

Clear time (seconds)	90							
Enemy HP particles	Default							
Particle RNG	Average							
Rotation mode	Fixed							
Rotation length	20							
Character		Mualani	Kinich	Kachina	Sethos			
Skill cooldown		6	18	0	8 / 0			
Skill particles generated		4.5	5	4	2 / 0			
Turret particles per second								
Turret uptime								
Skill uses per rotation (primary type)	Skill	2	Skill	2	Mounted	2	Press	1
Skill uses per rotation (secondary type)							Full CA	3
Feed particles to ally								
Proportion of particles fed								
Favonius triggers per rotation								
Bonus non-particle energy per rotation								
Time on field		50%	20%	20%			10%	
Number of rotations between bursts		1	1	1			1	
Burst cooldown		15	18	18			15	
Burst energy cost (after discount)		60	70	70			60	
Total energy recharge needed		142%	159%	178%			363%	
Element	Hydro	Dendro	Geo	Electro				
Particle gen per second from primary skill	0.45	0.50	0.40	0.10				
Particle gen per second from secondary skill	0.00	0.00	0.00	0.00				
Particle gen per second from Favonius	0.00	0.00	0.00	0.00				
Energy from Mualani	27.00	5.40	5.40	5.40				
Energy from Kinich	6.00	30.00	6.00	6.00				
Energy from Kachina	4.80	4.80	24.00	4.80				
Energy from Sethos	1.20	1.20	1.20	6.00				
Energy from HP particles	3.20	2.72	2.72	2.56				
Energy from other sources	0.00	0.00	0.00	0.00				
Total energy per burst	42.20	44.12	39.32	24.76				

This is how long it takes you to clear an Abyss chamber. Enemies drop a total of 9 clear particles. Change this if you want to have enough ER even when you get unlucky on particle RNG. Every character uses skills and bursts on a fixed rotation. Change to "Flexible" for the classic view. How long it takes you to complete one rotation

Skill cooldown is just for reference and does not affect any calculations. The number of particles generated by each use of the skill. Turrets are skills that generate particles over time, such as Fischl's Oz.

This is the number of times you use a character's skill for each time you use their burst. If you use another type of skill, this is how many times you use that type. This is who will catch the elemental particles. "Don't Know" counts as off field particles for everyone. If a character catches some of their own particles and feeds some, this is what percentage is fed. This is the number of times a Favonius effect triggers for each time you use a character's burst. This is flat energy from various sources such as constellations and weapons. This is the portion of time a character spends on field. It affects turret and HP particle energy. This is how often you use each character's burst. It will typically depend on your team's rotation.

If you don't use a character's burst, ignore their ER needs and put the rotation length as burst time.

Mualani's Sharky Bites can generate particles once per Skill use. Mualani's C4 restores 8 energy per puffer. She will gain 2 puffers per Skill. Put this in "Bonus non-particle Energy"

Kinich's Scalespiker Cannon can generate particles once per Skill use. Kinich's C4 restores 5 Energy after using Loop Shots or Scalespiker Cannon. Put this in "Bonus non-particle Energy"

Kachina generates particles per skill hit. If Nightsoul points are used to move around, she may generate less energy. C2 adds skill hits. Add .33 skills if C2. If Sethos does not use his burst, switch to fixed rotation mode (cell C5).

Copy or download this spreadsheet to edit it yourself

To enable Advanced Mode, unhide rows 15-26	
Made by Zakharov29229 from the KeqingMains discord	
The Energy Recharge Calculator guide is available here	
The latest version is available here	
Current version	1.58.2
Latest version	1.58.2
Abyss version	N/A

Flat Energy	R1	R2	R3	R4	R5
Amemona Kageuchi	6 per skill use	7.5 per skill use	9 per skill use	10.5 per skill use	12 per skill use
Katsuragikiri Nagamasa	6 per trigger	7.5 per trigger	9 per trigger	10.5 per trigger	12 per trigger
Kitain Cross Spear	6 per trigger	7.5 per trigger	9 per trigger	10.5 per trigger	12 per trigger
Prototype Amber	12	13.5	15	16.5	18
Everlasting Moonglow	0.6 per NA	0.6 per NA	0.6 per NA	0.6 per NA	0.6 per NA
Shimenawa's Reminiscence	-15 per skill use				
Scroll of the Hero of Cinder City	Add 6 energy per Nightsoul Burst				
Scholar	3 for all bow and catalyst users every time this character gets a particle on-field, with 3s cooldown				
The Exile	6 for all party members except the wearer				
Character abilities	See the character explanation in the bottom of the green section				
Normal attacks	See the wiki for more information				

This is after the drain; if there is no energy to consume, add 3 flat energy.

