COMMONWEALTH OF PUERTO RICO

PUERTO RICO ENERGY BUREAU

IN RE: REVIEW OF THE PUERTO RICO ELECTRIC POWER AUTHORITY INTEGRATED RESOURCE PLAN	NO. CEPR-AP-2018-0001 **SUBJECT:** PREPA'S (1) COMPLIANCE WITH THE ENERGY BUREAU'S SEPTEMBER 5th AND 18th ORDERS AND (2) INFORMATIVE MOTION REGARDING IRP TIMELINE

PREPA'S (1) COMPLIANCE WITH THE ENERGY BUREAU'S SEPTEMBER 5th AND 18th ORDERS AND (2) INFORMATIVE MOTION REGARDING IRP TIMELINE

TO THE HONORABLE PUERTO RICO ENERGY BUREAU:

COMES NOW the Puerto Rico Electric Power Authority ("PREPA") and respectfully submits (1) PREPA's filing in compliance with the honorable Puerto Rico Energy Bureau's (the "Bureau") Resolutions and Orders of September 5, and September 18, 2018; and (2) PREPA's informative motion regarding how the timeline of the development of the 2018 Integrated Resource Plan ("IRP") analysis has been affected by requests and directives of the Financial Oversight and Management Board (FOMB) and the Bureau.

COMPLIANCE

1. The Bureau's September 5th order (at p. 1) directed PREPA "to evaluate and include in the updated IRP the scenarios and conditions listed in Appendix A of this Resolution and Order." The September 5th order further directed PREPA to "provide a complete list of the scenarios to be incorporated into the development of the updated IRP within seven (7) days…", i.e., by September 12, 2018.

2. However, on September 11, 2018, PREPA filed a Motion for Expedited Clarification, asking for a technical conference call as soon as practical or other relief.

3. On September 11th, the Bureau issued an order that granted PREPA's Motion and set the technical conference call for September 13, 2018. The Bureau issued an additional notice about the call on September 12, 2018.

4. On September 13, 3018, the Bureau held the technical conference call. The participants included Bureau personnel, Bureau advisors from Synapse Energy, PREPA personnel, and PREPA IRP consultants from Siemens. From PREPA's perspective, the call was productive in terms of clarifying the September 5th order and clarifying how to move forward in light of the Bureau's perspectives.

5. On Bureau's September 18th order confirmed in writing various clarification points stated during the September 13th technical conference call and extended the due date for the "complete list of scenarios" to September 25, 2018.

6. PREPA, working with Siemens, has developed the attached compliance filing, which is a memorandum that provides the "complete list of scenarios" and certain other information. The memorandum is Attachment 1 hereto.

INFORMATIVE MOTION

7. The Bureau's Order of May 29, 2018, directed PREPA to file the IRP by October 31, 2018.

8. PREPA previously has indicated its concern, however, that requests or directives from the FOMB or the Bureau could limit or prevent PREPA from being able to complete the 2018 IRP by October 2018.

9. For example, PREPA previously has explained to the Bureau that PREPA had a number of discussions with FOMB personnel regarding the forecasts used in fiscal planning processes and the forecasts to be used in the IRP.

10. For another example, PREPA's August 1, 2018, compliance filing with the Bureau (at p. 2) stated and explained that, as a practical matter, if the Bureau "down the road" required more scenarios to be run in the IRP, then that was likely to add one or two months to the IRP process.

11. As discussed above, in the September 5th order, as clarified on September 13th and 18th, the Bureau added scenarios plus other requirements to the IRP.

12. As a result, as a practical matter, PREPA, having discussed the subject with Siemens, must advise the Bureau that the 2018 IRP will not and cannot be completed in October 2018.

13. PREPA is working with Siemens to develop a reliable estimate of when the IRP can be completed and PREPA will supply that estimate promptly to the Bureau.

14. PREPA also notes that the Bureau's Regulation No. 9021 and Bureau orders require additional material to be filed with the IRP, such as testimony. So, completion of the IRP as such does not mean the entire "IRP filing" will be complete, and, obviously, some elements of the IRP filing cannot be prepared or finished until after the IRP is completed.

WHEREFORE, the Puerto Rico Electric Power Authority respectfully requests that the honorable Puerto Rico Energy Bureau (1) accept the compliance filing and (2) accept the informative motion.

