



# DAANAA

## Revolutionizing Power Electronics

Increase Performance, Simplify Designs, Consolidate Supply Chains



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CEO

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Energy Untethered™

# Daanaa At A Glance

**Company Overview:** Daanaa Resolution Inc. is a **fabless power electronics and semiconductor** company headquartered in Vancouver, BC. Daanaa has created the **world's first** hyper-conversion ratio, real-time programmable, ultra-high efficiency, all-in-one converter **System on a Chip (SoC)**. This innovative technology harnesses a **new physics model** with a multitude of patents granted and in process, creating a new topology for power electronics that is more than 600 times better than related technologies.

**Market Problem:** Power conversion systems require a combination of serial connections, multi-stage conversions and multi component designs. This leads to 20-50% power losses, excess heat, wasted funds and resources, additional mitigation components and supply chains dependencies.

**Technology and Solutions:** Daanaa's Power Transaction Unit (“PTU”) is a **real time programmable SoC**, capable **hyper conversion ratio (>110x)** in a bi-directional manner, irrespective of AC or DC modality needs at **very high efficiency (>97%)**. It effectively consolidates the **functions of up to 20 devices** at a fraction of the complexity, size and cost, eliminating the need for string connection of components, multistage conversion, and other intermediary functions or components.

**Business Model:** Daanaa's business model follows a design-build leading to design-license. The company utilizes the core of its technology and implements adaptation to customer needs leading to revenue generation from NRE’s, unit sales and licensing fees.

**IP:** Daanaa’s proprietary technology is protected by more than 25 patents in six families prosecuted in 11 jurisdictions.



# Collaborations and Media Sheet



- JUL 2025 Gamechanger Climate Leadership [Technology Impact Awards Finalist](#)
- MAY 2025 Canada's Semiconductor Council [Start up of the Year](#)
- FEB 2025 Suncast [Breakthrough Interview](#)
- JAN 2025 Power Electronics News: Daanaa's [Innovative Approach to Power Conversion](#)
- NOV 2024 BC Tech Technology Impact Awards: [TIA Startup of the Year](#)
- NOV 2024 Foresight Canada: [Foresight 50 - Canada's Most Investible Cleantech Ventures](#)
- NOV 2024 Business in Vancouver: [BC Emerging Export Award Nominee](#)
- MAR 2024 Foresight Canada: [BC Cleantech Startup Of The Year Finalist](#)
- JAN 2024 Best Startup Employer: [Forbes 2024 - Canada's Best Startup Employers](#)
- AUG 2023 DigiTimes Asia: [Daanaa's PTU is Revolutionizing the Solar Power Industry](#)
- APR 2023 Floorspace: [Daanaa - Developing a Strong Company Culture as a Startup Scales](#)



EXPERIENCE IN STRATEGY AND EXECUTION

# Management Team

Seasoned leadership team with strategic, technical and commercial expertise to manage the Company from inception to exit.



**Udi Daon, CEO**

- 25+ years of management experiences across all life cycle of product development with dozens of patents worldwide. Experience negotiating multi-million-dollar licensing and sales agreements with more than 20 years of executive and board experience and over multi-million \$ raised



**Raheem Haji, CFO**

- Canadian CA/CPA with 20+ years of global experience in accounting/finance, management consulting, mergers & acquisitions, and corporate strategy in the technology industry



**Dr. Soroush Dehghani, VP R&D / Founder**

- 10+ years of experience in semiconductor engineering with a track record of successfully executing innovative RF/analog silicon tape-outs in high-voltage and advanced node CMOS processes
- Author of 10+ peer-reviewed technical journals and conference papers; holder of 4 patents on energy transfer domains