1. Identifikation der Aufgabenstellung		2. Zielsetzung und Zwecksetzung		3. Ermittlung der relevanten Informationen		4. Analyse der Situation		5. Entwicklung von Lösungsalternativen		6. Bewertung der Alternativen		7. Auswahl der optimalen Lösung		8. Umsetzung und Kontrolle	
1.1	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.1.7	1.1.8	1.1.9	1.1.10	1.1.11	1.1.12	1.1.13	1.1.14	1.1.15
1.2	1.2.1	1.2.2	1.2.3	1.2.4	1.2.5	1.2.6	1.2.7	1.2.8	1.2.9	1.2.10	1.2.11	1.2.12	1.2.13	1.2.14	1.2.15
1.3	1.3.1	1.3.2	1.3.3	1.3.4	1.3.5	1.3.6	1.3.7	1.3.8	1.3.9	1.3.10	1.3.11	1.3.12	1.3.13	1.3.14	1.3.15
1.4	1.4.1	1.4.2	1.4.3	1.4.4	1.4.5	1.4.6	1.4.7	1.4.8	1.4.9	1.4.10	1.4.11	1.4.12	1.4.13	1.4.14	1.4.15
1.5	1.5.1	1.5.2	1.5.3	1.5.4	1.5.5	1.5.6	1.5.7	1.5.8	1.5.9	1.5.10	1.5.11	1.5.12	1.5.13	1.5.14	1.5.15
1.6	1.6.1	1.6.2	1.6.3	1.6.4	1.6.5	1.6.6	1.6.7	1.6.8	1.6.9	1.6.10	1.6.11	1.6.12	1.6.13	1.6.14	1.6.15
1.7	1.7.1	1.7.2	1.7.3	1.7.4	1.7.5	1.7.6	1.7.7	1.7.8	1.7.9	1.7.10	1.7.11	1.7.12	1.7.13	1.7.14	1.7.15
1.8	1.8.1	1.8.2	1.8.3	1.8.4	1.8.5	1.8.6	1.8.7	1.8.8	1.8.9	1.8.10	1.8.11	1.8.12	1.8.13	1.8.14	1.8.15
1.9	1.9.1	1.9.2	1.9.3	1.9.4	1.9.5	1.9.6	1.9.7	1.9.8	1.9.9	1.9.10	1.9.11	1.9.12	1.9.13	1.9.14	1.9.15
1.10	1.10.1	1.10.2	1.10.3	1.10.4	1.10.5	1.10.6	1.10.7	1.10.8	1.10.9	1.10.10	1.10.11	1.10.12	1.10.13	1.10.14	1.10.15
1.11	1.11.1	1.11.2	1.11.3	1.11.4	1.11.5	1.11.6	1.11.7	1.11.8	1.11.9	1.11.10	1.11.11	1.11.12	1.11.13	1.11.14	1.11.15
1.12	1.12.1	1.12.2	1.12.3	1.12.4	1.12.5	1.12.6	1.12.7	1.12.8	1.12.9	1.12.10	1.12.11	1.12.12	1.12.13	1.12.14	1.12.15
1.13	1.13.1	1.13.2	1.13.3	1.13.4	1.13.5	1.13.6	1.13.7	1.13.8	1.13.9	1.13.10	1.13.11	1.13.12	1.13.13	1.13.14	1.13.15
1.14	1.14.1	1.14.2	1.14.3	1.14.4	1.14.5	1.14.6	1.14.7	1.14.8	1.14.9	1.14.10	1.14.11	1.14.12	1.14.13	1.14.14	1.14.15
1.15	1.15.1	1.15.2	1.15.3	1.15.4	1.15.5	1.15.6	1.15.7	1.15.8	1.15.9	1.15.10	1.15.11	1.15.12	1.15.13	1.15.14	1.15.15
1.16	1.16.1	1.16.2	1.16.3	1.16.4	1.16.5	1.16.6	1.16.7	1.16.8	1.16.9	1.16.10	1.16.11	1.16.12	1.16.13	1.16.14	1.16.15
1.17	1.17.1	1.17.2	1.17.3	1.17.4	1.17.5	1.17.6	1.17.7	1.17.8	1.17.9	1.17.10	1.17.11	1.17.12	1.17.13	1.17.14	1.17.15
1.18	1.18.1	1.18.2	1.18.3	1.18.4	1.18.5	1.18.6	1.18.7	1.18.8	1.18.9	1.18.10	1.18.11	1.18.12	1.18.13	1.18.14	1.18.15
1.19	1.19.1	1.19.2	1.19.3	1.19.4	1.19.5	1.19.6	1.19.7	1.19.8	1.19.9	1.19.10	1.19.11	1.19.12	1.19.13	1.19.14	1.19.15
