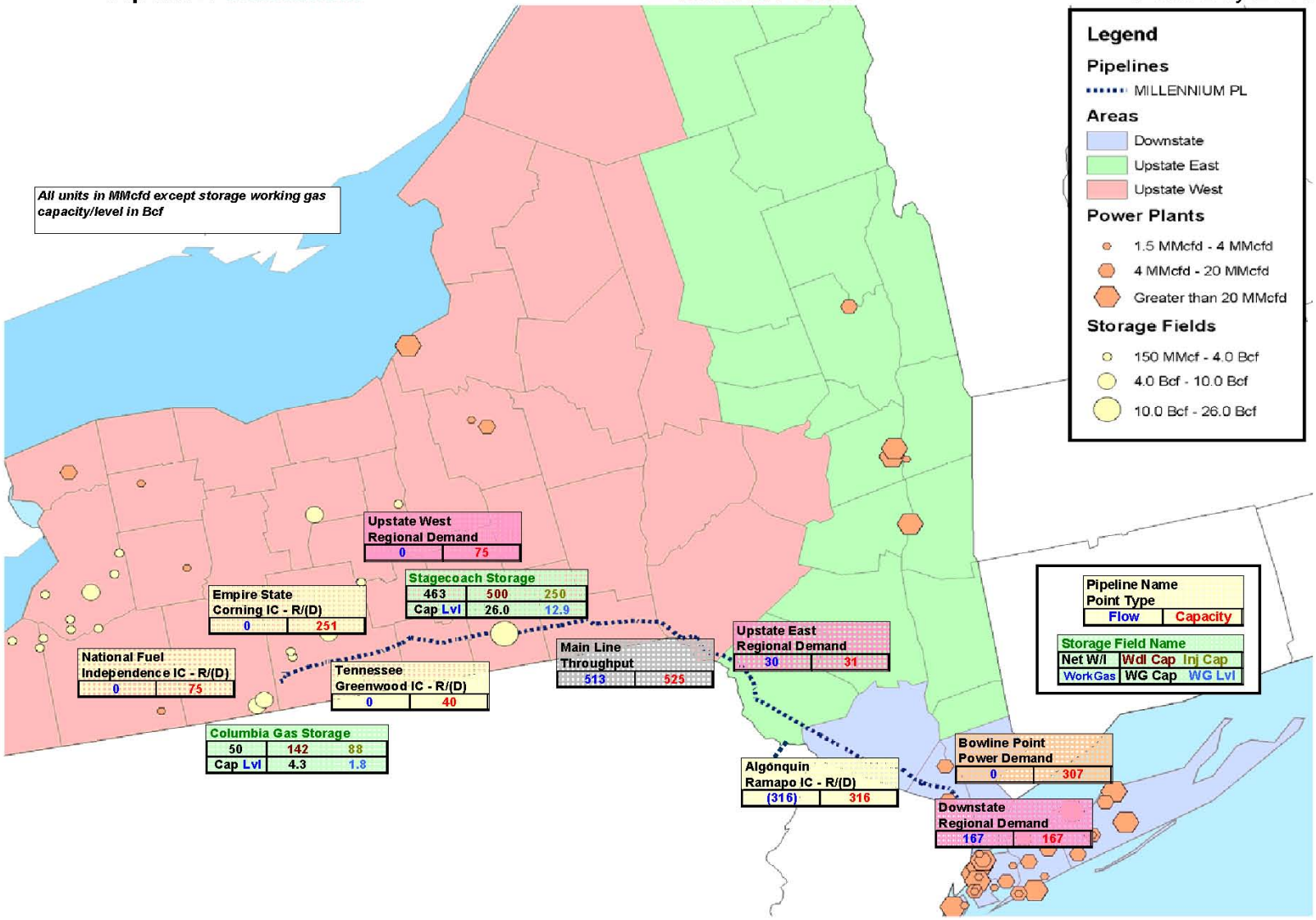



Pipeline: Iroquois
NYSERDA Case 1
Peak Day 2018
TransCanada
Waddington IC - R/(D)
1,035
1,195
Upstate East
Regional Demand
0
364
Upstate West
Regional Demand
6
531
Dominion
Canajoharie IC - R/(D)
36
200
Tennessee
Wright IC - R/(D)
(65)
400
Athens Gen Plant
Power Demand
143
347
To Connecticut
Throughput
857
1,000
To New York City
Throughput
437
778
Northport
Power Demand
77
501
Downstate
Regional Demand
360
1,113
Legend
Pipelines
IROQUOIS PL
Areas
Downstate
Upstate East
Upstate West
Power Plants
1.5 MMcfd - 4 MMcfd
4 MMcfd - 20 MMcfd
Greater than 20 MMcfd
Storage Fields
150 MMcf - 4.0 Bcf
4.0 Bcf - 10.0 Bcf
10.0 Bcf - 26.0 Bcf
Pipeline Name
Point Type
Flow
Capacity
Storage Field Name
Net W/I
Wdl Cap
Inj Cap
WorkGas
WG Cap
WG Lvl
All units in MMcfd except storage working gas capacity/level in Bcf