RESPECTFULLY SUBMITTED,

IN SAN JUAN, PUERTO RICO, THIS 25th DAY OF SEPTEMBER, 2018

PUERTO RICO ELECTRIC POWER AUTHORITY

Nitza D. Vázquez Rodríguez
TSPR No. 9311
Senior Attorney
Puerto Rico Electric Power Authority
P.O. Box 363928
San Juan, Puerto Rico 00936-3928
Tel. 787-521-4499
Email: n-vazquez@aeepr.com

CERTIFICATION OF FILING AND SERVICE

I hereby certify that on September 25, 2018, I have sent the above filing (including its attachment) to the Puerto Rico Energy Bureau through its Clerk via email to secretaria@energia.pr.gov and mcintron@energia.pr.gov; and to the office of the Bureau's internal legal counsel via email to legal@energia.pr.gov and sugarte@energia.pr.gov.

Nitza D. Vázquez Rodríguez
TSPR No. 9311
Senior Attorney
Puerto Rico Electric Power Authority
P.O. Box 363928
San Juan, Puerto Rico 00936-3928
Tel. 787-521-4499
Email: n-vazquez@aeepr.com

PREPA IRP Strategies, Scenarios, Sensitivities, and Risk Analysis

The purpose of this memo is to describe how a combination of strategies, scenarios, sensitivities, and Monte Carlo simulations (i.e., stochastic risk analyses) will be performed to evaluate alternative portfolio strategies against a range of future outcomes and uncertainties.

This document was developed taking into consideration the input from multiple stakeholders, including the Puerto Rico Energy Bureau (PREB), the Financial Oversight Management Board (FOMB), customers, and NGOs.

Strategies

As part of the stakeholder process, Siemens shared three potential strategies as shown in Exhibit 1 below.

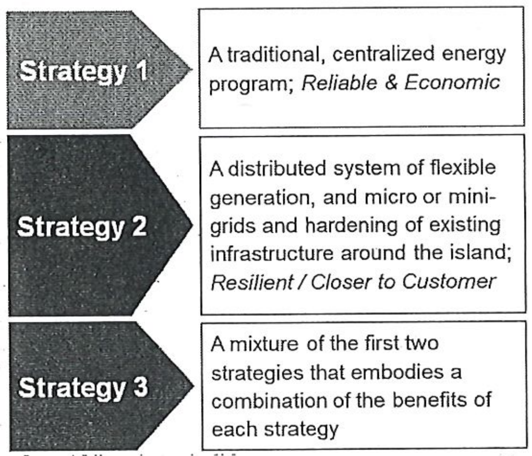
1. **Strategy 1** reflects a traditional and centralized energy program that emphasizes reliability and economic metrics.
2. **Strategy 2** reflects a distributed system of flexible generation, and micro or mini-grids and hardening of existing infrastructure around Puerto Rico, which emphasizes resiliency and closeness to the customer. In this strategy, most of the load is supplied from local resources that are likely not to become isolated on a major event. It is defined in terms of a minimum level of the load to be supplied by local resources (e.g., 80%).
3. **Strategy 3** reflects a hybrid of the first two strategies that embodies a combination of the benefits of Strategy 1 and Strategy 2. In this strategy, economies of scale are taken advantage of, and some of the load may be served under normal conditions from remote resources. In this strategy, the potential for greater levels of rotating load shed during a major event is greater than strategy 2 but should result in lower operating costs.

To achieve the vision of a more renewable, resilient, and reliable Puerto Rico electric system, the IRP analysis incorporates mini-grids, micro-grids, and grid modernization to systematically improve resiliency with pockets of critical loads served by distributed resources that can operate in both grid-connected and island modes. These mini-grids are proposed to be strategically sited at a cluster of critical loads, downstream of distribution and transmission vulnerabilities. The IRP seeks to balance low cost reliable operation under normal conditions and the ability to mitigate and timely recover from major disruptive events.

Stakeholders generally reached consensus that a distributed strategy is more appropriate to Puerto Rico's situation than a centralized strategy because it provides a more resilient grid. Generally, participants viewed strategy 3 ("hybrid strategy" of centralized and distributed generation) as a short- or medium-term transition to strategy 2 (a long-term mix of distributed and flexible generation in Puerto Rico where supply is located closer to load). Most stakeholders in general did not consider that the centralized strategy should be pursued, except possibly as a reference point. On the other hand, certain stakeholder groups requested that strategy 1 to be explicitly modeled as this strategy provides the least cost configuration. It was incorporated in the Scenario that has all resources competing and should provide the desired information.