1.20	1.20.1	1.20.2	1.20.3	1.20.4	1.20.5	1.20.6	1.20.7	1.20.8	1.20.9	1.20.10	1.20.11	1.20.12	1.20.13	1.20.14	1.20.15
1.21	1.21.1	1.21.2	1.21.3	1.21.4	1.21.5	1.21.6	1.21.7	1.21.8	1.21.9	1.21.10	1.21.11	1.21.12	1.21.13	1.21.14	1.21.15
1.22	1.22.1	1.22.2	1.22.3	1.22.4	1.22.5	1.22.6	1.22.7	1.22.8	1.22.9	1.22.10	1.22.11	1.22.12	1.22.13	1.22.14	1.22.15
1.23	1.23.1	1.23.2	1.23.3	1.23.4	1.23.5	1.23.6	1.23.7	1.23.8	1.23.9	1.23.10	1.23.11	1.23.12	1.23.13	1.23.14	1.23.15
1.24	1.24.1	1.24.2	1.24.3	1.24.4	1.24.5	1.24.6	1.24.7	1.24.8	1.24.9	1.24.10	1.24.11	1.24.12	1.24.13	1.24.14	1.24.15
1.25	1.25.1	1.25.2	1.25.3	1.25.4	1.25.5	1.25.6	1.25.7	1.25.8	1.25.9	1.25.10	1.25.11	1.25.12	1.25.13	1.25.14	1.25.15
1.26	1.26.1	1.26.2	1.26.3	1.26.4	1.26.5	1.26.6	1.26.7	1.26.8	1.26.9	1.26.10	1.26.11	1.26.12	1.26.13	1.26.14	1.26.15
1.27	1.27.1	1.27.2	1.27.3	1.27.4	1.27.5	1.27.6	1.27.7	1.27.8	1.27.9	1.27.10	1.27.11	1.27.12	1.27.13	1.27.14	1.27.15
1.28	1.28.1	1.28.2	1.28.3	1.28.4	1.28.5	1.28.6	1.28.7	1.28.8	1.28.9	1.28.10	1.28.11	1.28.12	1.28.13	1.28.14	1.28.15
1.29	1.29.1	1.29.2	1.29.3	1.29.4	1.29.5	1.29.6	1.29.7	1.29.8	1.29.9	1.29.10	1.29.11	1.29.12	1.29.13	1.29.14	1.29.15
1.30	1.30.1	1.30.2	1.30.3	1.30.4	1.30.5	1.30.6	1.30.7	1.30.8	1.30.9	1.30.10	1.30.11	1.30.12	1.30.13	1.30.14	1.30.15
1.31	1.31.1	1.31.2	1.31.3	1.31.4	1.31.5	1.31.6	1.31.7	1.31.8	1.31.9	1.31.10	1.31.11	1.31.12	1.31.13	1.31.14	1.31.15
1.32	1.32.1	1.32.2	1.32.3	1.32.4	1.32.5	1.32.6	1.32.7	1.32.8	1.32.9	1.32.10	1.32.11	1.32.12	1.32.13	1.32.14	1.32.15
1.33	1.33.1	1.33.2	1.33.3	1.33.4	1.33.5	1.33.6	1.33.7	1.33.8	1.33.9	1.33.10	1.33.11	1.33.12	1.33.13	1.33.14	1.33.15
1.34	1.34.1	1.34.2	1.34.3	1.34.4	1.34.5	1.34.6	1.34.7	1.34.8	1.34.9	1.34.10	1.34.11	1.34.12	1.34.13	1.34.14	1.34.15
1.35	1.35.1	1.35.2	1.35.3	1.35.4	1.35.5	1.35.6	1.35.7	1.35.8	1.35.9	1.35.10	1.35.11	1.35.12	1.35.13	1.35.14	1.35.15
1.36	1.36.1	1.36.2	1.36.3	1.36.4	1.36.5	1.36.6	1.36.7	1.36.8	1.36.9	1.36.10	1.36.11	1.36.12	1.36.13	1.36.14	1.36.15
1.37	1.37.1	1.37.2	1.37.3	1.37.4	1.37.5	1.37.6	1.37.7	1.37.8	1.37.9	1.37.10	1.37.11	1.37.12	1.37.13	1.37.14	1.37.15
1.38	1.38.1	1.38.2	1.38.3	1.38.4	1.38.5	1.38.6	1.38.7	1.38.8	1.38.9	1.38.10	1.38.11	1.38.12	1.38.13	1.38.14	1.38.15
1.39	1.39.1	1.39.2	1.39.3	1.39.4	1.39.5	1.39.6	1.39.7	1.39.8	1.39.9	1.39.10	1.39.11	1.39.12	1.39.13	1.39.14	1.39.15
1.40	1.40.1	1.40.2	1.40.3	1.40.4	1.40.5	1.40.6	1.40.7	1.40.8	1.40.9	1.40.10	1.40.11	1.40.12	1.40.13	1.40.14	1.40.15