Pipeline: Millennium

NYSERDA Case 1

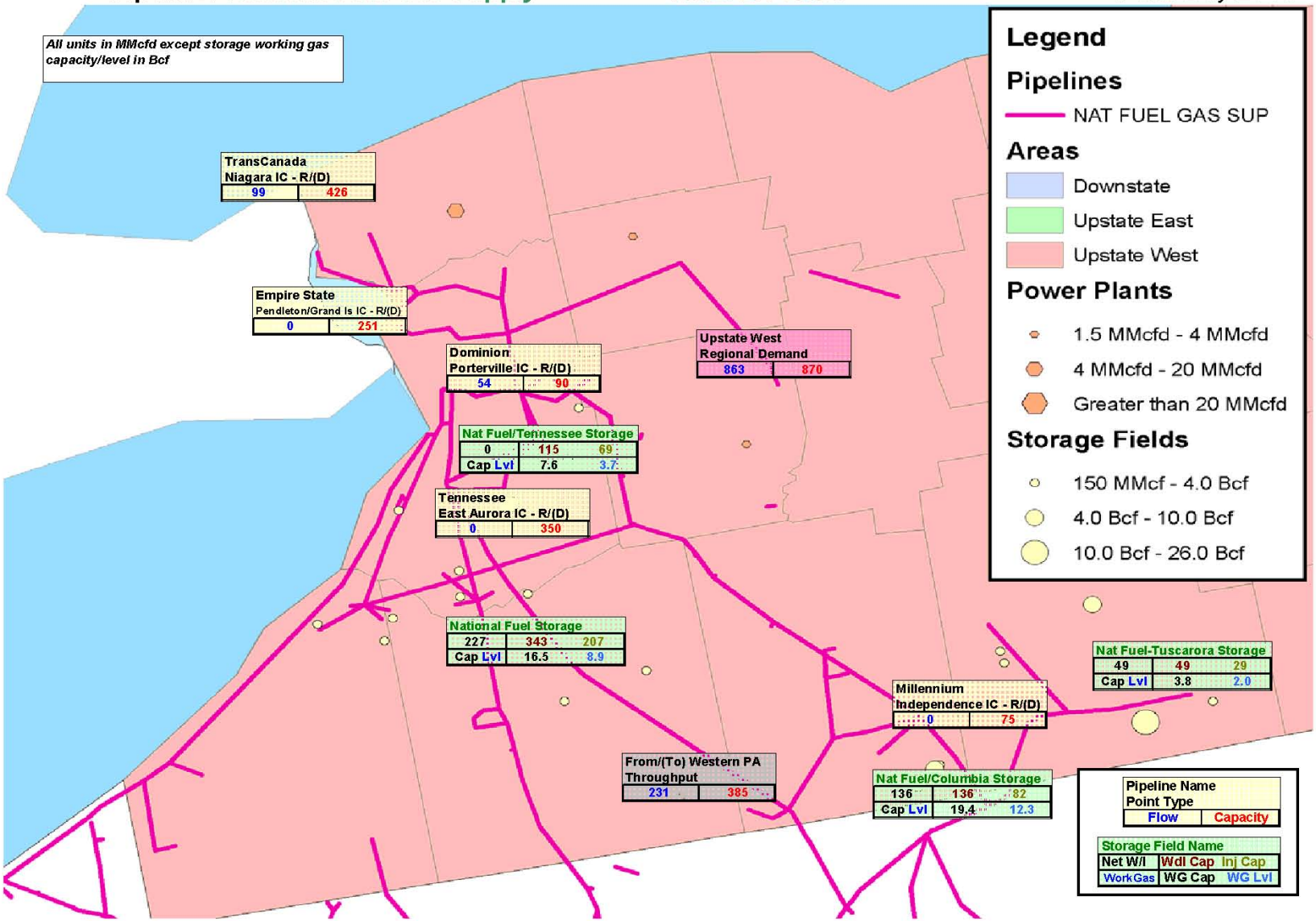
Peak Day 2018



Pipeline: National Fuel Gas Supply

NYSERDA Case 1

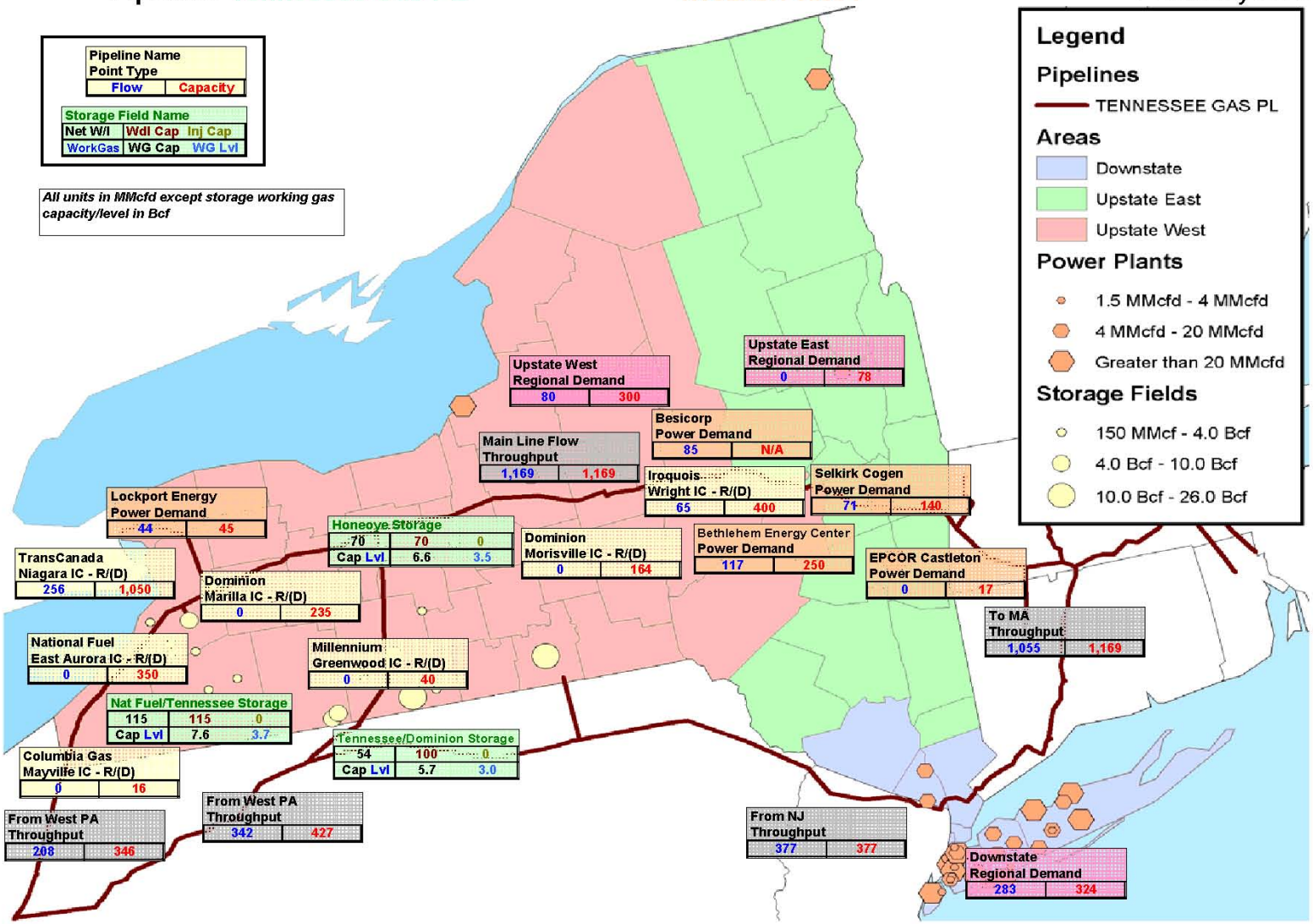
Peak Day 2018



Pipeline: Tennessee Gas PL

NYSERDA Case 1

Peak Day 2018

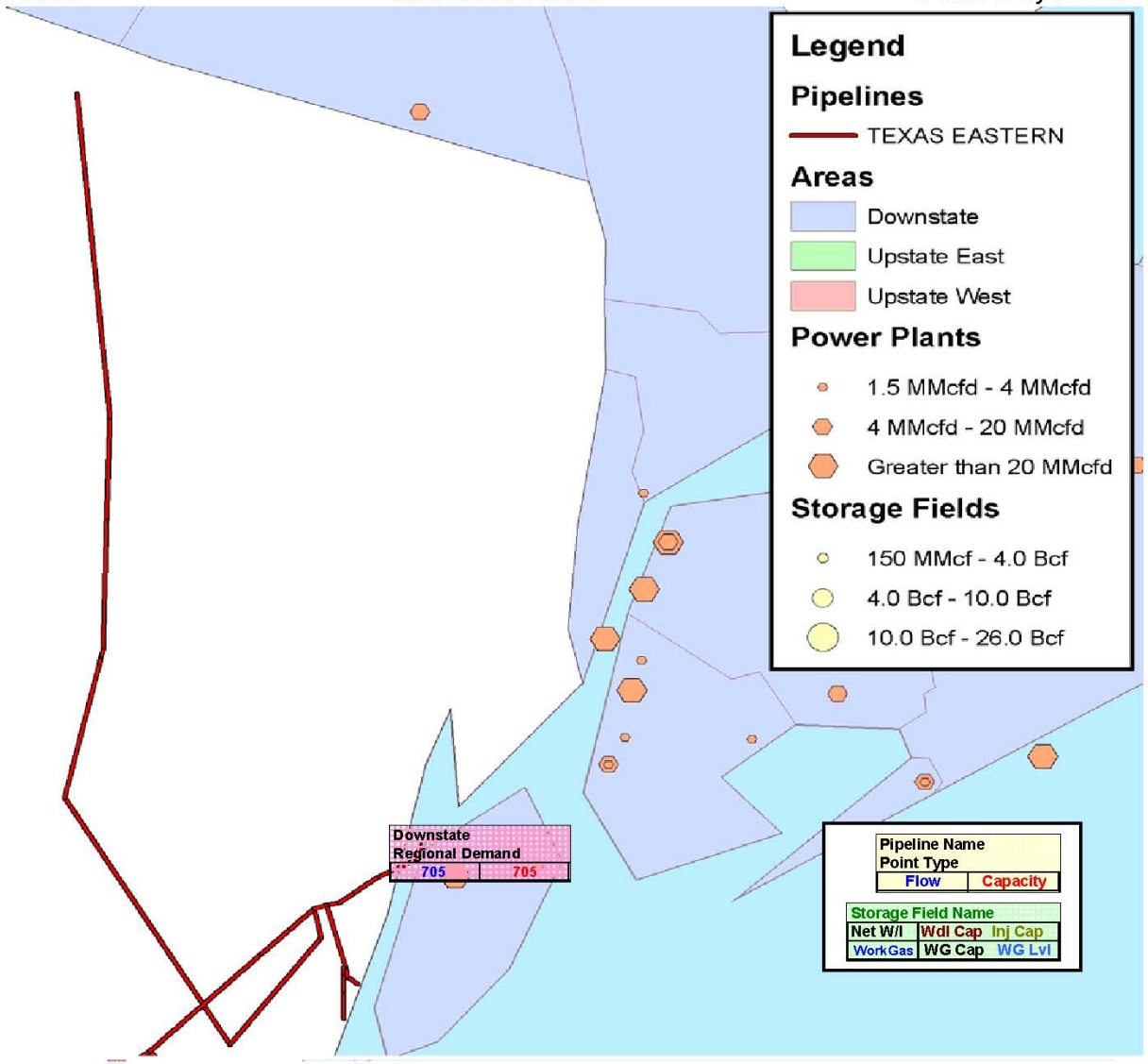


Pipeline: Texas Eastern

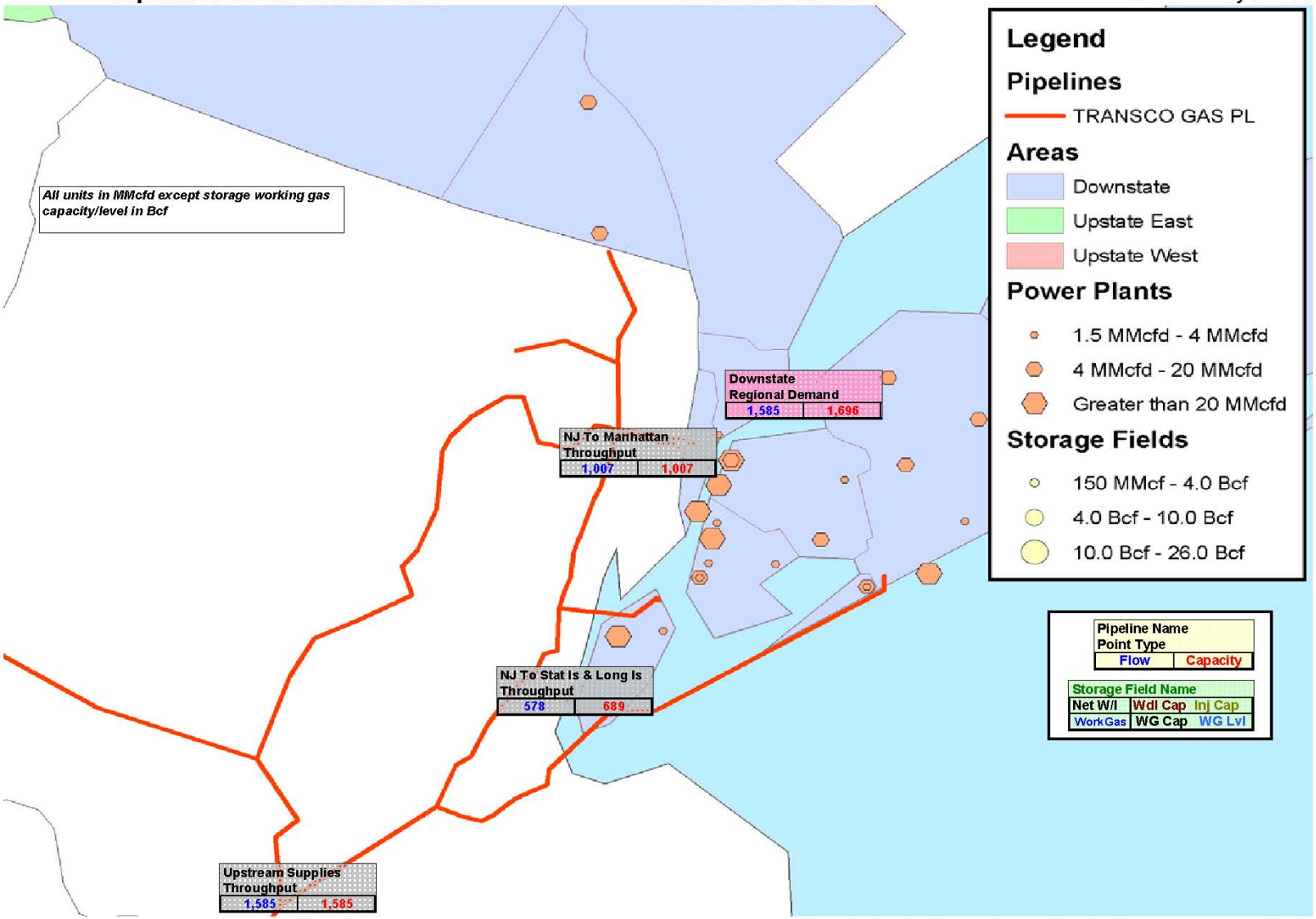
NYSERDA Case 1

Peak Day 2018

All units in MMcfd except storage working gas capacity/level in Bcf



Pipeline: Transcontinental **NYSERDA Case 1** Peak Day 2018



RIAMS Model Curtailments

Peak Day 2014	Firm				Interruptible				Total Unmet Demand			
	Power	Industrial	Residential / Commercial	Total	Power	Industrial	Residential / Commercial	Total	Power	Industrial	Residential / Commercial	Total
New York												
Upstate East	-11	0	0	-12	-5	-1	0	-6	-16	-1	0	-17
Upstate West	0	0	-2	-3	-1	-2	-1	-3	-1	-2	-3	-5
Downstate	-1	0	-3	-3	-8	-1	-3	-11	-8	-1	-5	-15
Total New York	-12	0	-5	-17	-14	-3	-3	-20	-26	-3	-8	-37
New England	Not Broken Out Firm and IT				-22	-7	-43	-72	-22	-7	-43	-72
Total New York and New England	**-12**	**0**	**-5**	**-17**	**-36**	**-10**	**-46**	**-92**	**-48**	**-10**	**-51**	**-109**

Peak Day 2018	Firm				Interruptible				Total Unmet Demand			
	Power	Industrial	Residential / Commercial	Total	Power	Industrial	Residential / Commercial	Total	Power	Industrial	Residential / Commercial	Total
New York												
Upstate East	0	0	0	0	-21	-2	-1	-23	-21	-2	-1	-24
Upstate West	0	0	-2	-3	-1	-4	-2	-7	-1	-5	-4	-9
Downstate	-1	0	-3	-3	-9	-2	-9	-20	-10	-2	-11	-24
Total New York	-1	0	-5	-6	-30	-9	-11	-50	-31	-9	-16	-56
New England	Not Broken Out Firm and IT				-62	-17	-161	-240	-62	-17	-161	-240
Total New York and New England	**-1**	**0**	**-5**	**-6**	**-93**	**-26**	**-172**	**-290**	**-94**	**-26**	**-177**	**-297**

- Peak day curtailments in both New York and New England may be eliminated with increased LNG send-out from the Canaport and Everette import terminals
- Firm curtailments are within the uncertainties of peak day consumption levels and may not occur.

RIAMS Model Conclusions
NYSERDA Reference Case

- 2017-18 results similar to 2008-09 results.
- No apparent pipeline congestion on average days in winter.
- Congestion on a number of pipelines on a peak day.
  - Texas Eastern, Transco, Algonquin, Millennium and Tennessee are either completely full or nearly full on a peak day.
  - Iroquois very full on a peak day.
  - Dominion is completely full going across New York towards Albany.
- Downstate highly congested on a peak day.

RIAMS Model Conclusions
NYSERDA Reference Case

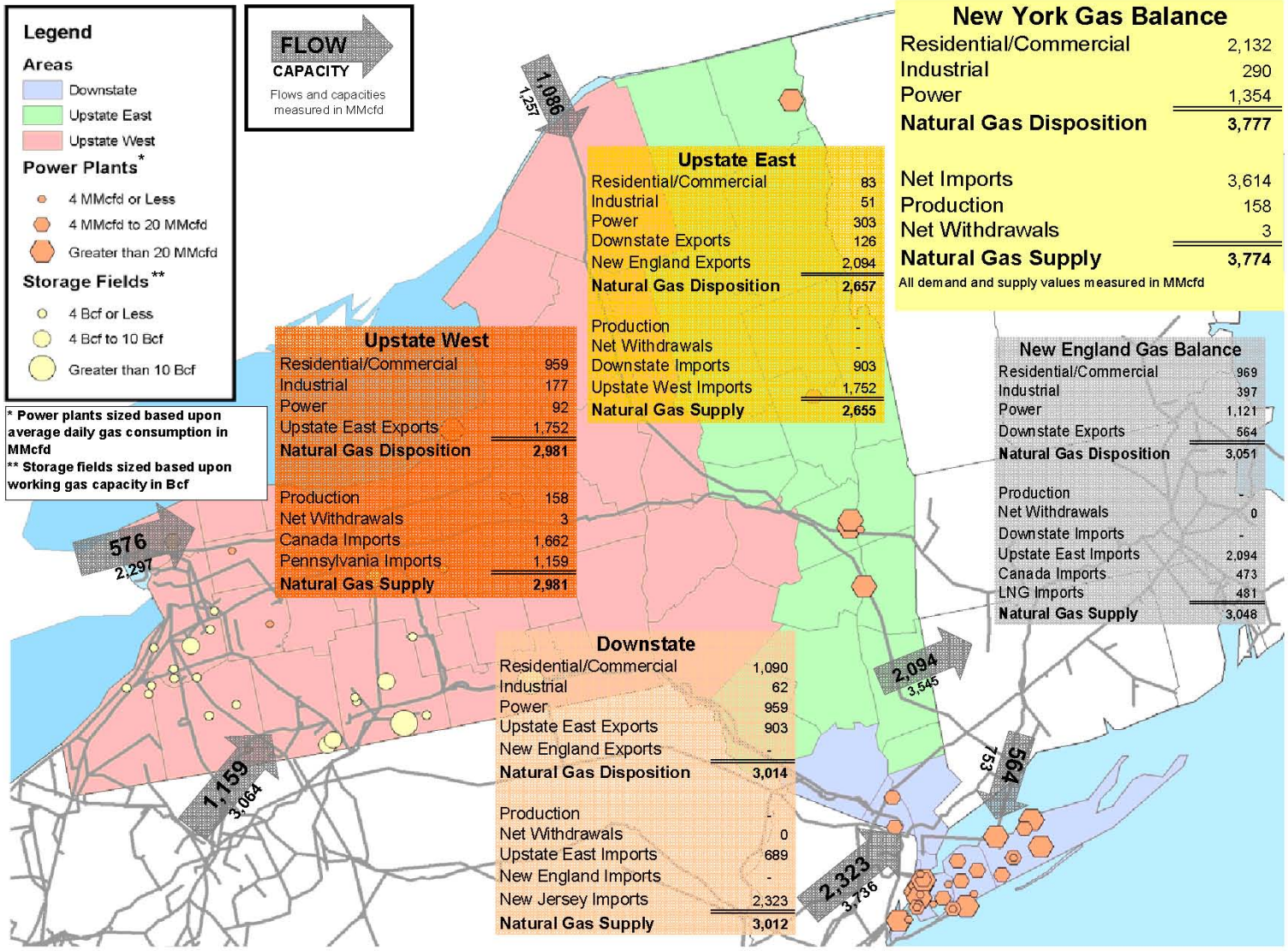
- Western Canadian gas supply is an issue.
- For reliability purposes, adding additional capacity for Downstate peak day needs would be prudent.
- LNG peak shaving is important.

