

Risk Assessment

Risk is defined as an uncertain event, which if it were to occur would have an impact on achieving project objectives. That impact, while typically thought of in negative terms, could also be positive and if such would then be classified as an opportunity.

An effective risk management program is based on the following core elements:

- The identification of all risks
- The measurement of the identified risk in terms of potential impact and likelihood of occurrence
- An assessment of the external environment and the control environment in place to manage the risk
- Action taken to manage, mitigate, transfer, avoid or accept the risk
- A constant monitoring to ensure continued economic justification and process improvement

WorleyParsons' risk management process is conducted via a proprietary computer-based program and follows a methodology that has been developed and used on of WorleyParsons' projects around the world. It is based on the International Organization for Standardization (ISO) - Risk Management — Principles and Guidelines on Implementation – ISO 31000:2009, an international benchmark standard in risk management. That methodology starts with one or more risk assessment sessions held to identify possible project risks. Two such sessions were held and were attended by representatives from NYSEG, WorleyParsons, CES, EPRI and Nixon Peabody (a complete listing of attendees is attached.) A total of 41 potential risks have been identified to date. The risk management process is a living and iterative process in which new risks are identified, evaluated and categorized; mitigation plans are developed after which the risk is re-evaluated and re-categorized; each risk is assigned to an individual for action; and follow-ups are conducted for all risks, their mitigation plans, and their status through to the end of the project. All of these data are maintained in a computer-based project risk matrix.

Identified risks included process risks; financial risks; schedule risks; safety risks; and risks associated with vendors, permitting, governmental actions, and public acceptance. The risks were also identified as to whether they affected only CAES1 technology, CAES2 technology or both.

All risks were also evaluated for their likelihood of occurrence and their consequence if they were to occur. This evaluation is done based upon a

likelihood and consequence matrix, customized specifically for the particular project (a copy of the CAES project likelihood – consequence is attached.) On that basis, the program then further categorized all risks as being “low”, “moderate”, “high”, or “extreme”. Development and implementation of mitigation plans allows for the risks to be re-evaluated with respect to their likelihood or occurrence and consequence, and their risk level then to be recalculated. The results of this work are presented in in risk matrix (a copy of the risk matrix is attached.) The objective is to drive all risks to their lowest possible level and then to manage those risks. This can be shown in before and after risk maps that show the effect of the risk mitigation plans (a copy of the risk maps is attached.) This can also be shown in a risk summary (a copy of the risk summary is attached.) As the project progresses, the assigned individual for each task updates the status of the risk and continues to work to improve upon the mitigation plan.

For the NYSEG CAES project, fourteen of the risks were originally categorized as “extreme” risks. Currently, their status is:

- One has been eliminated by further development of the project basis:
 - Transmission system upgrades/rebuilding will not be needed to construct and operate the CAES project.
- Six have had their classification lowered by mitigation plan development that either lowered their likelihood of occurrence or their consequence, thereby lowering their risk categorization:
 - Risk that the New York PSC will not support the development of the project and will not allow cost recovery of construction and operating costs of the plant. Partial mitigation through dialogue with PSC and Staff, but fundamental problem remains especially if customer impact is negative.
 - Inflation and escalation between the time that the estimate is finished and the time that the project is executed may result in project budget being exceeded.
 - Propane storage licensing effort and Marcellus shale could result impeding state and local permit approvals.
 - Late completion of any of the off-site utilities will delay overall project completion.
 - Property rights and right-of-ways will be required for site and the various off-site utilities. If condemnation is required, schedule is at risk.

- Schedule delay getting NYISO approval in time for interconnect could delay overall project completion.
- Three (interrelated) process risks are still in discussion with the relevant vendor associated with them:
 - Plant performance not meeting expectations.
 - Lack of experience in integration of separate PLC controlled equipment items may result in lower performance and/or higher costs.
 - Specification calls for complete technical "wrap" of all equipment for each cycle. There is a risk that this "wrap" will not be offered by all bidders.
- The Four remaining risks are all associated with project costs/societal benefits, which as indicated elsewhere in this report, are still considered to be the highest risks for the project:
 - Changing NYISO and FERC rules could impact financial viability of project.
 - The financial fundamentals do not justify the project.
 - Inability to identify the societal benefits of the project such that the financial viability of the project cannot be identified.
 - Failure to properly show how renewable energy sources and CAES mutually benefit each other and the grid will not properly demonstrate societal benefits of project.