1.41	1.41.1	1.41.2	1.41.3	1.41.4	1.41.5	1.41.6	1.41.7	1.41.8	1.41.9	1.41.10	1.41.11	1.41.12	1.41.13	1.41.14	1.41.15
1.42	1.42.1	1.42.2	1.42.3	1.42.4	1.42.5	1.42.6	1.42.7	1.42.8	1.42.9	1.42.10	1.42.11	1.42.12	1.42.13	1.42.14	1.42.15
1.43	1.43.1	1.43.2	1.43.3	1.43.4	1.43.5	1.43.6	1.43.7	1.43.8	1.43.9	1.43.10	1.43.11	1.43.12	1.43.13	1.43.14	1.43.15
1.44	1.44.1	1.44.2	1.44.3	1.44.4	1.44.5	1.44.6	1.44.7	1.44.8	1.44.9	1.44.10	1.44.11	1.44.12	1.44.13	1.44.14	1.44.15
1.45	1.45.1	1.45.2	1.45.3	1.45.4	1.45.5	1.45.6	1.45.7	1.45.8	1.45.9	1.45.10	1.45.11	1.45.12	1.45.13	1.45.14	1.45.15
1.46	1.46.1	1.46.2	1.46.3	1.46.4	1.46.5	1.46.6	1.46.7	1.46.8	1.46.9	1.46.10	1.46.11	1.46.12	1.46.13	1.46.14	1.46.15
1.47	1.47.1	1.47.2	1.47.3	1.47.4	1.47.5	1.47.6	1.47.7	1.47.8	1.47.9	1.47.10	1.47.11	1.47.12	1.47.13	1.47.14	1.47.15
1.48	1.48.1	1.48.2	1.48.3	1.48.4	1.48.5	1.48.6	1.48.7	1.48.8	1.48.9	1.48.10	1.48.11	1.48.12	1.48.13	1.48.14	1.48.15
1.49	1.49.1	1.49.2	1.49.3	1.49.4	1.49.5	1.49.6	1.49.7	1.49.8	1.49.9	1.49.10	1.49.11	1.49.12	1.49.13	1.49.14	1.49.15
1.50	1.50.1	1.50.2	1.50.3	1.50.4	1.50.5	1.50.6	1.50.7	1.50.8	1.50.9	1.50.10	1.50.11	1.50.12	1.50.13	1.50.14	1.50.15
1.51	1.51.1	1.51.2	1.51.3	1.51.4	1.51.5	1.51.6	1.51.7	1.51.8	1.51.9	1.51.10	1.51.11	1.51.12	1.51.13	1.51.14	1.51.15
1.52	1.52.1	1.52.2	1.52.3	1.52.4	1.52.5	1.52.6	1.52.7	1.52.8	1.52.9	1.52.10	1.52.11	1.52.12	1.52.13	1.52.14	1.52.15
1.53	1.53.1	1.53.2	1.53.3	1.53.4	1.53.5	1.53.6	1.53.7	1.53.8	1.53.9	1.53.10	1.53.11	1.53.12	1.53.13	1.53.14	1.53.15
1.54	1.54.1	1.54.2	1.54.3	1.54.4	1.54.5	1.54.6	1.54.7	1.54.8	1.54.9	1.54.10	1.54.11	1.54.12	1.54.13	1.54.14	1.54.15
1.55	1.55.1	1.55.2	1.55.3	1.55.4	1.55.5	1.55.6	1.55.7	1.55.8	1.55.9	1.55.10	1.55.11	1.55.12	1.55.13	1.55.14	1.55.15
1.56	1.56.1	1.56.2	1.56.3	1.56.4	1.56.5	1.56.6	1.56.7	1.56.8	1.56.9	1.56.10	1.56.11	1.56.12	1.56.13	1.56.14	1.56.15
1.57	1.57.1	1.57.2	1.57.3	1.57.4	1.57.5	1.57.6	1.57.7	1.57.8	1.57.9	1.57.10	1.57.11	1.57.12	1.57.13	1.57.14	1.57.15
1.58	1.58.1	1.58.2	1.58.3	1.58.4	1.58.5	1.58.6	1.58.7	1.58.8	1.58.9	1.58.10	1.58.11	1.58.12	1.58.13	1.58.14	1.58.15
1.59	1.59.1	1.59.2	1.59.3	1.59.4	1.59.5	1.59.6	1.59.7	1.59.8	1.59.9	1.59.10	1.59.11	1.59.12	1.59.13	1.59.14	1.59.15
1.60	1.60.1	1.60.2	1.60.3	1.60.4	1.60.5	1.60.6	1.60.7	1.60.8	1.60.9	1.60.10	1.60.11	1.60.12	1.60.13	1.60.14	1.60.15
1.61	1.61.1	1.61.2	1.61.3	1.61.4	1.61.5	1.61.6	1.61.7	1.61.8	1.61.9	1.61.10	1.61.11	1.61.12	1.61.13		