2008-09 Average Day Flow Maps

New York State Balance

NYSERDA Case 1

Average Day 2009



New York Gas Balance

Residential/Commercial	2,132
Industrial	290
Power	1,354
Natural Gas Disposition	**3,777**
Net Imports	3,614
Production	158
Net Withdrawals	3
Natural Gas Supply	**3,774**

All demand and supply values measured in MMcfd

Upstate East

Residential/Commercial	83
Industrial	51
Power	303
Downstate Exports	126
New England Exports	2,094
Natural Gas Disposition	**2,657**
Production	-
Net Withdrawals	-
Downstate Imports	903
Upstate West Imports	1,752
Natural Gas Supply	**2,655**

Upstate West

Residential/Commercial	959
Industrial	177
Power	92
Upstate East Exports	1,752
Natural Gas Disposition	**2,981**
Production	158
Net Withdrawals	3
Canada Imports	1,662
Pennsylvania Imports	1,159
Natural Gas Supply	**2,981**

Downstate

Residential/Commercial	1,090
Industrial	62
Power	959
Upstate East Exports	903
New England Exports	-
Natural Gas Disposition	**3,014**
Production	-
Net Withdrawals	0
Upstate East Imports	689
New England Imports	-
New Jersey Imports	2,323
Natural Gas Supply	**3,012**

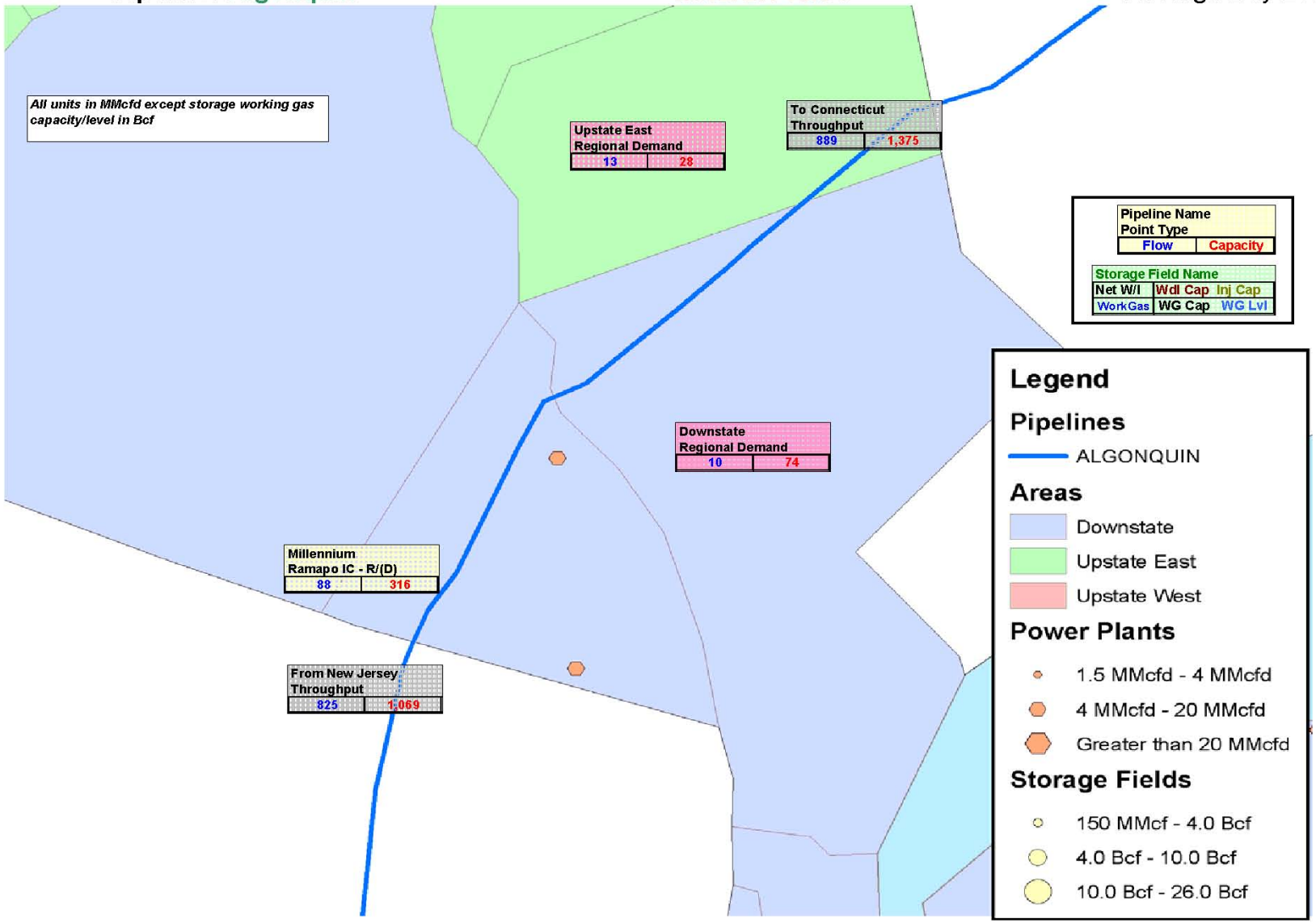
New England Gas Balance

Residential/Commercial	969
Industrial	397
Power	1,121
Downstate Exports	564
Natural Gas Disposition	**3,051**
Production	-
Net Withdrawals	0
Downstate Imports	-
Upstate East Imports	2,094
Canada Imports	473
LNG Imports	481
Natural Gas Supply	**3,048**