Reviewing, adding newly identified risks and updating of the project risk matrix continues until the project's conclusion.

NYSEG SENECA CAES RISK ASSESSMENT PARTICIPANTS:

Jim Rettberg	NYSEG
Mike Holdridge	WorleyParsons
Kajal Mukherjee	WorleyParsons
Mike DeLallo	WorleyParsons
Jay Weist	WorleyParsons
Bob Schainker	EPRI
Dave Brubaker	WorleyParsons
Walt Bilenki	WorleyParsons
Harry Eisenbise	WorleyParsons
Curt Ritter	WorleyParsons
Scott Turner	Nixon Peabody
Lisa Hoffman	NYSEG
Rick Mancini	CES (separate session)

Likelihood Consequence Tables NYSEG SENECA CAES Project

Likelihood Category				
E	D	C	B	A
Rare	Unlikely	Moderate	Likely	Almost Certain
Highly unlikely to occur on this project	Given current practices and procedures, this incident is unlikely to occur on this project	Incident has occurred on a similar project	Incident is likely to occur on this project	Incident is very likely to occur on this project, possibly several times
OR				
5% chance of occurring	20% chance of occurring	50% chance of occurring	80% chance of occurring	95% chance of occurring

	Consequences				
	1 - Insignificant	2 - Minor	3 - Moderate	4 - Major	5 - Catastrophic
Safety and Health	First Aid Case	Minor Injury, Medical Treatment Case with/or Restricted Work Case.	Serious injury or Lost Work Case	Major or Multiple Injuries permanent injury or disability	Single or Multiple Fatalities
Environment	No impact on baseline environment. Localized to point source. No recovery required	Localized within site boundaries. Recovery measurable within 1 month of impact	Moderate harm with possible wider effect. Recovery in 1 year	Significant harm with local effect. Recovery longer than 1 year.	Significant harm with widespread effect. Recovery longer than 1 year. Limited prospect of full recovery
Financial	<\$100,000	\$100k - \$500k	\$500k - \$5m	\$5m - \$10M	>\$10m
Production/Schedule	Up to 3 days	3 days – 1 week	1 wk – 1 month	1 – 6 months	> 6 months
Reputation	Localised temporary impact	Localised, short term impact	Localised, long term impact but manageable	Localised, long term impact with unmanageable outcomes	Long term regional impact
Business Impact	Impact can be absorbed through normal activity	An adverse event which can be absorbed with some management effort	A serious event which requires additional management effort	A critical event which requires extraordinary management effort	Disaster with potential to lead to collapse of the project