Chamber	HP Particles Dropped								Energy Collected								Description	
	Clear	Anemo	Cryo	Dendro	Electro	Geo	Hydro	Pyro	Clear	Anemo	Cryo	Dendro	Electro	Geo	Hydro	Pyro		None
Default	9	0	0	0	0	0	0	0	18	18	18	18	18	18	18	18	18	Enemies drop a total of 9 clear particles
No Particles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Enemies drop no particles
Custom	9	0	0	0	0	0	0	0	18	18	18	18	18	18	18	18	18	Enter the number of clear particles dropped by enemies
									0	0	0	0	0	0	0	0	0	Enemies drop a total of
									0	0	0	0	0	0	0	0	0	Enemies drop a total of
									0	0	0	0	0	0	0	0	0	Enemies drop a total of
									0	0	0	0	0	0	0	0	0	Enemies drop a total of
									0	0	0	0	0	0	0	0	0	Enemies drop a total of
									0	0	0	0	0	0	0	0	0	Enemies drop a total of

	Edit this section with the total particles generated on each chamber half								Don't edit this section								
12-1-1																	
12-1-2																	
12-2-1																	
12-2-2																	
12-3-1																	
12-3-2																	

Put these labels in A6:A11 if you add abyss particle information. I've stopped doing this due to effort

1.49.2

Fixed particle distribution for turret skills used as secondary skill

1.49.1

Fixed typo on Gaming's note. Previous note said energy on C2

1.49.0

Added Gaming and Xianyun

1.48.0

Added Chevreuse

1.47.1

Changed Furina's particle generation to account for procs not lining up perfectly with ICD

1.47.0

Added Navia

1.46.0

Added Furina and Charlotte

1.45.0

Added Wriothesley

1.44.0

Added Neuvillette

1.43.0

Added Freminet

Fixed Faruzan particle variance and updated help text

1.42.1

Fixed Hydro Traveler particle data

1.42.0

Added Lyney, Lynette and Hydro Traveler. Hydro Traveler particles are uncertain and may be updated based on further information.