Pipeline: Algonquin

NYSERDA Case 1

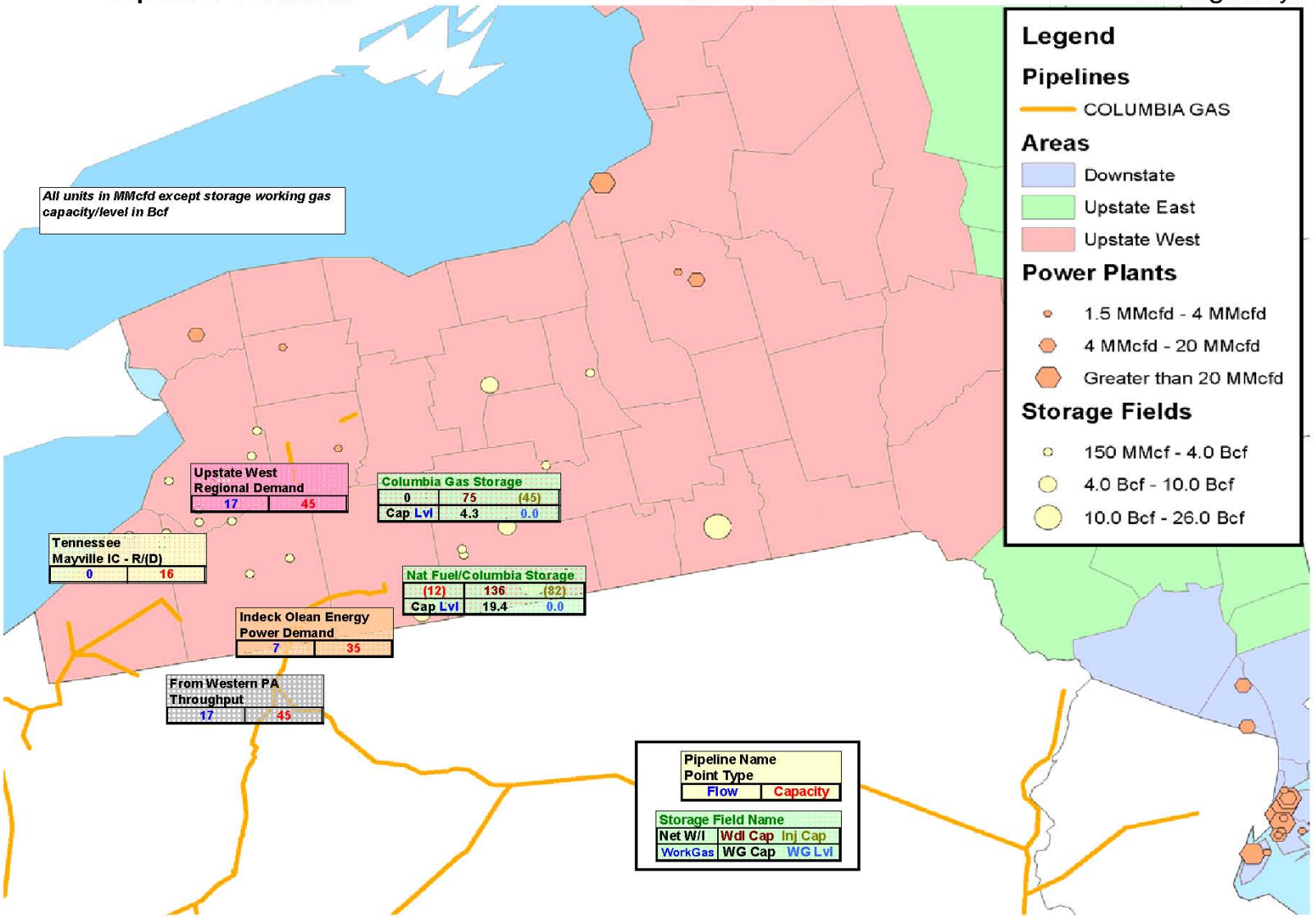
Average Day 2009



Pipeline: Columbia

NYSERDA Case 1

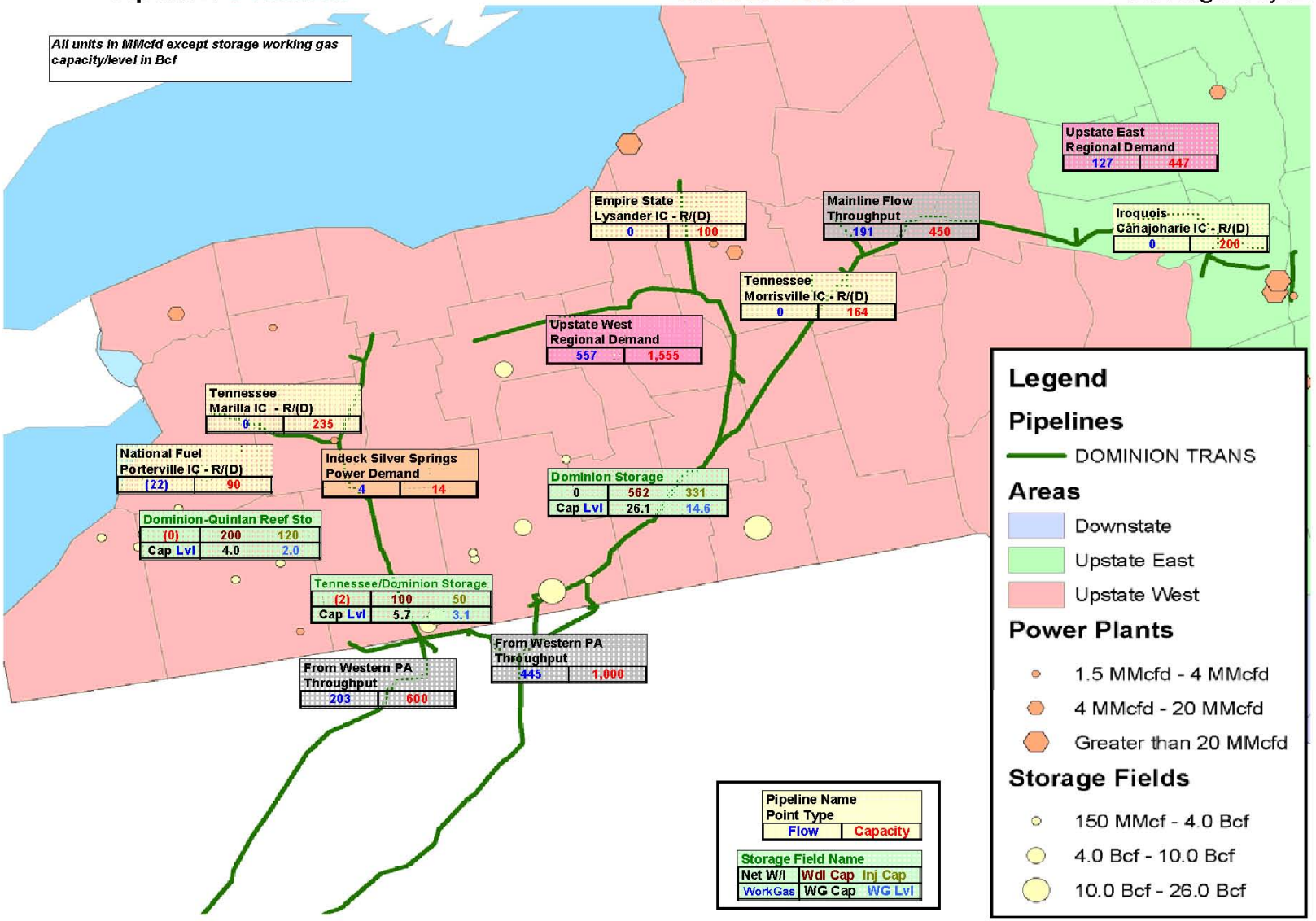
Average Day 2009



Pipeline: Dominion

NYSERDA Case 1

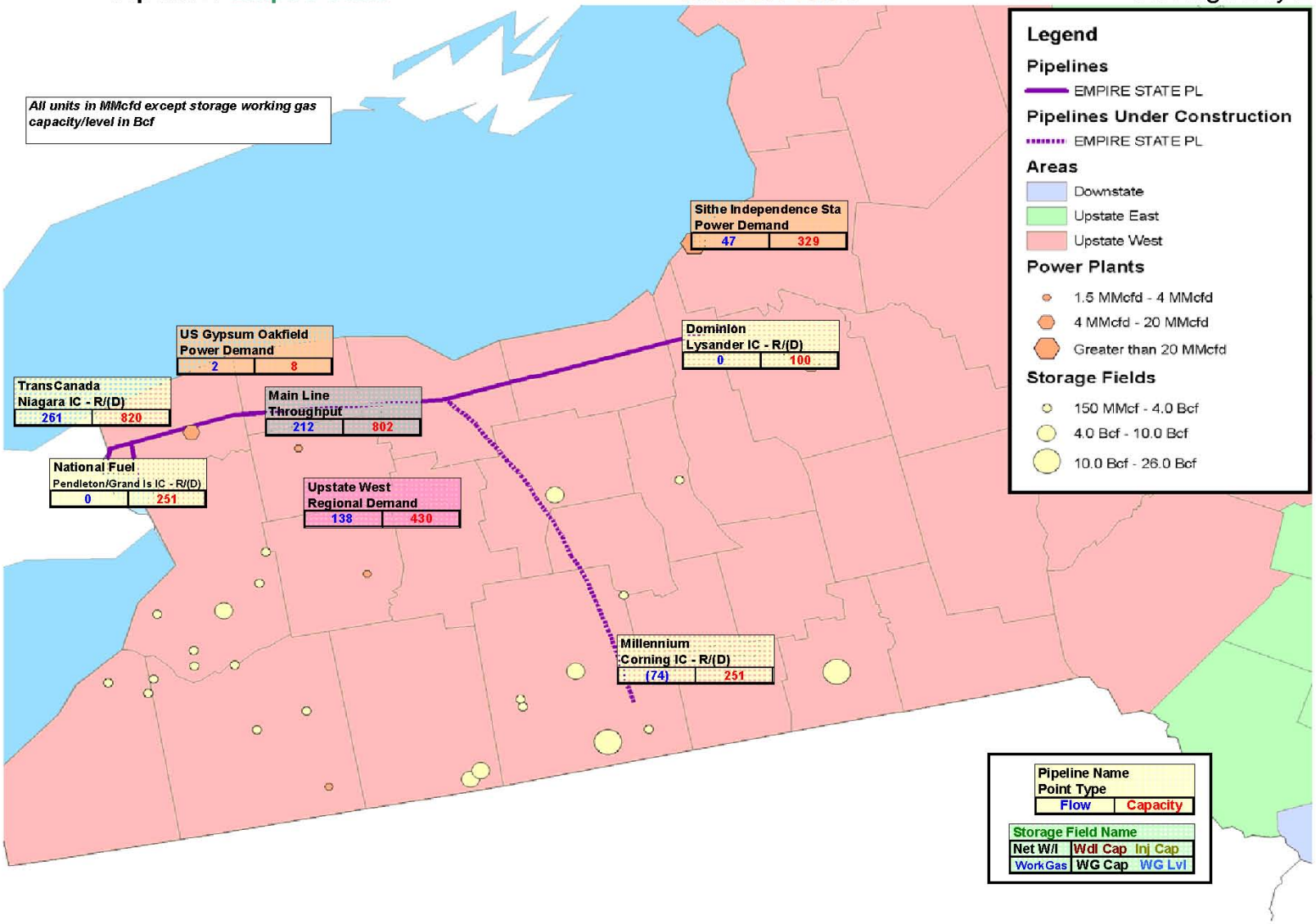
Average Day 2009

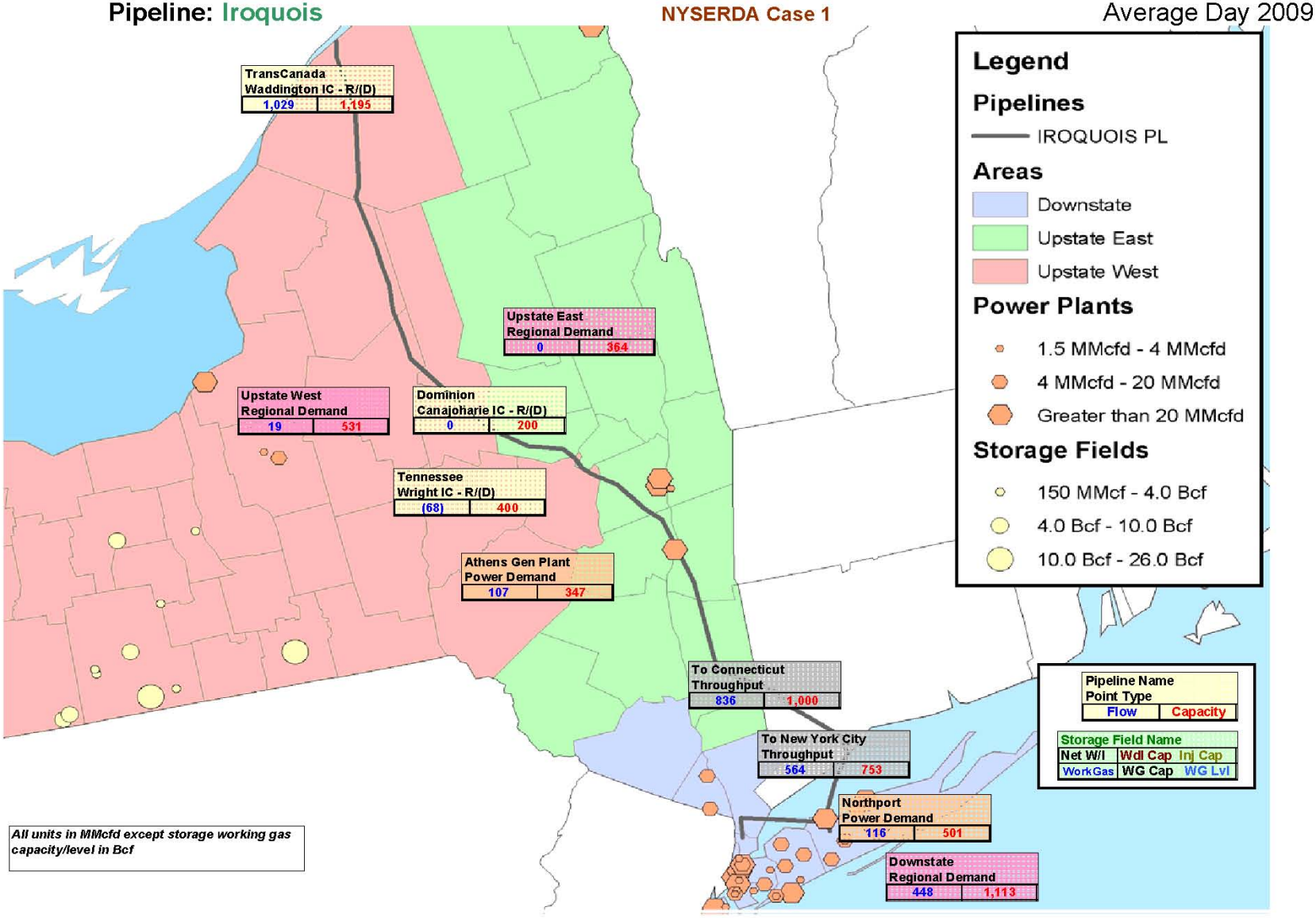


Pipeline: Empire State

NYSERDA Case 1

Average Day 2009

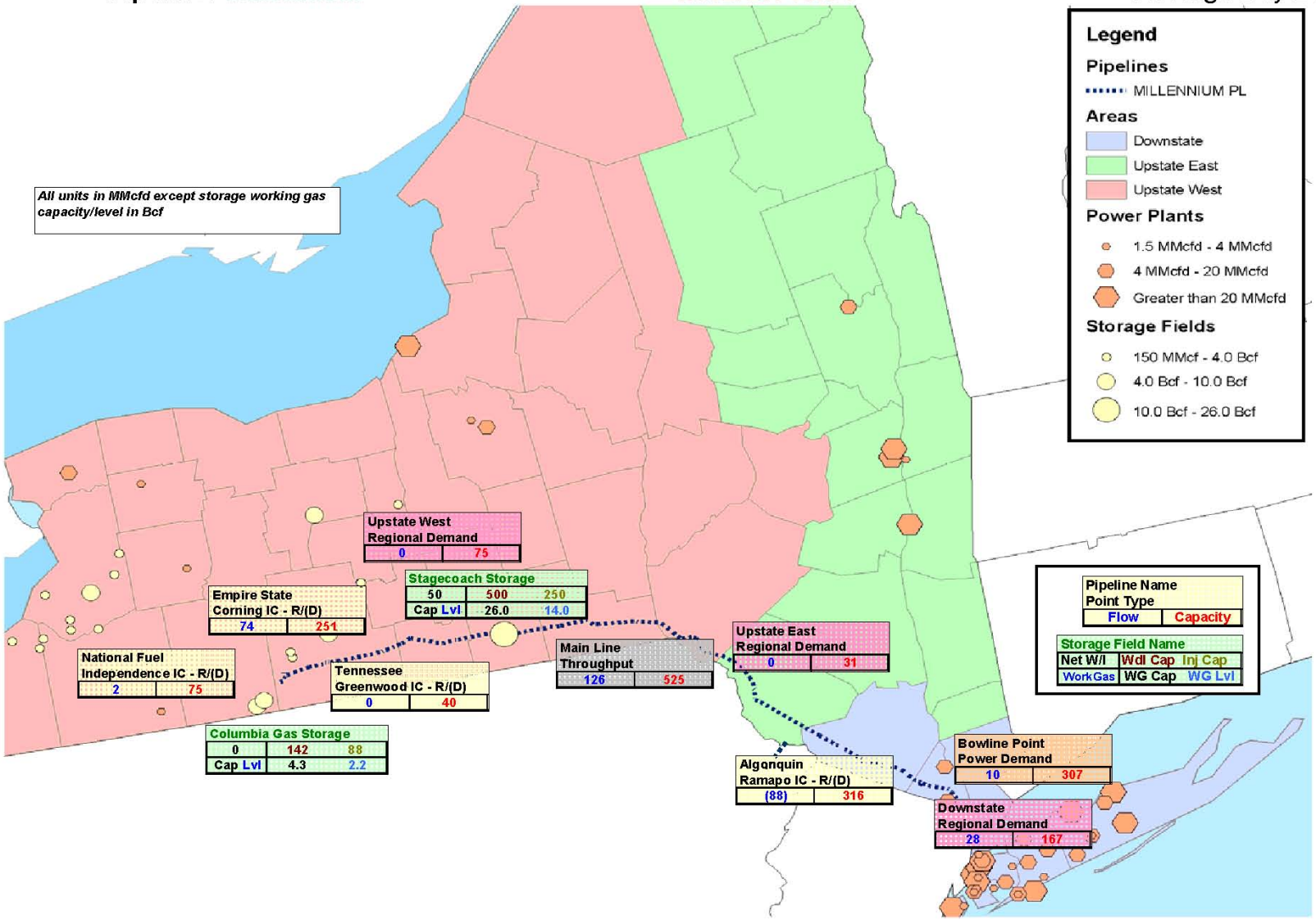



Pipeline: Iroquois
NYSERDA Case 1
Average Day 2009
TransCanada
Waddington IC - R/(D)
1,029
1,195
Upstate East
Regional Demand
0
364
Upstate West
Regional Demand
19
531
Dominion
Canajoharie IC - R/(D)
0
200
Tennessee
Wright IC - R/(D)
(68)
400
Athens Gen Plant
Power Demand
107
347
To Connecticut
Throughput
836
1,000
To New York City
Throughput
564
753
Northport
Power Demand
116
501
Downstate
Regional Demand
448
1,113
Legend
Pipelines
IROQUOIS PL
Areas
Downstate
Upstate East
Upstate West
Power Plants
1.5 MMcfd - 4 MMcfd
4 MMcfd - 20 MMcfd
Greater than 20 MMcfd
Storage Fields
150 MMcf - 4.0 Bcf
4.0 Bcf - 10.0 Bcf
10.0 Bcf - 26.0 Bcf
Pipeline Name
Point Type
Flow
Capacity
Storage Field Name
Net W/I
Wdl Cap
Inj Cap
WorkGas
WG Cap
WG Lvl
All units in MMcfd except storage working gas capacity/level in Bcf