The PREB issued a Regulation for the next IRP that became effective on April 24, 2018, and the PREB issued orders on September 5, and September 18, 2018, regarding Scenarios and other points regarding the IRP, including, but not limited to, a directive to consider Strategy 1. The regulation and orders speak for themselves, so they will not be summarized here, although they are mentioned in certain respects below. This memo is intended to take reflect those items, subject to the possibility that PREPA might seek waiver of some provisions. PREPA, at this time, has not yet determined to seek any waivers.

Exhibit 1: PREPA IRP Strategies



For each strategy a combination of assets will be developed by putting constraints on the generation, transmission, and distribution assets that are available to Puerto Rico for a specific strategy. For example, a fully distributed strategy will not consider traditional high capacity generating assets such as gas combined cycle plants or diesel fueled assets. A partially distributed system will consider only a limited amount of traditional assets.

Uncertainties

In addition, the IRP will capture a series of uncertainties, including load growth, Distributed Energy Resources (DER), capital costs of assets (and O&M), fuel availability and price forecasts, energy policy / permitting, weather, energy efficiency, and PPOA termination/extension through a combination of Scenarios, Sensitivities and probabilistic (Stochastics) risk analysis. These will be designed to test each strategy against a combination of uncertainties. These Scenarios, Sensitivities, and Stochastics are discussed below.

Scenarios

As per the Puerto Rico Energy Bureau (PREB) Regulation on Integrated Resource Plans for the Puerto Rico Electric Power Authority No. 9021, scenarios refer to a combination of system requirements needed to serve load, commodity prices, capital costs, and risks that influence the choice of resources serving PREPA's future load. Each scenario constitutes a possible resource plan. Traditional uncertainties (e.g., load forecasts, fuel forecasts, renewable capital costs) are also assessed via stochastic analysis, as described later in this memo.

Based on extensive stakeholder engagement and consolidation of the September scenarios orders by PREB, PREPA will consider a total of five scenarios as part of the 2018 IRP.

With respect of fuel infrastructure and renewables, the following scenarios are considered as outlined in Exhibit 2 below.

- **Scenario 1:** No new gas-fired generation; base case assumption of solar and storage costs and availability.
- **Scenario 2:** Gas to north: Land-based LNG at San Juan can achieve permitting approval; base case assumption of solar and storage costs and availability.
- **Scenario 3:** Gas to Yabucoa (east) and gas to Mayagüez (west) through ship-based LNG, and gas to the north through land-based LNG at San Juan can achieve permitting approval; large drop in solar and storage costs coupled with high availability (early ramp up).
- **Scenario 4:** Gas to Yabucoa (east) and gas to Mayagüez (west) through ship-based LNG, and gas to the north through land-based LNG at San Juan can achieve permitting approval; base case assumption of solar and storage costs and availability.
- **Scenario 5:** AOGP, gas to Yabucoa (east) and gas to Mayagüez (west) through ship-based LNG, and gas to the north through land-based LNG at San Juan can achieve permitting approval; base case assumption of solar and storage costs and availability.

Exhibit 2: PREPA IRP Scenario Definition

Scenario	New Gas				Renewable & Storage	
	AOGP	Land-based LNG at San Juan	Ship-based LNG at Yabucoa	Ship-based LNG at Mayaguez	Costs	Availability
1	No	No	No	No	Reference	Reference
2	No	Yes	No	No	Reference	Reference
3	No	Yes	Yes	Yes	Low	High
4	No	Yes	Yes	Yes	Reference	Reference
5	Yes	Yes	Yes	Yes	Reference	Reference

The following conditions and assumptions, unless specifically indicated to the contrary, will be modeled across all five scenarios:

- Load Forecast is treated via a Base, High and Low case in addition to via stochastics (see risk analysis below).
- Uncertainties DER penetration, fuel forecast, costs of renewable and storage, thermal generation capital costs as well as greater variation in load forecast treated via stochastics (see risk analysis below).
- AES is assumed to expire in 2027 and EcoEléctrica is assumed to renew in 2022.
- Energy Efficiency as per the requirement of Regulation No. 9021, i.e., 2% per year incremental savings attributable to new energy efficiency programs, unless and until the finalization of a PREB-approved energy efficiency and demand response potential study.

The model will be run with a variety of generation options to determine the least cost portfolio for each Scenario corresponding to the low, high and base case load forecast. It should be noted that the possibility of achieving permitting approval does not mean that the option of gas generation will automatically be selected nor its size.