1.41.2

Fixed bug which didn't allow selecting "don't know" as feed target

1.41.1

Added Dehya C2 effect

1.41.0

Updated Abyss HP particles for version 3.7

1.40.0

Added Kirara

1.39.0

Added Baizhu and Kaveh

Updated abyss HP particles to 3.6

1.38.4

Fixed variance calculations for turret skills

1.38.3

Removed variance from Nahida particle generation

1.38.2

Fixed bug in Fischl calcs for 0 skill uses

1.38.1

Fixed bug related to using two different kinds of turret skills on the same character

1.38.0

Added Mika with estimate of particle generation, may be updated based on further information

Updated some help text for fixed rotation mode

Added link to ERC guide

Added Childe as another name for Tartaglia

1.37.0

Added a choice to use either fixed rotation mode or flexible rotation mode. This is a big change and may have introduced bugs.

Fixed some bugs in advanced mode

Updated abyss HP particles for 3.5

1.36.0

Added Advanced Mode. Enable this by unhiding rows 14-25

Rewrote energy calculations. This shouldn't have any effect unless you use advanced mode, but may introduce bugs.

1.35.0

Fixed a bug in the previous bugfix

1.34.0

Fixed a bug in calculating the particles caught by a character who feeds only some of their particles

1.33.0

Added Dehya

Added "Don't Know" option for particle feeding

Rewrote energy calculations. This shouldn't have any effect, but may introduce bugs.

1.32.1

Fixed incorrect enemy particle data

1.32.0

Removed error highlighting when Raiden doesn't have flat energy (hyperbloom teams don't usually use raiden burst)

Updated enemy HP particles for 3.4 abyss

1.31.0

Reduced Alhaitham particle generation from 7 to 6 based on further testing

1.30.0

Added Alhaitham and Yaoyao

1.29.0

Fixed bug in Fischl particle generation

1.28.0

Fixed bug in turret particle generation

1.27.0

Fixed bugged Faruzan C6

Updated Abyss to 3.3

1.26.2

Updated Faruzan C6 to work as a turret

1.26.1

Added Faruzan C6 proc partile gen

1.26.0

Added Wanderer

Added Faruzan

1.25.0

Added Layla

Fixed some incorrect particle values

1.24.2

Added HP particle info for 3.2 abyss

1.24.1

Added more options for Tartaglia

1.24.0

Added Nahida

1.23.0

Added Nilou

1.22.3

Fixed bug with Dori

1.22.2

Fixed bug with particle feeding

1.22.1

Fixed bug with Dendro Traveller

1.22.0

Added Cyno and Candace

Allowed for the use of two different skill types (e.g. Kazuha doing 1 press and 1 hold)

1.21.2

Fixed bug in particle feeding menu

1.21.1

Fixed Diona and Yae particle generation in safe and worst-case scenarios

1.21.0

Added Dori

1.20.3

Automatically calculate Dendro Traveler C1 flat energy

1.20.2

Added Kuki Shinobu C4 particle generation

1.20.1

Fixed dendro not working with electro resonance

1.20.0

Added Collei, Tighnari, Traveler (Dendro)

1.19.2

Added missing skill cooldowns to some alternate skill uses

1.19.1

Fixed formatting issues when downloading as Excel spreadsheet

1.19.0

Updated to 2.8 abyss

1.18.1

Added Heizou C4 to help text

1.18.0

Added Heizou with particles based on data mine

Updated Kuki Shinobu particles to 45% chance based on data mine

1.17.2

Added Klee help text

Added Kuki Shinobu as a synonym for Shinobu

1.17.1

Fixed description of abyss HP particles

1.17.0

Added Shinobu

1.16.0

Updated to 2.7 abyss

1.15.0

Added Yelan

1.14.2

Updated help text

Added guide link

Added table of flat energy sources

Fixed Fischl particle generation

1.14.1

Fixed error highlighting

1.14.0

Corrected an error in the abyss HP particles for 12-1-2

1.13.1