Pipeline: Millennium

NYSERDA Case 1

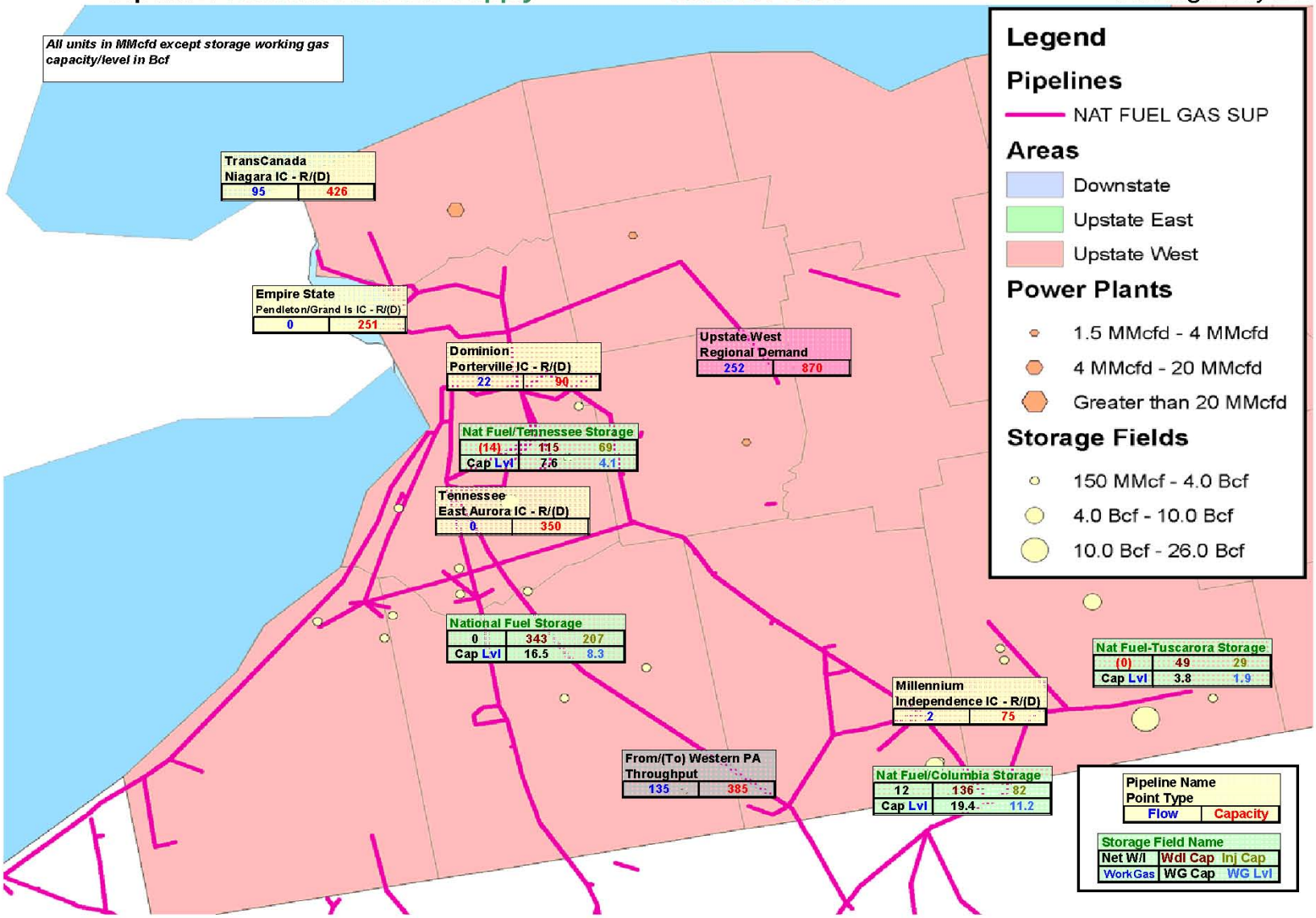
Average Day 2009



Pipeline: National Fuel Gas Supply

NYSERDA Case 1

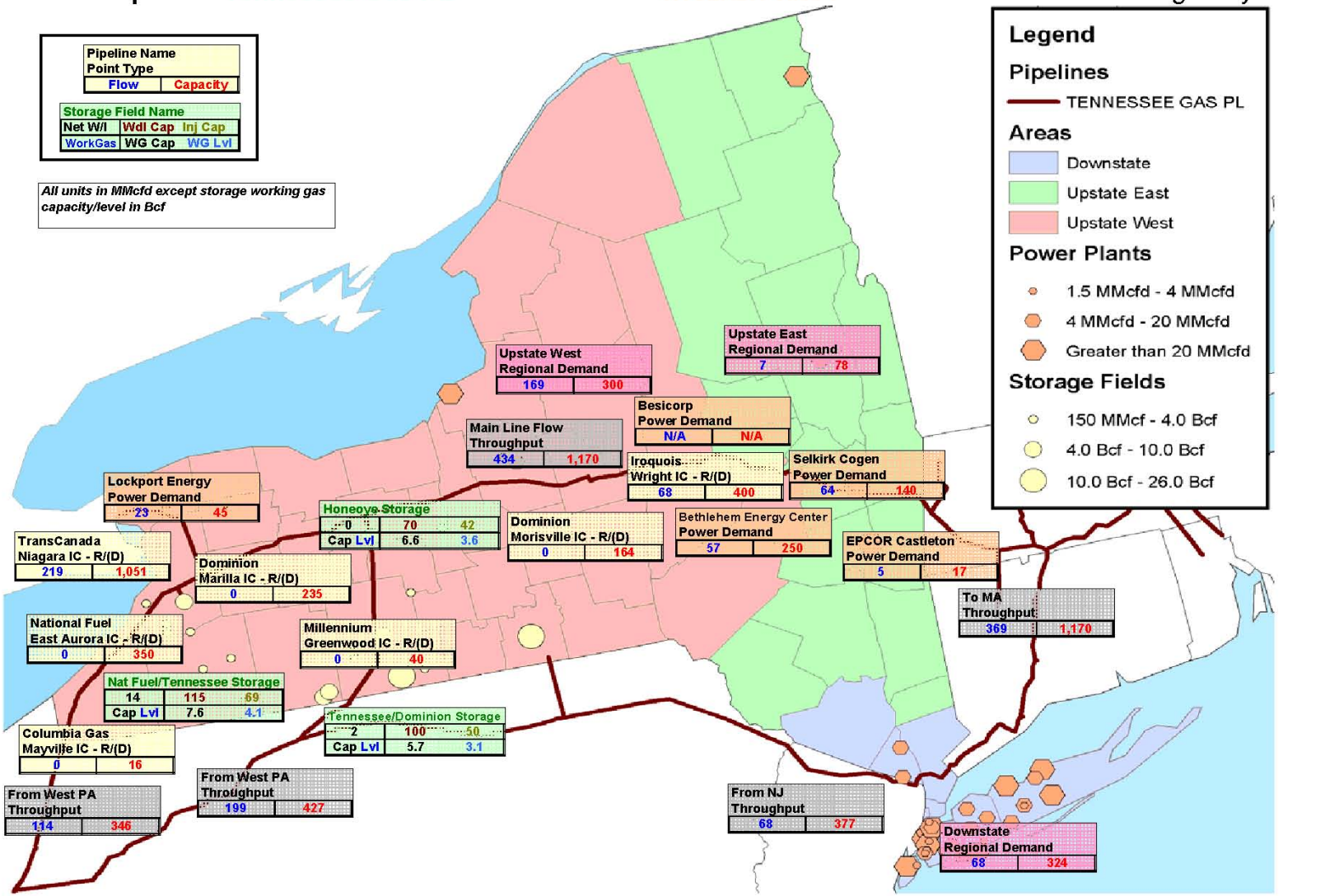
Average Day 2009



Pipeline: Tennessee Gas PL

NYSERDA Case 1

Average Day 2009

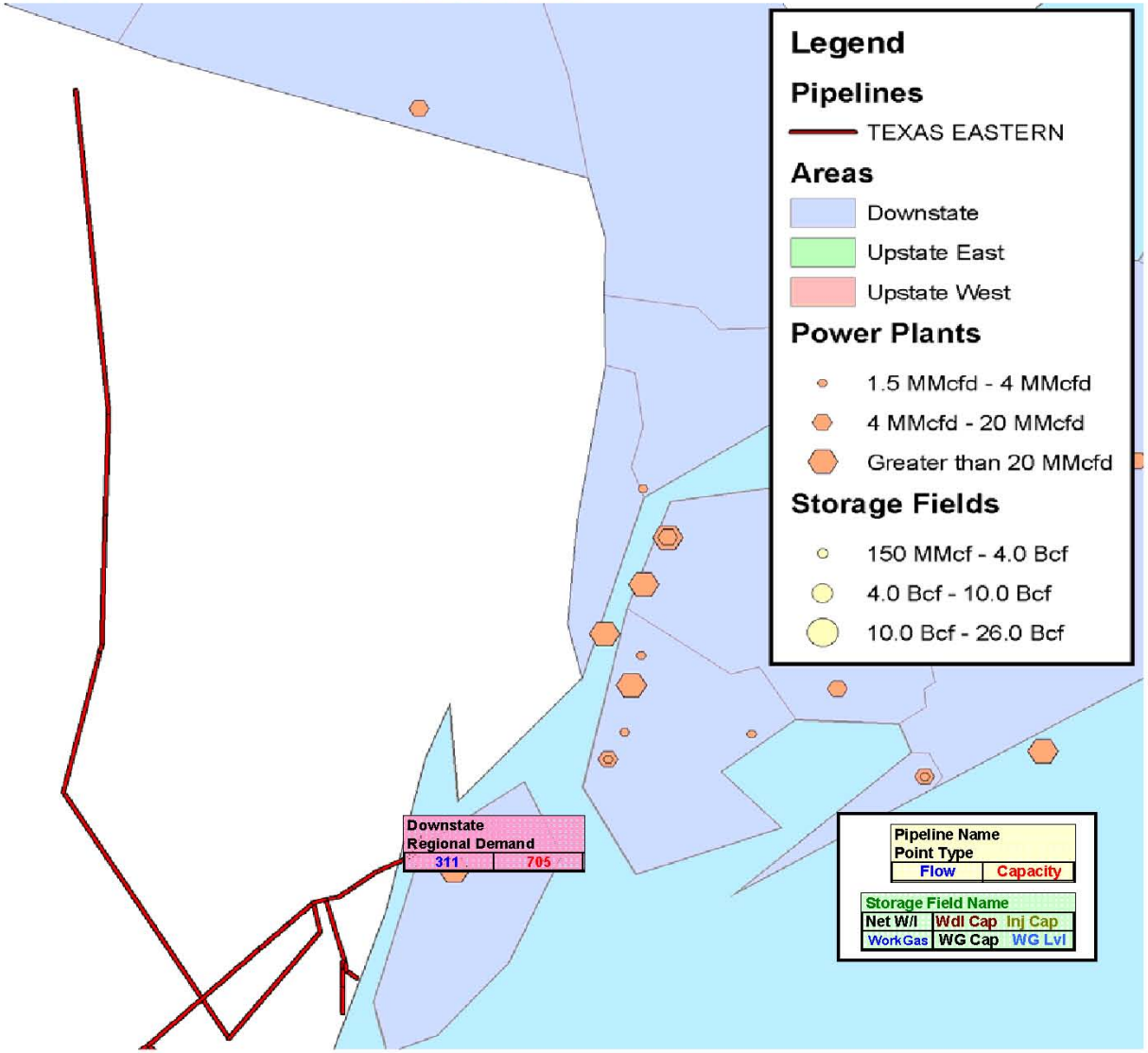


Pipeline: Texas Eastern

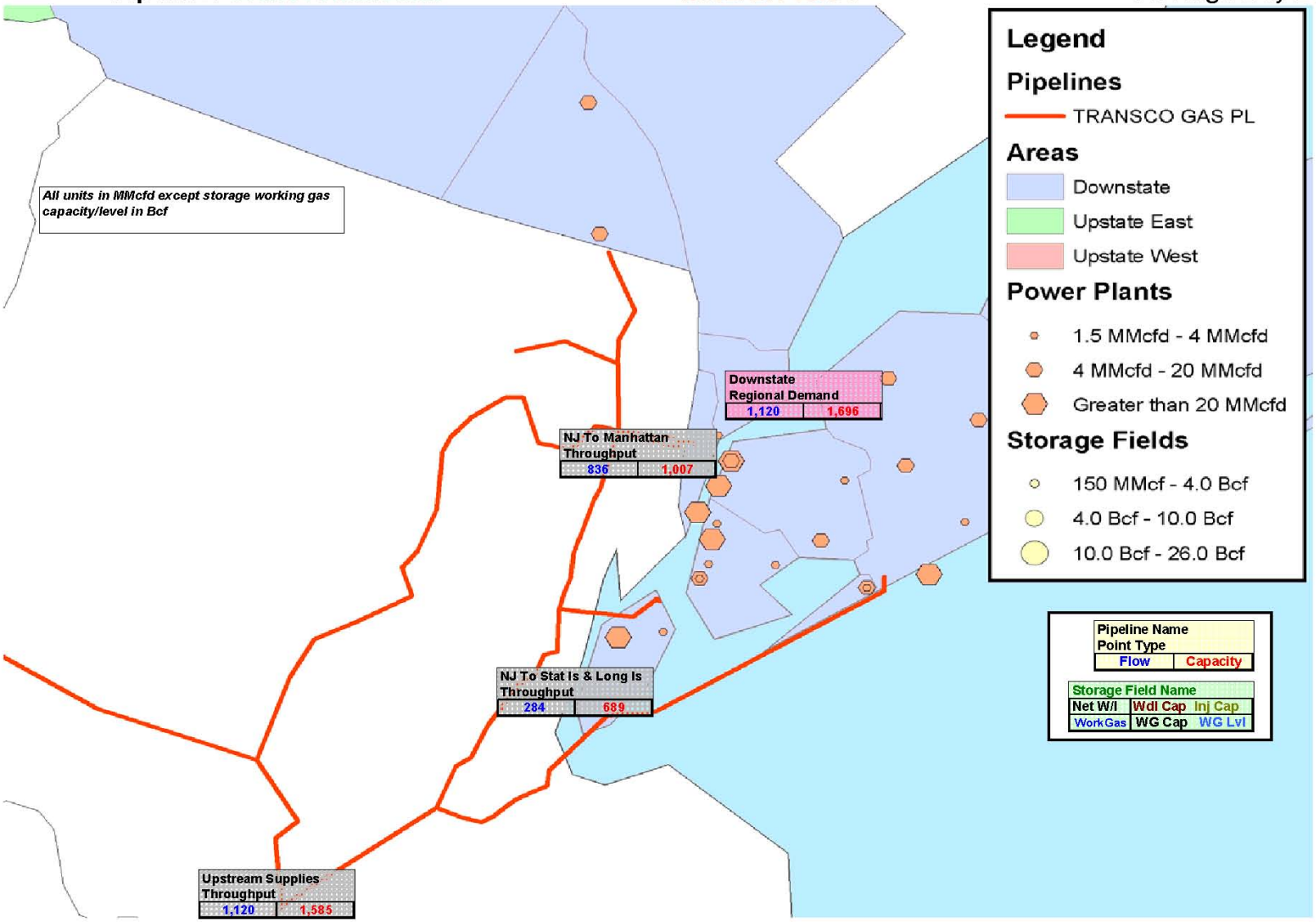
NYSERDA Case 1

Average Day 2009

All units in MMcfd except storage working gas capacity/level in Bcf



Pipeline: Transcontinental **NYSERDA Case 1** Average Day 2009

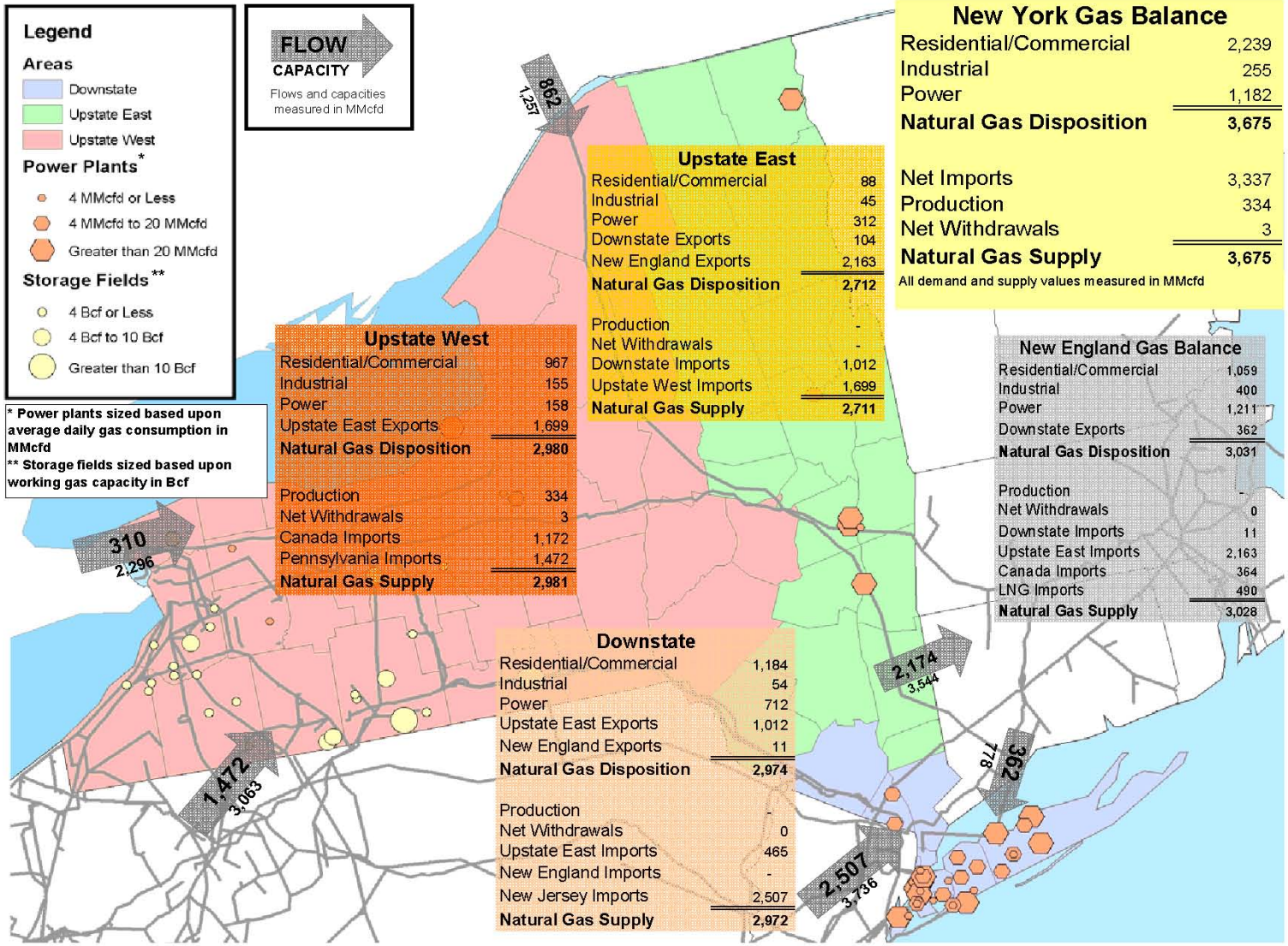


2017-18 Average Day Flow Maps

New York State Balance

NYSERDA Case 1

Average Day 2018



New York Gas Balance

Residential/Commercial	2,239
Industrial	255
Power	1,182
Natural Gas Disposition	**3,675**
Net Imports	3,337
Production	334
Net Withdrawals	3
Natural Gas Supply	**3,675**