Risk Register and Action Plan NYSEG SENECA CAES Project

Number	Rank	Risk Description (Event and Consequence)	Category	Risk Severity Before Treatment			Risk Treatment Plan	Ability to Influence	Action Plan Type	Risk Severity After Treatment			Responsible Person				
				Consequence	Likelihood	Risk Level Before Treatment				Consequence	Likelihood	Risk Level After Treatment					
1	30	Risk that the cost of developing a suitable air storage cavern will exceed budget estimates. Factors which could drive increased costs could include: access well conditions requiring new wells to be developed; existing well casing integrity causing air leakage; cavern geometry causing problems or delays in dewatering the cavern; limitations in the rate of brine removal from the cavern; cavern leakage through fissures in the cavern; cavern structural problems developing as a result of frequent pressure cycling during CAES plant operation. Cost and	Technology / Systems	3	Moderate	D	Unlikely	Moderate	Mitigate through contactual relationship with Inergy which requires them to provide NYSEG with a cavern which can be used for air storage at a fixed cost to NYSEG.	Moderate	Reduce likelihood and consequence	3	Moderate	D	Unlikely	Moderate	Mark Cole
2	39	Risk that the time and expense estimated to initially charge the cavern will exceed budget and schedule estimates. Cost and limited development schedule impact. JR	Technology / Systems	2	Minor	D	Unlikely	Low	Mitigate through careful analysis of cavern characterization work conducted by Inergy during Phase 1. Incorporate findings of characterization into Phase 2 project development schedule.	Moderate	Reduce likelihood and consequence	2	Minor	D	Unlikely	Low	Mark Cole
3	31	Risk that project cost, schedule, and/or performance would be negatively impacted by poor performance of equipment or system design/integration resulting from unproven technical design. Cost and schedule if equipment must be replaced or if system redesign is required. JR	Technology / Systems	3	Moderate	D	Unlikely	Moderate	Mitigate through system design and equipment specification that will focus on the use of proven equipment and designs.	High	Reduce likelihood and consequence	2	Minor	D	Unlikely	Low	Harry Eisenbise
4	32	Risk that environmental permitting would be delayed or that unanticipated permit provisions would be implemented that could increase plant capital costs or impact plant operational capabilities. Impact could require equipment redesign or replacement, or could impact plant operating characteristics. JR	Environment	3	Moderate	D	Unlikely	Moderate	Mitigate through use of experienced technical staff and counsel and through early dialogue with NYS DEC to firmly establish regulatory requirements during Phase 1. Use of Article 10.	High	Reduce likelihood and consequence	2	Minor	D	Unlikely	Low	Nixon Peabody
5	33	Risk that development of integrated and coordinated control system for the plant would present unique or unanticipated control system design or operability issues that could require system redesign or replacement, or could impact plant operating characteristics. Impact could require equipment redesign or replacement, or could impact plant operating characteristics. JR	Operations	3	Moderate	D	Unlikely	Moderate	Mitigate through use of experienced technical staff during Phase 1 to develop integrated control system design and equipment specifications.			3	Moderate	D	Unlikely	Moderate	Shawn Kelly
6	34	Risk that cost estimates will not be accurate and/or that cost control measures during Phase 2 development will not be effective. Potential PSC disallowance of cost over-runs. JR	Financial	3	Moderate	D	Unlikely	Moderate	Mitigate through competitive bidding and contract terms and conditions which would require firm fixed prices and delay liquidated damages provisions.	High	Reduce likelihood and consequence	2	Minor	D	Unlikely	Low	Dave Brubaker
7	35	Risk that schedule estimates will not be accurate and/or that control measures during Phase 2 development will not be effective. Cost and schedule impact. Potential PSC disallowance of any cost over-runs. JR	Project Management	3	Moderate	D	Unlikely	Moderate	Mitigate through detailed schedule development and on-going management. Also mitigate through contract terms and conditions including delay liquidated damages provisions. Continuous monitoring of construction and equipment delivery schedules will also be part of the project management plan.	High	Reduce likelihood and consequence	2	Minor	D	Unlikely	Low	Ali Hanafi