**Robert Chow, Director of Product Management**

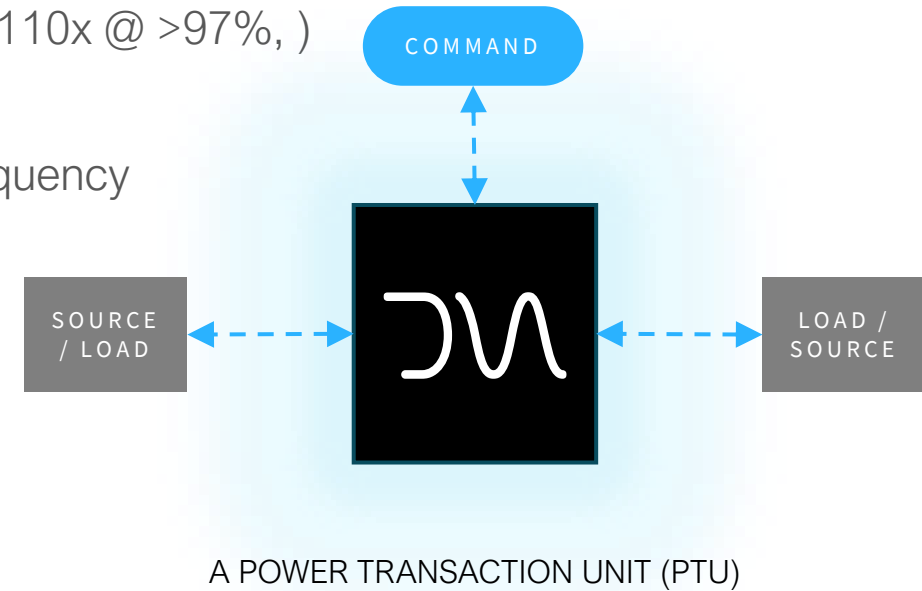
- 30+ years of experience developing semiconductor, hardware, software, and cloud products - taking them from concept to revenue



FIRST OF A KIND UNPARALLELED PERFORMANCE

# Daanaa's Power Transaction (PTU) Capabilities

- High-efficiency, single-step high voltage conversion ratio (>110x @ >97%, )
- Modal-free conversion (AC or DC)
- Real-time programmable power, voltage, amplitude and frequency
- Bidirectional conversion and power flow
- Scalable power summation – array of independent PTU's
- Fast maximum power point tracking (“MPPT”)
- Galvanic isolation and rapid shut down
- Highest power density SoM
- Real-time configuration, monitoring, and diagnostics



*Power transactions include generation, storage, distribution*

## Underlying Technology Innovation:

Real time control, augmentation and manipulation of the entire *Near-Field Reactive Electro-magnetic Spectrum*

Existing Power conversion systems require a combination of serial connections, multi-stage conversions and multi component designs. This leads to 20-50% power losses, excess heat, wasted funds and resources, additional mitigation components and supply chains dependencies

By Integrating the **POWER TRANSACTION UNIT (PTU)**  
Daanaa Eliminates Multi-Stage Conversion, Serial Connections and Multi-Component Design to Improve Customers' Product performance, generate new revenue and simplify supply chains

# PTU Business Integration Benefits

## Save Money

- Consolidate, replace and eliminate multiple components into one; Shorten supply chains; Reuse single unit in multiple use case. Reduce service and warranty costs.

## Make Money

- Increase margins; Capture down stream revenues; Open new market segments and new use cases; Collect carbon credits.

## Save Time

- Reduce time to market and increase pace of internal innovation; Reduce design-win constraints; Dynamic control of all functionality; Program the desired functionality.

## Improve Product Quality

- Create system resiliency; Eliminate points of failure; Increase reliability; Increase range of high-performance operation parameters;

## Improve Quality of Work

- Reduce engineering and resource burden; Reduce design errors; Reduce deployment errors.

# Use Case: High-Voltage Vertical Power Delivery

## Reduce Cost and Simplify Operations

18-30% Operational Cost Reduction by reduction operational and cooling electrical demands and cost

## High Voltage Distribution

Single Stage power delivery from 400V directly to the GPU Voltage Regulator reduces distribution losses.

## Voltage Regulator

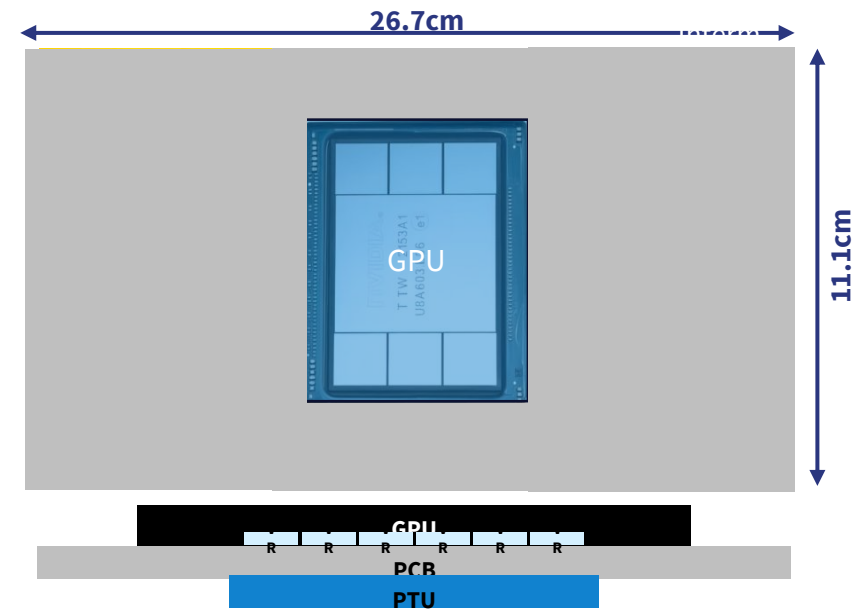
Programmatically deliver Low Voltage directly to the Voltage Regulator, significantly reducing its spatial requirement.