All demand and supply values measured in MMcfd

Upstate East

Residential/Commercial	88
Industrial	45
Power	312
Downstate Exports	104
New England Exports	2,163
Natural Gas Disposition	**2,712**
Production	-
Net Withdrawals	-
Downstate Imports	1,012
Upstate West Imports	1,699
Natural Gas Supply	**2,711**

Upstate West

Residential/Commercial	967
Industrial	155
Power	158
Upstate East Exports	1,699
Natural Gas Disposition	**2,980**
Production	334
Net Withdrawals	3
Canada Imports	1,172
Pennsylvania Imports	1,472
Natural Gas Supply	**2,981**

New England Gas Balance

Residential/Commercial	1,059
Industrial	400
Power	1,211
Downstate Exports	362
Natural Gas Disposition	**3,031**
Production	-
Net Withdrawals	0
Downstate Imports	11
Upstate East Imports	2,163
Canada Imports	364
LNG Imports	490
Natural Gas Supply	**3,028**

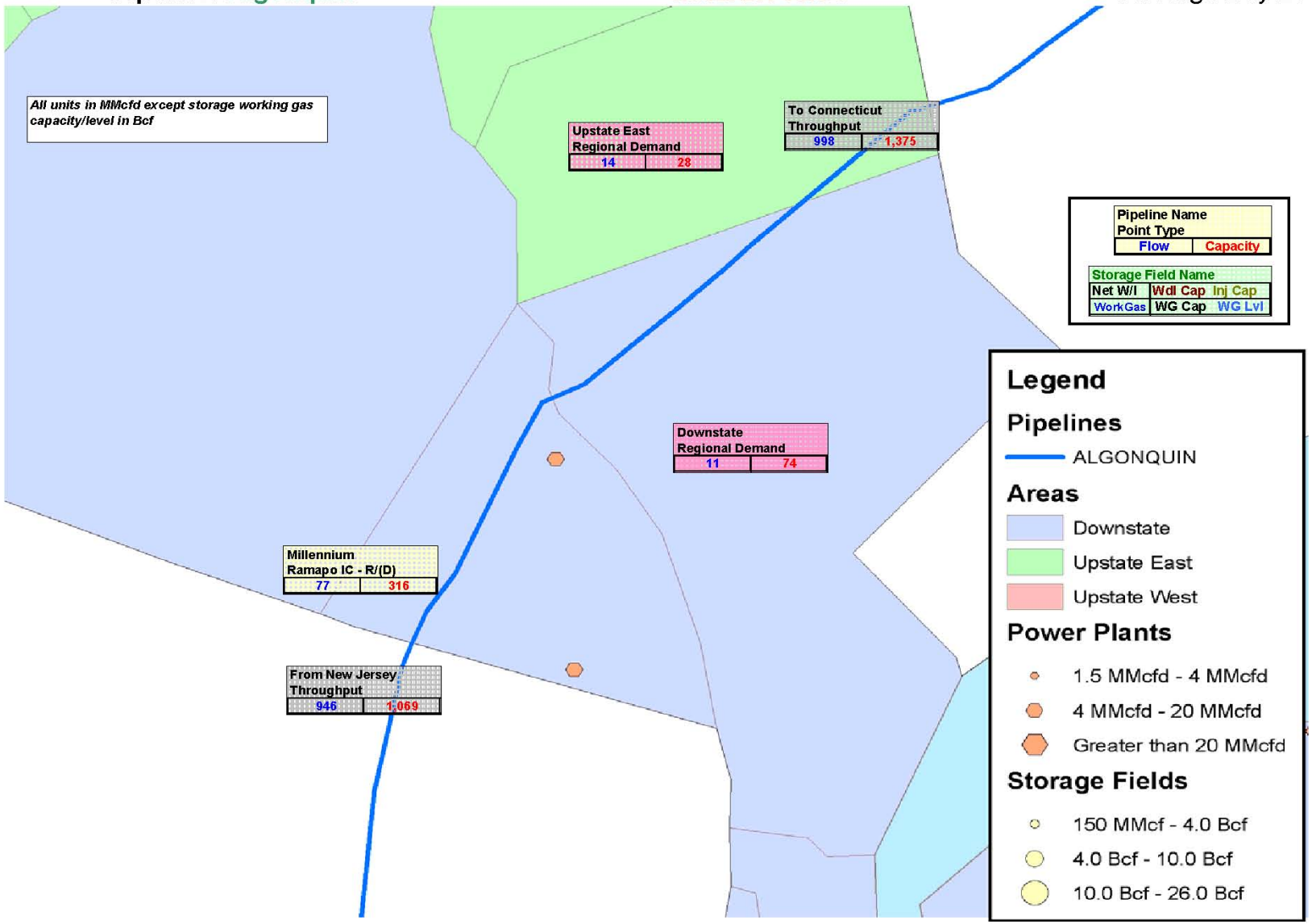
Downstate

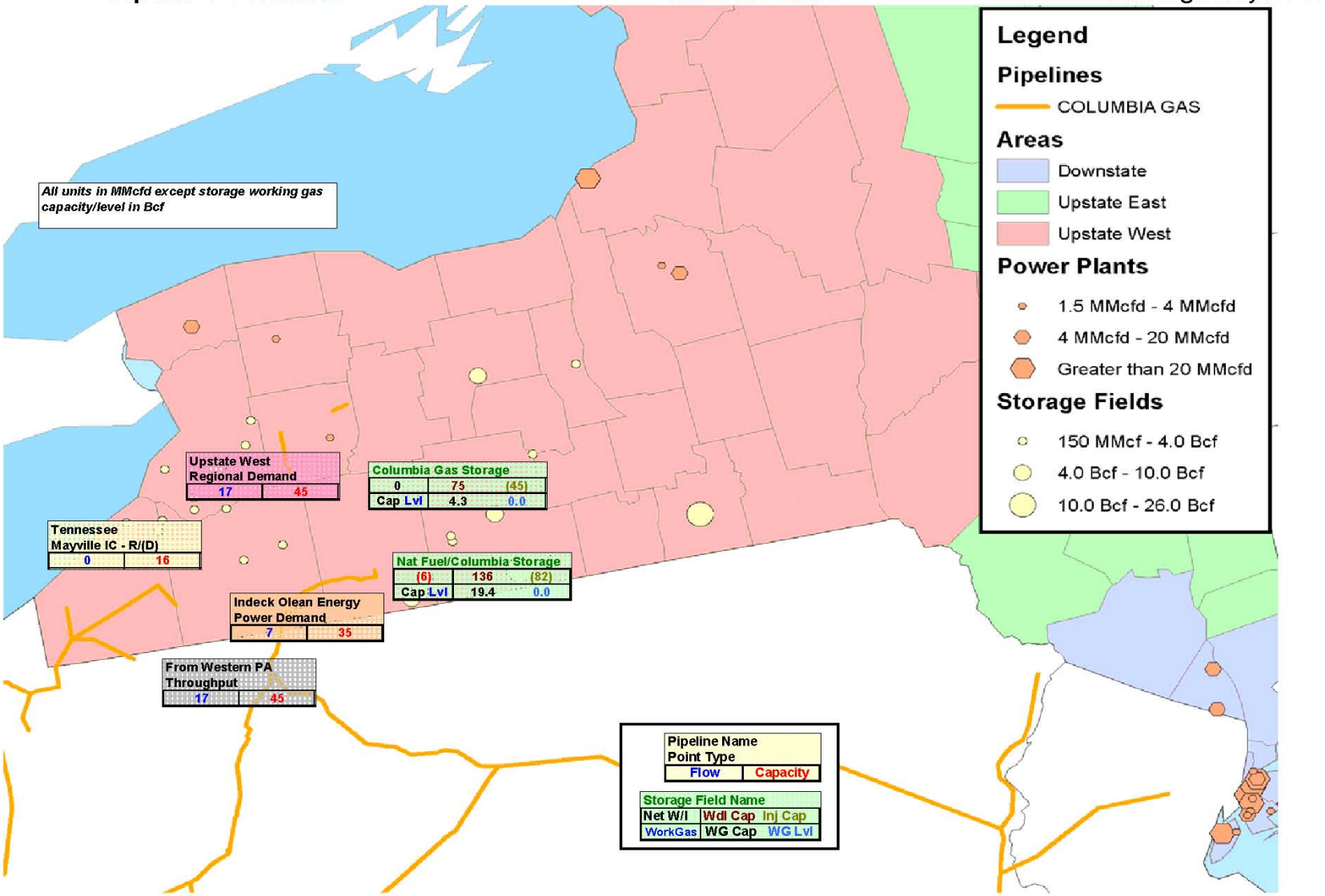
Residential/Commercial	1,184
Industrial	54
Power	712
Upstate East Exports	1,012
New England Exports	11
Natural Gas Disposition	**2,974**
Production	-
Net Withdrawals	0
Upstate East Imports	465
New England Imports	-
New Jersey Imports	2,507
Natural Gas Supply	**2,972**

Pipeline: Algonquin

NYSERDA Case 1

Average Day 2018

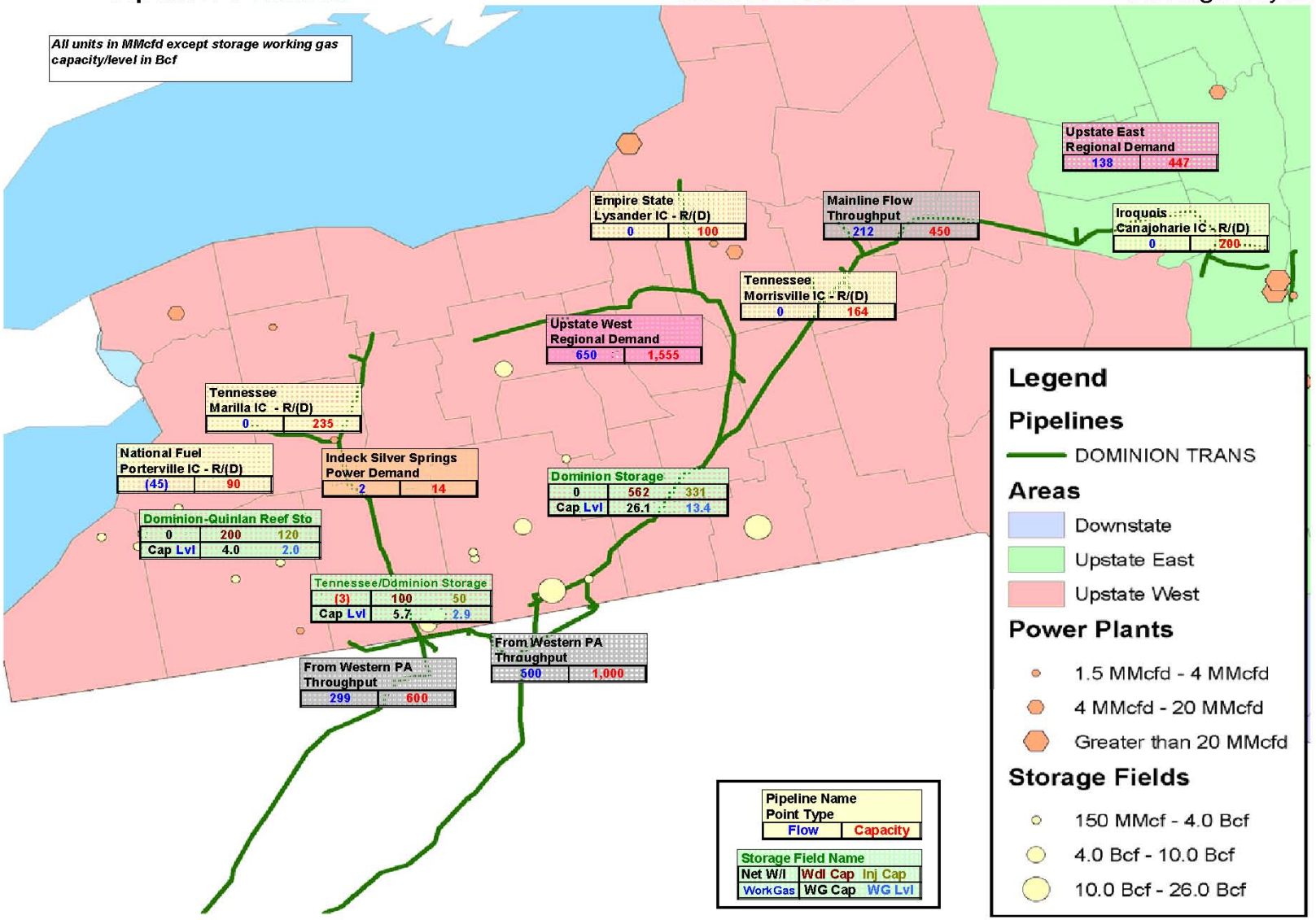



Pipeline: Columbia
NYSERDA Case 1
Average Day 2018
All units in MMcfd except storage working gas capacity/level in Bcf
Legend
Pipelines
COLUMBIA GAS
Areas
Downstate
Upstate East
Upstate West
Power Plants
1.5 MMcfd - 4 MMcfd
4 MMcfd - 20 MMcfd
Greater than 20 MMcfd
Storage Fields
150 MMcf - 4.0 Bcf
4.0 Bcf - 10.0 Bcf
10.0 Bcf - 26.0 Bcf
Upstate West Regional Demand
17 45
Columbia Gas Storage
0 75 (45)
Cap Lvl 4.3 0.0
Tennessee Mayville IC - R/(D)
0 16
Nat Fuel/Columbia Storage
(6) 136 (82)
Cap Lvl 19.4 0.0
Indeck Olean Energy Power Demand
7 35
From Western PA Throughput
17 45
Pipeline Name
Point Type
Flow Capacity
Storage Field Name
Net W/I Wdl Cap Inj Cap
WorkGas WG Cap WG Lvl