Sensitivities

The sensitivity analyses will isolate certain important variable and holder other assumptions constant. For the 2018 IRP, five sensitivities are included in the core scope of this study[1], as shown in Exhibit 4 below. Sensitivities will be run off the Strategy 3, because it embodies a combination of the benefits of Strategies 1 and 2 and as will be shown later for the Base Case Load Forecast unless specifically indicated.

- **Sensitivity 1:** Deeper reduction in cost of solar and storage, coupled with high availability of storage and solar. In sensitivity 1, PV/BESS (photovoltaic / battery energy storage system) are assumed to be in commercial operation by FY 2021 in comparison to FY 2022 in reference assumptions.
- **Sensitivity 2:** Lower energy efficiency penetration (~1% reduction per year instead of 2%).
- **Sensitivity 3:** Economic retirement of AES and EcoEléctrica regardless of contract term.
- **Sensitivity 4:** Ship-based LNG at San Juan could achieve permitting approval. The ship-based LNG at San Juan can basically supply the conversion of San Juan 5&6 and consequently has reduced capacity in comparison to the land-based LNG option.
- **Sensitivity 5:** High gas prices.

[1] Once this study is completed, more sensitivities models could be run as well as running the core sensitivities on other strategies, as required by the PREB.

Exhibit 3: PREPA IRP Sensitivity Definition

Sensitivity	Renewable & Storage		Energy Efficiency	PPOAs	Gas	
	Low Cost	High Availability	Low EE	Economic Retirement of AES and EcoEléctrica	Ship-based LNG at San Juan	High Gas Prices
1	◆	◆				
2			◆			
3				◆		
4					◆	
5						◆

Additional important sensitivities requested by the stakeholders include the following. These sensitivities could be evaluated upon completion of the core IRP if deemed necessary by PREB and other stakeholders.

- The sensitivity to regulatory aspects (no RPS (renewable portfolio standard – Act 82-2010) and/or postponed MATS (US EPA Mercury and Air Toxics Standards regulation) compliance) to show the cost of compliance.
- Gas to the north and south via pipelines: EcoEléctrica to Aguirre to San Juan Pipeline can achieve permitting approval.
- Emissions prices (CO_2).
- Cost of capital sensitivities for other non-renewable resource, such as low or high cost of capital for generation and/or transmission.

Risk Analysis

Risk analyses are typically performed on a set of uncertain variables, such as load, technology costs, emission costs, and fuel prices. Distributions that reflect uncertainties are developed for each variable and then 200 simulations of input combinations are selected to represent uncertainty on each selected portfolio. In general:

- Stochastic analysis in Aurora Model will capture ranges and variability of the revenue requirement given uncertainties in load, DER penetration, fuel prices, and capital costs.
- Monte Carlo simulations in PROMOD will capture loss of load hours (LOLH) and Energy Not Served (ENS) considering the expected performance of the generating fleet. Additionally, for the impact of weather events, two approaches can be considered:
  - Modeled in PROMOD: a scenario representative of system condition after a major storm that is expected to occur with relatively frequency (e.g., Category 1 Hurricane) and evaluate the LOLH and ENS for a period of one month assuming that the system will stay in this condition.
  - Model a scenario of the system condition after a major storm that is expected to occur more infrequently (e.g., a Category 4 Hurricane) in which the system is split

into the pre-designed minigrids. Each minigrid will be assumed to operate in isolation for one month. An estimation of load not served during minigrids formation can be included.

Exhibit 4 below summarizes how the uncertainties are treated in the IRP. The variables and factors were prioritized primarily driven by stakeholder inputs, our expert opinions and best practices. The five scenarios, five sensitivities, and risk analysis are included in the core IRP scope. Due to the accelerated schedule, some variables and factors could be included in additional sensitivity analysis outside the core IRP scope.