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				Consequence	Likelihood	Risk Level Before Treatment	Consequence				Likelihood	Risk Level After Treatment					
8	9	Risk that the New York PSC will not support the development of the project and will not allow cost recovery of construction and operating costs of the plant. If PSC approval to proceed with Phase 2 development is not received, NYSEG will not pursue the project into the development phase. JR	Financial	4	Major	C	Moderate	Extreme	Mitigate through active discussions with PSC Staff during Phase 1; prepare comprehensive report detailing technical and economic benefits from the project.	Moderate	Reduce likelihood and consequence	4	Major	D	Unlikely	High	James Rettberg
9	15	DEC may adopt a CO2 performance standard that is not achievable by this project. ST C2	Environment	4	Major	D	Unlikely	High	Accept - monitor - limited ability to influence	Low / None	Accept	4	Major	D	Unlikely	High	Nixon Peabody
10	16	DEC may adopt a CO2 performance standard that is not achievable by this project. ST C1	Environment	4	Major	D	Unlikely	High	Accept - monitor - limited ability to influence	Low / None	Accept	4	Major	D	Unlikely	High	Nixon Peabody
11	2	Inflation and escalation between time we finish estimate and time we do project may result in project budget being exceeded. DB	Financial	5	Catastrophic	C	Moderate	Extreme	Current increases in inflation rate and escalation rate are not significant, thus likelihood and consequence are both lessened.	Low / None	Accept	4	Major	D	Unlikely	High	James Rettberg
12	10	Efficacy of the design not meeting plant expectations. KM C2	Technology / Systems	4	Major	C	Moderate	Extreme	Working with vendor to resolve. Also mitigate through contract terms and conditions including delay liquidated damages provisions.	Moderate	Reduce likelihood and consequence	4	Major	C	Moderate	Extreme	Harry Eisenbise
13	17	Efficacy of the design not meeting plant expectations. KM C1	Technology / Systems	4	Major	D	Unlikely	High	Working with vendor to lessen impact. Also mitigate through contract terms and conditions including delay liquidated damages provisions.	Moderate	Reduce likelihood and consequence	4	Major	D	Unlikely	High	Harry Eisenbise
14	18	Efficacy of the design not meeting plant expectations. KM C2 Years 1 - 3	Technology / Systems	4	Major	D	Unlikely	High	Working with vendor to lessen impact. Also mitigate through contract terms and conditions including delay liquidated damages provisions.	Moderate	Reduce likelihood and consequence	4	Major	D	Unlikely	High	Harry Eisenbise
15	19	Efficacy of the design not meeting plant expectations. KM C1 Years 1 - 3	Technology / Systems	4	Major	D	Unlikely	High	Working with vendor to lessen impact. Also mitigate through contract terms and conditions including delay liquidated damages provisions.	Moderate	Reduce likelihood and consequence	4	Major	D	Unlikely	High	Harry Eisenbise
16	1	Transmission system upgrade has been identified as necessary, cost and scope are unknown. WB	Financial	5	Catastrophic	B	Likely	Extreme	Further studies showed that existing system can perform as required without upgrades.	Moderate	Avoid / eliminate	1	Insignificant	E	Rare	Low	Walt Bilenki
17	3	The financial fundamentals do not justify the project. HE	Financial	5	Catastrophic	C	Moderate	Extreme	Complete financial analysis to see results.	Moderate	Accept	5	Catastrophic	C	Moderate	Extreme	James Rettberg
18	4	Inability to identify the societal benefits of the project such that we cannot identify the financial viability of the project. RS	Financial	5	Catastrophic	C	Moderate	Extreme	Complete first pass as valuation of societal benefits to see results.	Low / None	Accept	5	Catastrophic	C	Moderate	Extreme	James Rettberg
19	28	Lack of qualified companies for drilling operation due to potential increased shale gas exploration. CR	Procurement/Contractors/Suppliers	3	Moderate	C	Moderate	High	Plan to drill caverns as soon as permits allow - monitor drill rig usage (such as on Marcellus Shale).	Moderate	Reduce likelihood	3	Moderate	C	Moderate	High	Mark Cole
20	11	Lack of experience in integration of separate PLC controlled equipment items may result in lower performance and/or higher costs. JR C2	Technology / Systems	4	Major	C	Moderate	Extreme	Working with specific vendor to have vendor take responsibility for this item.	Moderate	Reduce likelihood and consequence	4	Major	C	Moderate	Extreme	Shawn Kelly
21	5	Propane storage licensing effort and Marcellus shale could result impeding state and local permit approvals. JR	Community	4	Major	B	Likely	Extreme	Monitor progress on propane storage and on Marcellus shale permit. Marcellus shale progressing without "upsets" in PA.	Low / None	Reduce likelihood and consequence	3	Moderate	C	Moderate	High	Nixon Peabody
22	25	Propane loading/unloading facilities sharing the same general site could result in safety issues. JR	Safety and Health	4	Major	E	Rare	High	Check distance requirements in NFPA. Grade terrain appropriate to direct spilled propane not towards plant.	High	Reduce likelihood and consequence	2	Minor	E	Rare	Low	Mike Holdridge
23	36	Obtaining adequate supply of water is not yet worked out - cannot run without it. RS	Technology / Systems	3	Moderate	D	Unlikely	Moderate	Plan to get water from Seneca Lake - this is already done by US Salt	Moderate	Reduce likelihood	3	Moderate	D	Unlikely	Moderate	Harry Eisenbise
24	40	Uncontrolled release of cavern air due to an above ground failure could result in very loud noise for many (40?) hours. RS	Safety and Health	2	Minor	E	Rare	Low	Proper design should keep risk very low.	High	Reduce likelihood and consequence	2	Minor	E	Rare	Low	PBESS
25	20	Fire due to flammable materials (fuel, etc.) RS	Safety and Health	4	Major	D	Unlikely	High	See item 22 above. Only normal quantities of flammable materials to be stored at plant site. Design in fire protection plan.	High	Reduce likelihood and consequence	3	Moderate	D	Unlikely	Moderate	Harry Eisenbise