Pipeline: Dominion

NYSERDA Case 1

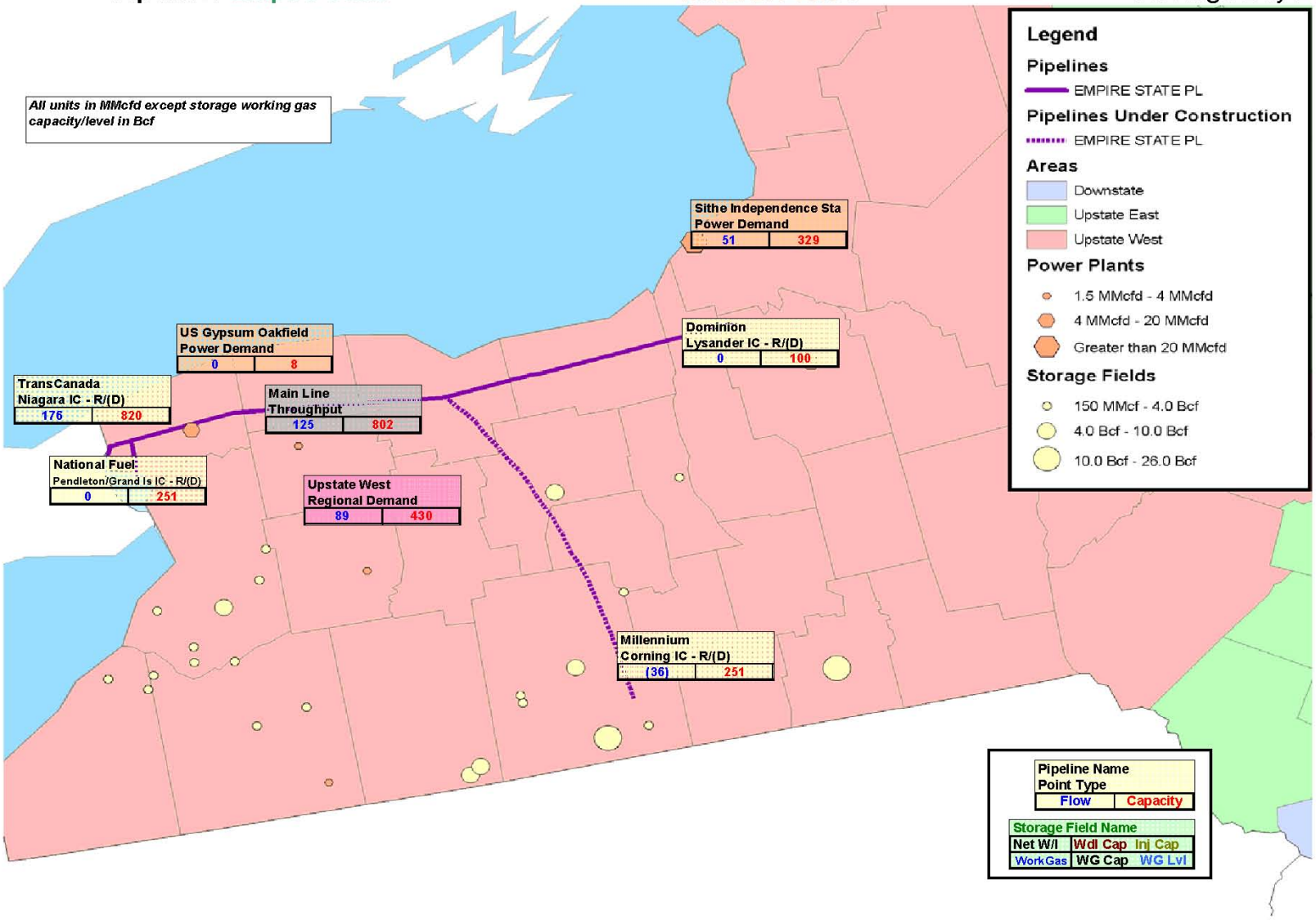
Average Day 2018



Pipeline: Empire State

NYSERDA Case 1

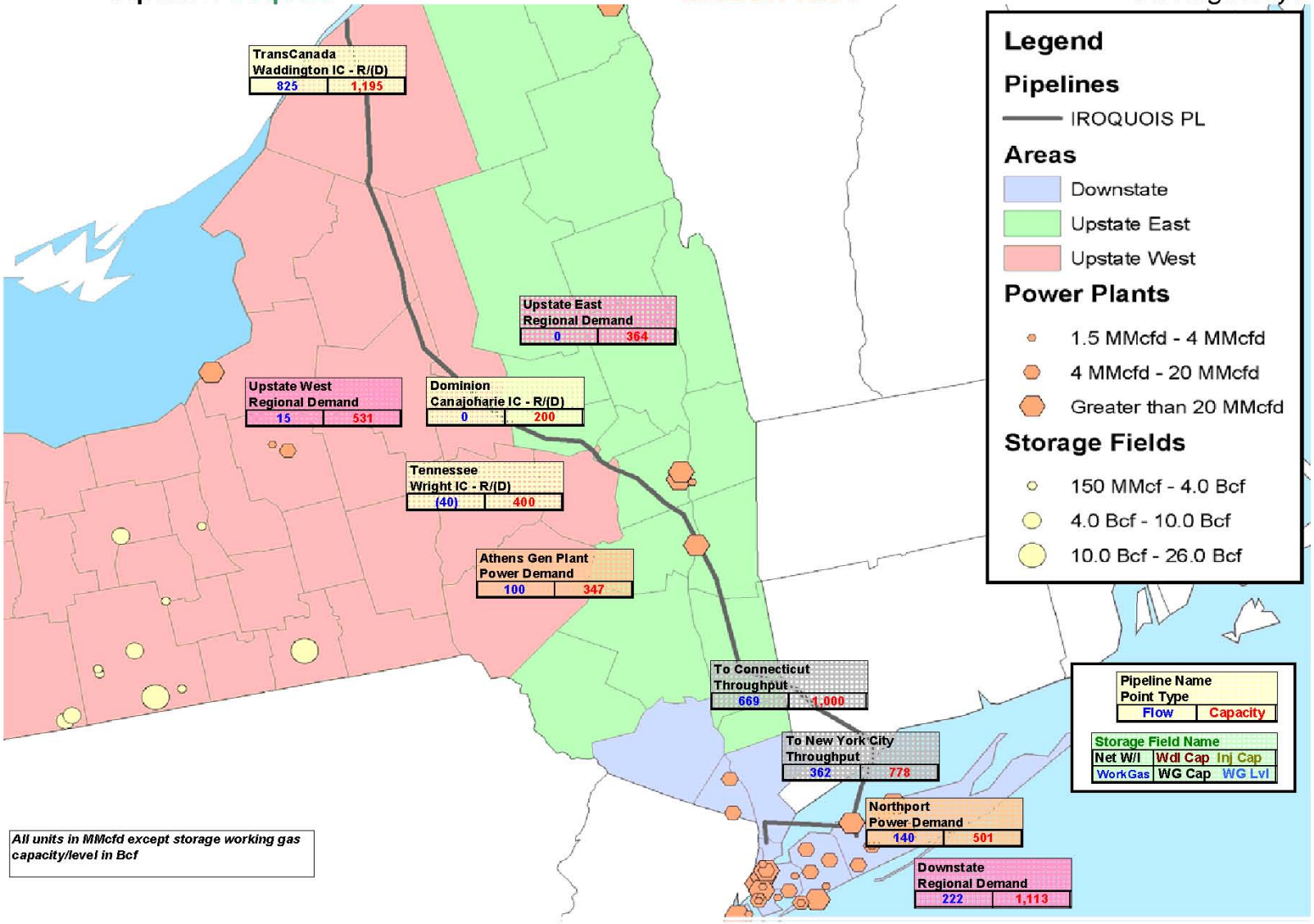
Average Day 2018



Pipeline: Iroquois

NYSERDA Case 1

Average Day 2018

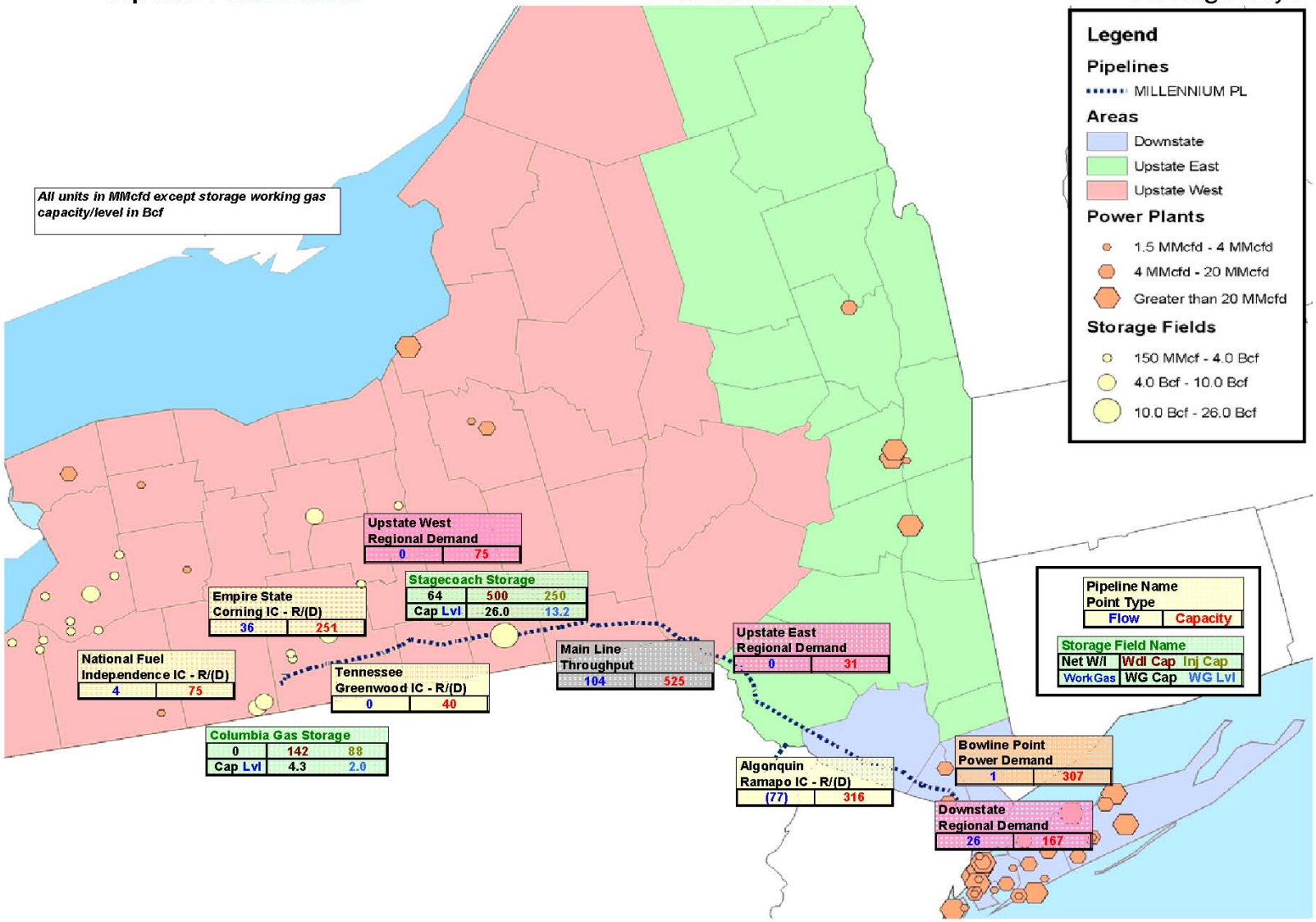


All units in MMcfd except storage working gas capacity/level in Bcf

Pipeline: Millennium

NYSERDA Case 1

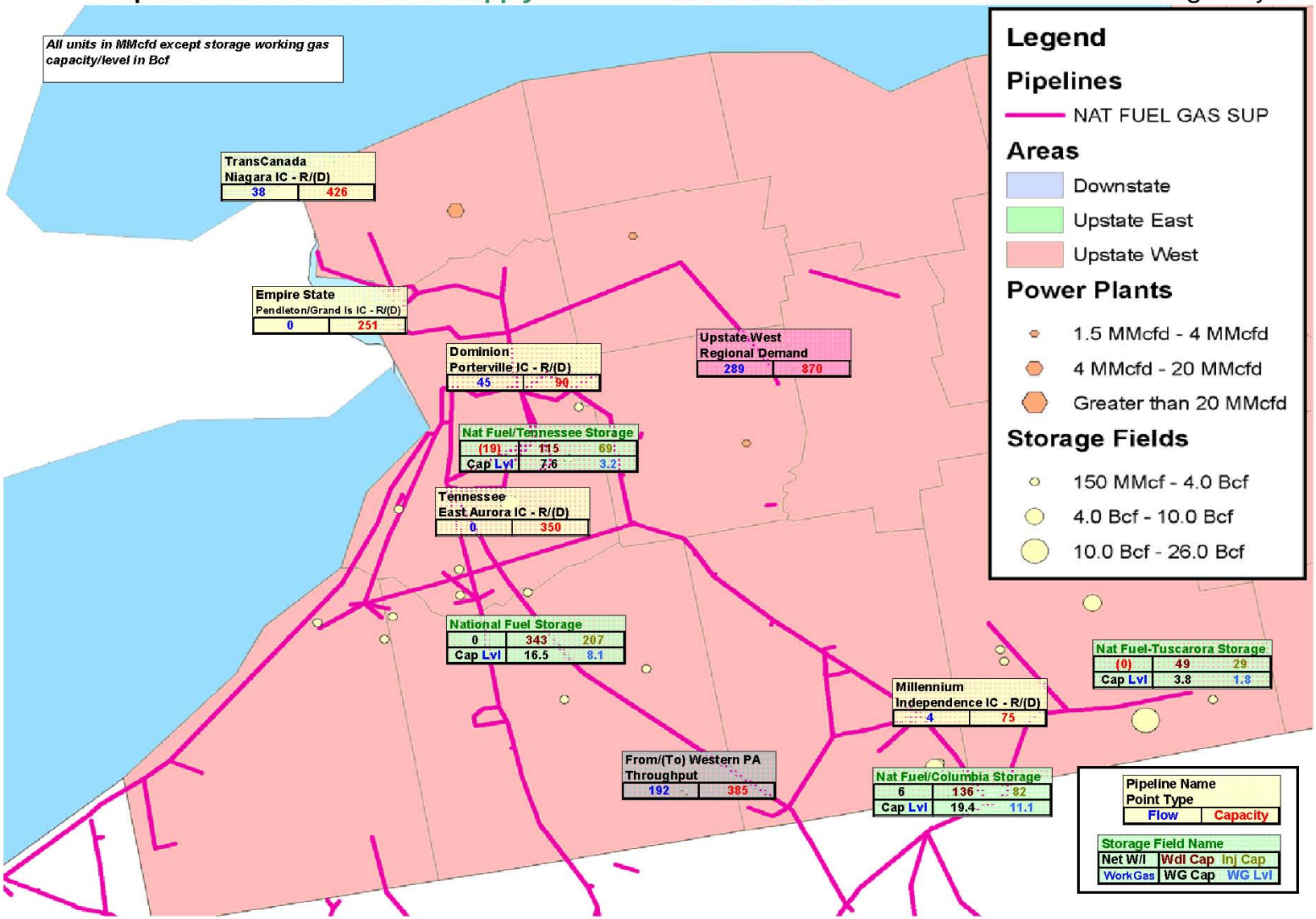
Average Day 2018



Pipeline: National Fuel Gas Supply

NYSERDA Case 1

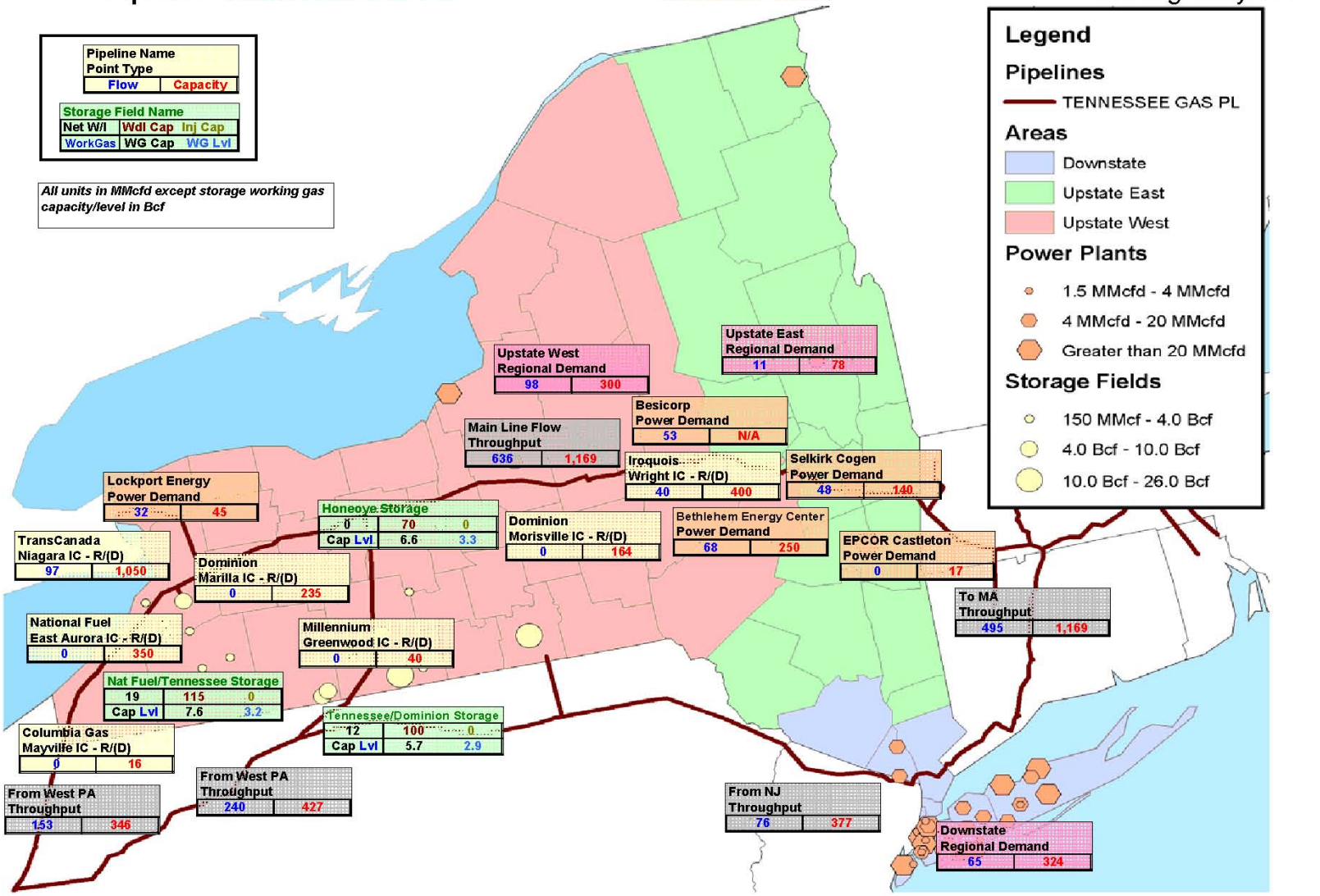