Exhibit 4: Uncertainty Factors, Scenario, Sensitivity and Risk Analysis

Category	Factor	Scenario					Sensitivity					Risk Analysis	
		1	2	3	4	5	1	2	3	4	5	Aurora Stochastics	Promod Monte Carlo
Fuel	Reference Fuel Forecast	X	X	X	X	X						X	
	High Gas Price										X		
	No new gas to Puerto Rico	X											
	Gas to San Juan via land-based LNG can achieve permitting approval.		X	X	X	X							
	Gas to Yabucoa (east) and gas to Mayagüez (west) via ship-based LNG			X	X	X							
	AOGP can achieve permitting approval.					X							
	Gas to San Juan via ship-based LNG can achieve permitting approval.									X			
	Gas to the north and south: Eco to Aguirre to San Juan Pipeline can achieve permitting approval.	Potential additional sensitivity											
Renewable and Storage	Reference costs of renewable and storage	X	X		X	X						X	
	Reference availability (i.e., project can achieve operation in 2022)	X	X		X	X							
	Low costs of renewable and storage			X			X						
	High availability (i.e., project can achieve operation in 2021)			X			X						
Energy Efficiency	2% incremental savings per year	X	X	X	X	X							
	1% incremental savings per year							X					
Contracts	AES expires in 2027	X	X	X	X	X							
	EcoEléctrica renewal	X	X	X	X	X							
	AES Economic retirement regardless of contract terms								X				
	EcoEléctrica Economic retirement regardless of contract terms								X				
Load	Load forecast	X	X	X	X	X						X	
	DER penetration	X	X	X	X	X						X	
Market	New builds capital costs	X	X	X	X	X						X	
	Emissions prices (CO2)	Potential additional sensitivity											
Weather	Weather impacts /climate change												X
Weighted Average Cost of Capital	Private cost of capital for generation	X	X	X	X	X							
	Debt cost of capital for transmission	X	X	X	X	X							
	Low or high cost of capital for generation and/or transmission	Potential additional sensitivity											
Policy/ Regulatory	Policy: no RPS	Potential additional sensitivity											
	Policy: increased RPS	Potential additional sensitivity											
	MATS compliance postponed	Potential additional sensitivity											

Portfolio Cases

Portfolio cases are unique combinations of scenarios and strategies. Exhibit 5 and Exhibit 6, below, illustrate the 34 portfolio cases to be modeled in the core IRP. The portfolio cases are named under the convention of "Scenario ID + Strategy ID + Sensitivity ID + Load Forecast (High, Base or Low)".

It can be noted below that for Scenarios 1 to 4 and certain sensitivities, the Portfolios cases and the resulting Long-Term Capacity Expansion plan (LTCE) will be assessed for the High, Base, and Low load growth forecast. Strategy 2 and Strategy 3 are considered for the Scenarios 1 to 4 and as Scenario 5 is designed not to have any restrictions, the Strategy 1 is used. Strategy 3 is used for most sensitivities.

Exhibit 7 below outlines the 34 portfolio cases and associated model treatment in the 2018 IRP. It will be noted that in all portfolios cases the LTCE is run, the detailed PROMOD runs will be done on the Base Case, and the PSS®E assessments are done in those cases that are expected to result in maximum stresses of the system, either in terms of large amounts of renewable online or heavier use of the transmission facilities.

Exhibit 5: Portfolio Cases in the Core IRP – Scenario 1 & 2

Portfolio Cases	**Strategy 1** *Centralized system that features efficiency*	**Strategy 2** *Distributed system of flexible generation, and micro or mini-grids and hardening of existing infrastructure around the island*	**Strategy 3** *Hybrid of traditional and centralized energy program and Distributed system of flexible generation*
Scenario 1 *No new gas to Puerto Rico*		**1. S1S2B** **2. S1S2H** **3. S1S2L** Scenario 1 /Strategy 2 (Base, High, and Low Loads)	**4. S1S3B** (PREB Scenario 3) **5. S1S3H** (PREB Scenario 5) **6. S1S3L** (PREB Scenario 7) Scenario 1 /Strategy 3 (Base, High, and Low Loads)
			7. S1S3S1B (PREB Scenario 4) **8. S1S3S1H** (PREB Scenario 6) **9. S1S3S1L** Scenario 1 /Strategy 3 /Sensitivity 1 (*low cost and high availability of renewable and storage*)
			10. S1S3S2B (PREB Scenario 8) Scenario 1 /Strategy 3 /Sensitivity 2 (*Low EE*)
			11. S1S3S3B (PREB Scenario 8) Scenario 1 /Strategy 3 /Sensitivity 3 *(economic retirement of AES and EcoEléctrica)*
Scenario 2 *Gas to San Juan via land-based LNG can achieve permitting approval*		**12. S2S2B** **13. S2S2H** **14. S2S2L** Scenario 2 /Strategy 2 (Base, High, and Low Loads)	**15. S2S3B** **16. S2S3H** **17. S2S3L** Scenario 2 /Strategy 3 (Base, High, and Low Loads)
			18. S2S3S4B Scenario 2 /Strategy 3 /Sensitivity 4 *(ship-based LNG at San Juan)*