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				Consequence	Likelihood	Risk Level Before Treatment	Consequence				Likelihood	Risk Level After Treatment					
26	21	Loss of natural gas supply or gas supply pressure could result in halt in operations until corrected. MD	Operations	4	Major	D	Unlikely	High	Foreseen as unlikely. A second source of natural gas is not considered warranted at this time.	Moderate	Accept	4	Major	D	Unlikely	High	James Rettberg
27	38	Insufficient geological information results in unsuccessful cavern development. MD	Construction	3	Moderate	E	Rare	Moderate	PBESS has been brought on-board to fully investigate development requirements.	High	Reduce likelihood	3	Moderate	E	Rare	Moderate	PBESS
28	29	Multiple bidders with ability to fabricate / produce all of the equipment items that are required for the plant. MD	Procurement/Contractors/Suppliers	3	Moderate	C	Moderate	High	Solicitation of bids revealed on recuperator to not have multiple bidders interested without sure project go-ahead.	High	Reduce likelihood	3	Moderate	D	Unlikely	Moderate	Michael Durkan
29	6	Changing NYISO and FERC rules could impact financial viability of project. RS	Financial	4	Major	B	Likely	Extreme	Accept - monitor - limited ability to influence	Low / None	Accept	4	Major	B	Likely	Extreme	Rick Mancini
30	12	Late completion of any of the off-site utilities will delay overall project completion. MH	Construction	4	Major	C	Moderate	Extreme	Establish, monitor and control based on integrated master schedule	Moderate	Reduce likelihood	4	Major	D	Unlikely	High	James Rettberg
31	26	Noise and visual impacts could result in additional costs to get them "resolved". LH	Financial	3	Moderate	B	Likely	High	Maintain as much nature vegetation as possible - include soundproofing in design.	Moderate	Reduce likelihood and consequence	3	Moderate	C	Moderate	High	James Rettberg
32	22	Insufficient effort preparing for or poor execution of public meetings can impact public's perception of project. MD	Community	4	Major	D	Unlikely	High	Plan and conduct public meetings once project is approved to go ahead.	High	Reduce likelihood and consequence	3	Moderate	D	Unlikely	Moderate	James Rettberg
33	7	Specification calls for complete technical "wrap" of all equipment for each cycle. There is a risk that this "wrap" will not be offered by all bidders. MH	Procurement/Contractors/Suppliers	4	Major	B	Likely	Extreme	Working with specific vendor to have vendor take responsibility for this item.	Moderate	Reduce likelihood	4	Major	B	Likely	Extreme	Michael Durkan
34	27	Current information on wastewater discharge implies that the allowable TDS limits are close to the raw water TDS levels. This could result in an inability to cycle up the cooling tower water. HE	Environment	3	Moderate	B	Likely	High	Work with permit authorities to get discharge accepted. If not, develop engineering solution.	Low / None	Reduce likelihood and consequence	3	Moderate	B	Likely	High	Harry Eisenbise
35	23	Not performing a detailed and defensible bid evaluation of the two cycles would put project at risk of being protested. HE	Engineering	4	Major	D	Unlikely	High	Phase 1 calls for a detailed and defensible bid evaluation between cycles 1 and 2.	High	Reduce likelihood	4	Major	E	Rare	High	James Rettberg
36	13	Property rights and right-of-ways will be required for site and the various off-site utilities. If condemnation is required, schedule is at risk. WB	Project Management	4	Major	C	Moderate	Extreme	Sufficient time in schedule for either - Article 10 provisions may also be used.	Moderate	Reduce likelihood	4	Major	D	Unlikely	High	Lisa Hoffman
37	24	Licensing for electric and natural gas transmission work could impact schedule. WB	Project Management	4	Major	D	Unlikely	High	Sufficient time in schedule - maintain schedule.	High	Reduce likelihood	4	Major	E	Rare	High	Nixon Peabody
38	37	Dresser-Rand does not have a test stand for LP or HP combustors. MH	Procurement/Contractors/Suppliers	3	Moderate	D	Unlikely	Moderate	Test plan and alternatives have been received from D-R. Progress to be monitored.	Low / None	Reduce likelihood	3	Moderate	D	Unlikely	Moderate	Dresser Rand
40	14	Schedule delays in getting NYISO approval intime for interconnect could delay overall project completion. (RM)	Government / Regulatory	4	Major	C	Moderate	Extreme	Sufficient time in schedule - Article 10 provisions may also be used.	Moderate	Reduce likelihood	4	Major	D	Unlikely	High	Rick Mancini
41	8	Failure to properly show how renewable energy sources and CAES mutually benefit each other and the grid will not properly demonstrate societal benefits of project. (RM)	Communications	4	Major	B	Likely	Extreme	See item 18 above. Complete first pass as valuation of societal benefits to see results.	Low / None	Accept	4	Major	B	Likely	Extreme	Jim Harvilla