Average Day 2018



Pipeline: Tennessee Gas PL

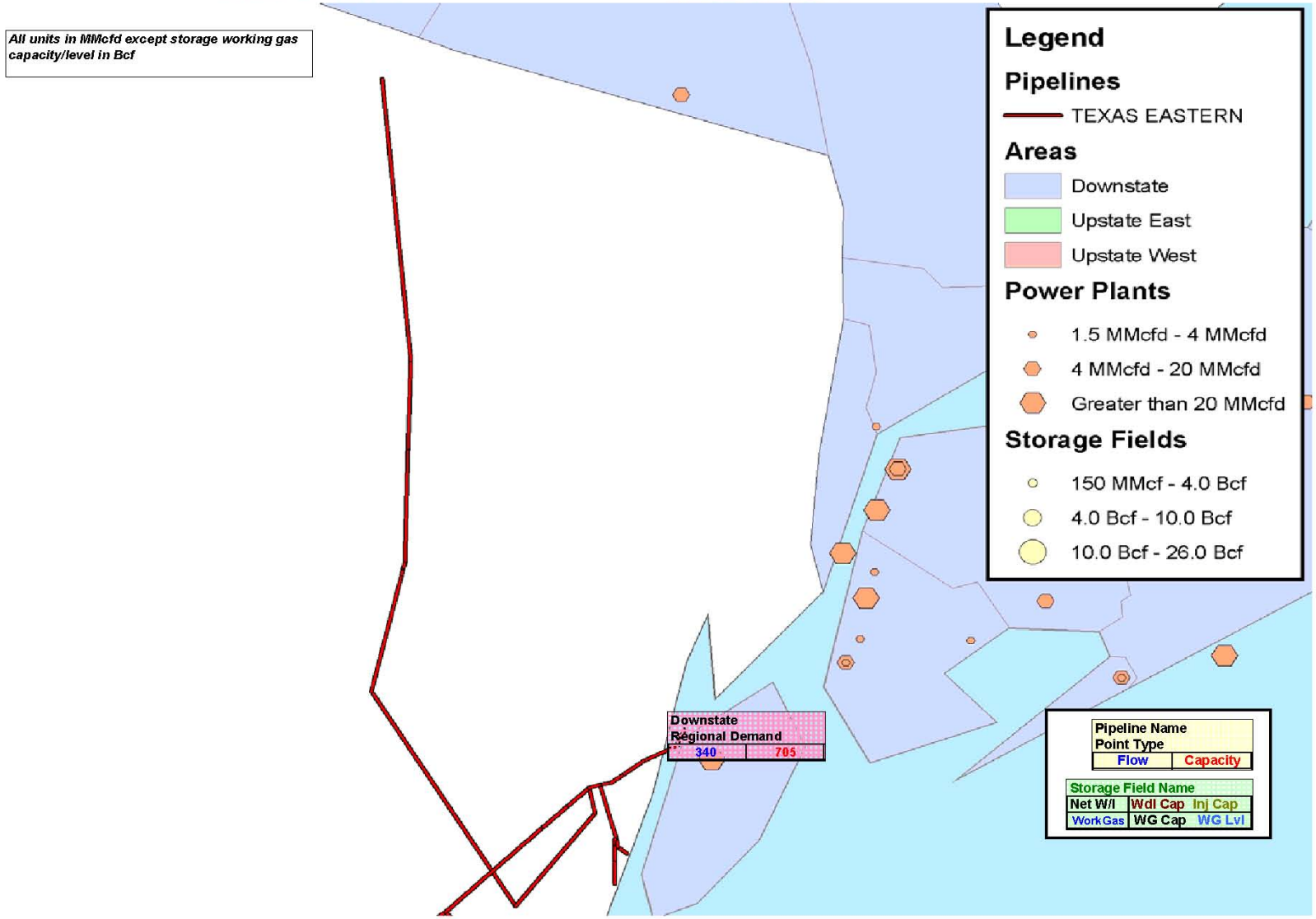
NYSERDA Case 1

Average Day 2018

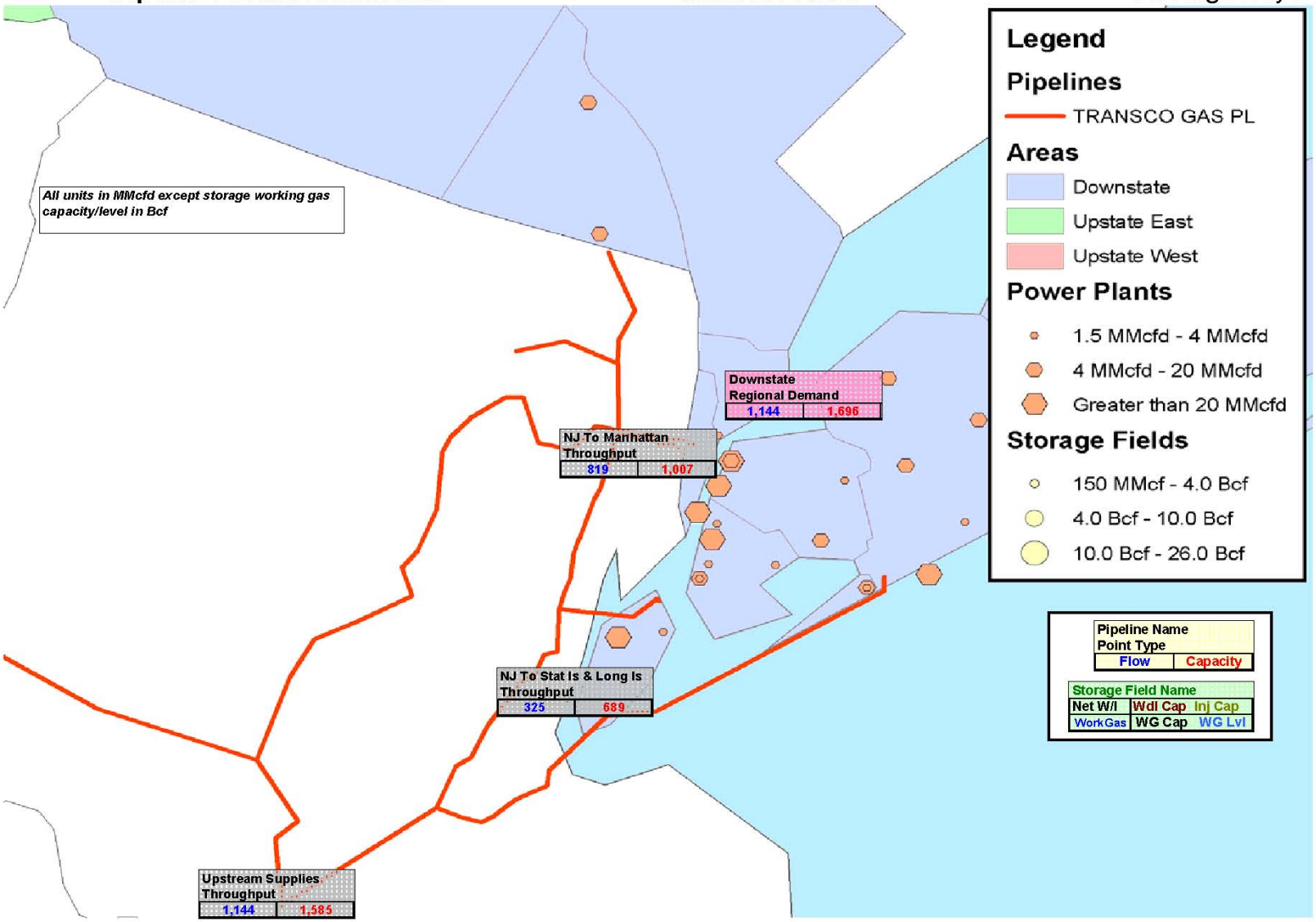


Pipeline: Texas Eastern NYSERDA Case 1 Average Day 2018

All units in MMcfd except storage working gas capacity/level in Bcf



Pipeline: Transcontinental **NYSERDA Case 1** Average Day 2018



Energy and Environmental Analysis, Inc.
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NYSERDA Case 1 Results

June 24, 2009

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