Exhibit 6: Portfolio Cases in the Core IRP – Scenario 3, 4 & 5

Portfolio Cases	**Strategy 1** *Centralized system that features efficiency*	**Strategy 2** *Distributed system of flexible generation, and micro or mini-grids and hardening of existing infrastructure around the island*	**Strategy 3** *Hybrid of traditional and centralized energy program and Distributed system of flexible generation*
Scenario 3 *Gas to Yabucoa (east) and gas to Mayagüez (west) via ship-based LNG, and gas to San Juan via land-based LNG can achieve permitting approval;* *Low cost and high availability of renewable and storage*		**19. S3S2B** **20. S3S2H** **21. S2S2L** Scenario 3 /Strategy 2 (Base, High, and Low Loads)	**22. S3S3B** **23. S3S3H** **24. S2S3L** Scenario 3 /Strategy 3 (Base, High, and Low Loads)
Scenario 4 *Gas to Yabucoa (east) and gas to Mayagüez (west) through ship-based LNG, and gas to San Juan via land-based LNG can achieve permitting approval*		**25. S4S2B** **26. S4S2H** **27. S4S2L** Scenario 4 /Strategy 2 (Base, High, and Low Loads)	**28. S4S3B** **29. S4S3H** **30. S4S3L** Scenario 4 /Strategy 3 (Base, High, and Low Loads) **31. S4S3S3B** Scenario 4 /Strategy 3 /Sensitivity 3 *(economic retirement of AES and EcoEléctrica)* **32. S4S3S5B** Scenario 4 /Strategy 3 /Sensitivity 5 (*high gas prices*)
Scenario 5 *AOGP, gas to Yabucoa (east), gas to Mayagüez (west) through ship-based LNG, gas to San Juan via land-based LNG*	**32. S5S1B** (PREB Scenario 1) Scenario 5 /Strategy 1 **34. S5S1S5B** (PREB Scenario 2) Scenario 5 /Strategy 1 /Sensitivity 5 (*high gas prices*)		

Exhibit 7: PREPA 2018 IRP Portfolio Cases Summary

	Case ID	Scenario	Strategy	Sensitivity	Load	PREB Scenario ID	Aurora LTCE	PROMOD	PSSE	Aurora Stochastic
1	S1S2B	1	2		Base		Yes	Yes		
2	S1S2H	1	2		High		Yes			
3	S1S2L	1	2		Low		Yes			
4	S1S3B	1	3		Base	3	Yes	Yes	Yes	Yes
5	S1S3H	1	3		High	5	Yes			
6	S1S3L	1	3		Low	7	Yes			
7	S1S3S1B	1	3	1	Base	4	Yes	Yes	Yes	
8	S1S3S1H	1	3	1	High	6	Yes			
9	S1S3S1L	1	3	1	Low		Yes			
10	S1S3S2B	1	3	2	Base	8	Yes	Yes		
11	S1S3S3B	1	3	3	Base	3*	Yes	Yes		
12	S2S2B	2	2		Base		Yes	Yes		
13	S2S2H	2	2		High		Yes			
14	S2S2L	2	2		Low		Yes			
15	S2S3B	2	3		Base		Yes	Yes	Yes	Yes
16	S2S3H	2	3		High		Yes			
17	S2S3L	2	3		Low		Yes			
18	S2S3S4B	2	3	4	Base		Yes	Yes		
19	S3S2B	3	2		Base		Yes	Yes		
20	S3S2H	3	2		High		Yes			
21	S3S2L	3	2		Low		Yes			
22	S3S3B	3	3		Base		Yes	Yes	Yes	Yes
23	S3S3H	3	3		High		Yes			
24	S3S3L	3	3		Low		Yes			
25	S4S2B	4	2		Base		Yes	Yes		
26	S4S2H	4	2		High		Yes			
27	S4S2L	4	2		Low		Yes			
28	S4S3B	4	3		Base		Yes	Yes		Yes
29	S4S3H	4	3		High		Yes			
30	S4S3L	4	3		Low		Yes			
31	S4S3S3B	4	3	3	Base		Yes	Yes		
32	S4S3S5B	4	3	5	Base		Yes	Yes		
33	S5S1B	5	1		Base	1	Yes	Yes		
34	S5S1S5B	5	1	5	Base	2	Yes	Yes		