Risk Maps - Before and After Treatment NYSEG SENECA CAES Project

Risk Map Before Treatment			Consequence				
			Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Likelihood	A	Almost Certain 0%					
	B	Likely 0%			31 34	21 29 33 41	16
	C	Moderate 0%			19 28	8 12 20 30 36 40	11 17 18
	D	Unlikely 0%		2	1 3 4 5 6 7 23 38	9 10 13 14 15 25 26 32 35 37	
	E	Rare 0%		24	27	22	

Risk Map After Treatment			Consequence				
			Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Likelihood	A	Almost Certain					
	B	Likely			34	29 33 41	
	C	Moderate			19 21 31	12 20	17 18
	D	Unlikely		2 3 4 6 7	1 5 23 25 28 32 38	8 9 10 11 13 14 15 26 30 36 40	
	E	Rare	16	22 24	27	35 37	

Risk Summary NYSEG SENECA CAES Project

Rank	No.	Description	Before	After
10	12	Efficacy of the design not meeting plant expectations. KM C2	Extreme	Extreme
3	17	The financial fundamentals do not justify the project. HE	Extreme	Extreme
4	18	Inability to identify the societal benefits of the project such that we cannot identify the financial viability of the project. RS	Extreme	Extreme
11	20	Lack of experience in integration of separate PLC controlled equipment items may result in lower performance and/or higher costs. JR C2	Extreme	Extreme
6	29	Changing NYISO and FERC rules could impact financial viability of project. RS	Extreme	Extreme
7	33	Specification calls for complete technical "wrap" of all equipment for each cycle. There is a risk that this "wrap" will not be offered by all bidders. MH	Extreme	Extreme
8	41	Failure to properly show how renewable energy sources and CAES mutually benefit each other and the grid will not properly demonstrate societal benefits of project (RM)	Extreme	Extreme
9	8	Risk that the New York PSC will not support the development of the project and will not allow cost recovery of construction and operating costs of the plant. If PSC approval to proceed with Phase 2 development is not received, NYSEG will not pursue the project into the development phase. JR	Extreme	High
2	11	Inflation and escalation between time we finish estimate and time we do project may result in project budget being exceeded. DB	Extreme	High
5	21	Propane storage licensing effort and Marcellus shale could result impeding state and local permit approvals. JR	Extreme	High
12	30	Late completion of any of the off-site utilities will delay overall project completion. MH	Extreme	High
13	36	Property rights and right-of-ways will be required for site and the various off-site utilities. If condemnation is required, schedule is at risk. WB	Extreme	High
14	40	Schedule delays in getting NYISO approval intime for interconnect could delay overall project completion. (RM)	Extreme	High
1	16	Tranmission system upgrade has been identified as necessary, cost and scope are unknown. WB	Extreme	Low
15	9	DEC may adopt a CO2 performance standard that is not achievable by this project. ST C2	High	High
16	10	DEC may adopt a CO2 performance standard that is not achievable by this project. ST C1	High	High
17	13	Efficacy of the design not meeting plant expectations. KM C1	High	High
18	14	Efficacy of the design not meeting plant expectations. KM C2 Years 1 - 3	High	High
19	15	Efficacy of the design not meeting plant expectations. KM C1 Years 1 - 3	High	High
28	19	Lack of qualified companies for drilling operation due to potential increased shale gas exploration. CR	High	High
21	26	Loss of natural gas supply or gas supply pressure could result in halt in operations until corrected. MD	High	High
26	31	Noise and visual impacts could result in additional costs to get them "resolved". LH	High	High
27	34	Current information on wastewater discharge implies that the allowable TDS limits are close to the raw water TDS levels. This could result in an inability to cycle up the cooling tower water. HE	High	High
23	35	Not performing a detailed and defensible bid evaluation of the two cycles would put project at risk of being protested. HE	High	High
24	37	Licensing for electric and natural gas transmission work could impact schedule. WB	High	High
20	25	Fire due to flammable materials (fuel, etc.) RS	High	Moderate
29	28	Multiple bidders with ability to fabricate / produce all of the equipment items that are required for the plant. MD	High	Moderate
22	32	Insufficient effort preparing for or poor execution of public meetings can impact public's perception of project. MD	High	Moderate
30	1	Risk that the cost of developing a suitable air storage cavern will exceed budget estimates. Factors which could drive increased costs could include: access well conditions requiring new wells to be developed; existing well casing integrity causing air leakage; cavern geometry causing problems or delays in dewatering the cavern; limitations in the rate of brine removal from the cavern; cavern leakage through fissures in the cavern; cavern structural problems developing as a result of frequent pressure cycling during CAES plant operation. Cost and schedule impact. JR	Moderate	Moderate

Risk Summary NYSEG SENECA CAES Project

Rank	No.	Description	Before	After
33	5	Risk that development of integrated and coordinated control system for the plant would present unique or unanticipated control system design or operability issues that could require system redesign or replacement, or could impact plant operating characteristics. Impact could require equipment redesign or replacement, or could impact plant operating characteristics. JR	Moderate	Moderate
36	23	Obtaining adequate supply of water is not yet worked out - cannot run without it. RS	Moderate	Moderate
38	27	Insufficient geological information results in unsuccessful cavern development. MD	Moderate	Moderate
37	38	Dresser-Rand does not have a test stand for LP or HP combustors. MH	Moderate	Moderate
25	22	Propane loading/unloading facilities sharing the same general site could result in safety issues. JR	High	Low
31	3	Risk that project cost, schedule, and/or performance would be negatively impacted by poor performance of equipment or system design/integration resulting from unproven technical design. Cost and schedule if equipment must be replaced or if system redesign is required. JR	Moderate	Low
32	4	Risk that environmental permitting would be delayed or that unanticipated permit provisions would be implemented that could increase plant capital costs or impact plant operational capabilities. Impact could require equipment redesign or replacement, or could impact plant operating characteristics. JR	Moderate	Low
34	6	Risk that cost estimates will not be accurate and/or that cost control measures during Phase 2 development will not be effective. Potential PSC disallowance of cost over-runs. JR	Moderate	Low
35	7	Risk that schedule estimates will not be accurate and/or that control measures during Phase 2 development will not be effective. Cost and schedule impact. Potential PSC disallowance of any cost over-runs. JR	Moderate	Low
39	2	Risk that the time and expense estimated to initially charge the cavern will exceed budget and schedule estimates. Cost and limited development schedule impact. JR	Low	Low
40	24	Uncontrolled release of cavern air due to an above ground failure could result in very loud noise for many (40?) hours. RS	Low	Low