## Ohmic Losses

Vertical Power Delivery reduces ohmic losses to ~0.4%. (97.2% improvement).

## Area Reduction

Free 70-90% of PCB surface for additional GPU's or easier air flow



Vertically mounted PTU converts 400 V -> 3.6V for embedded VR

# Use Case: Electrified Vehicles

## Increased Vehicle Performance and Reduce Cost:

PTU-enabled systems provide *15% more range*, greater than *50% more available motor power*, and more than *50% reduction in charge time* with no change in the number or type of battery cells. Alternatively, maintain performance with *up to 50% reduction of battery cost*. This benefit amplifies future battery technology and is agnostic to the chemistry.

## Adaptable Battery Systems:

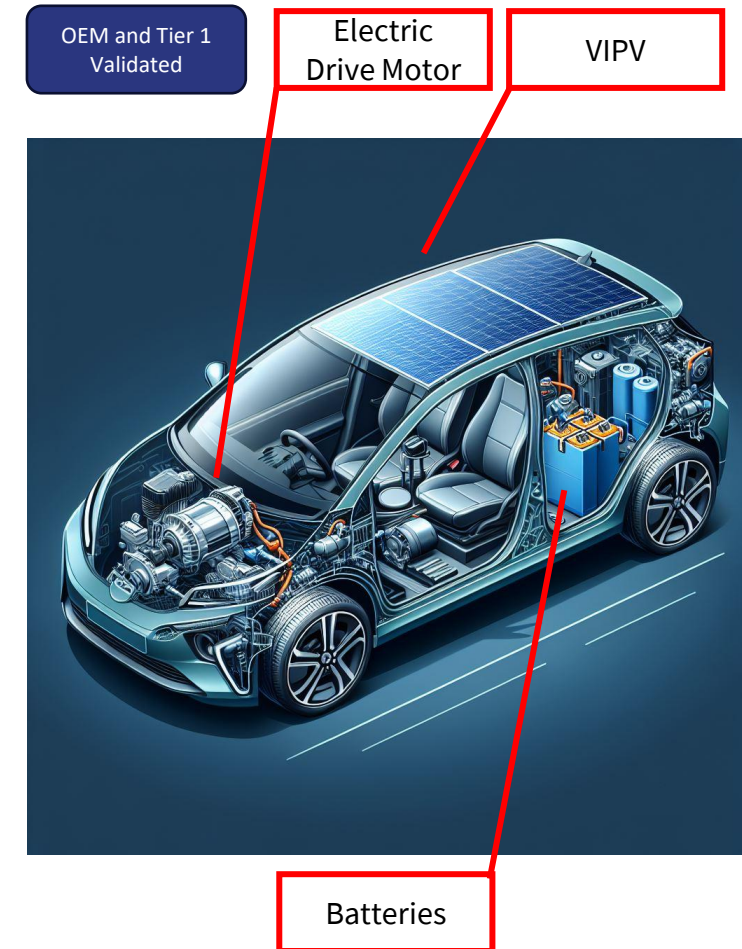
PTUs connected in parallel provide power scaling and can be controlled independently in real-time to enable *dynamic load balancing* and charging of batteries in response to changing conditions. *Constant output levels* (e.g., voltage) independent of the state of charge or state of health of the battery cell *maximizes the power output* of the motor

## Build Resilient Battery Systems:

Battery cells are connected in parallel instead of long strings of battery cells connected in series. Preventing one cell affecting the entire battery module and *reduces risk of fires* and failure propagation. Batteries connected in parallel build absolute redundancy into the system for *autonomous vehicles*. Each cell is dynamically controlled for independent performance, *extending its life by 30%*.

## Vehicle-Integrated Photovoltaic (“VIPV”) Systems:

Substring-level ultra-fast MPPT maximizes solar energy harvest for VIPV curved surfaces, as well as from dynamic light and shade conditions – from minutes to sub-second allows for surface generated daily charge, *eliminating charge station dependencies* and grid overload.



# Use Case: Solar Energy Generation

## Greater Performance PV Modules:

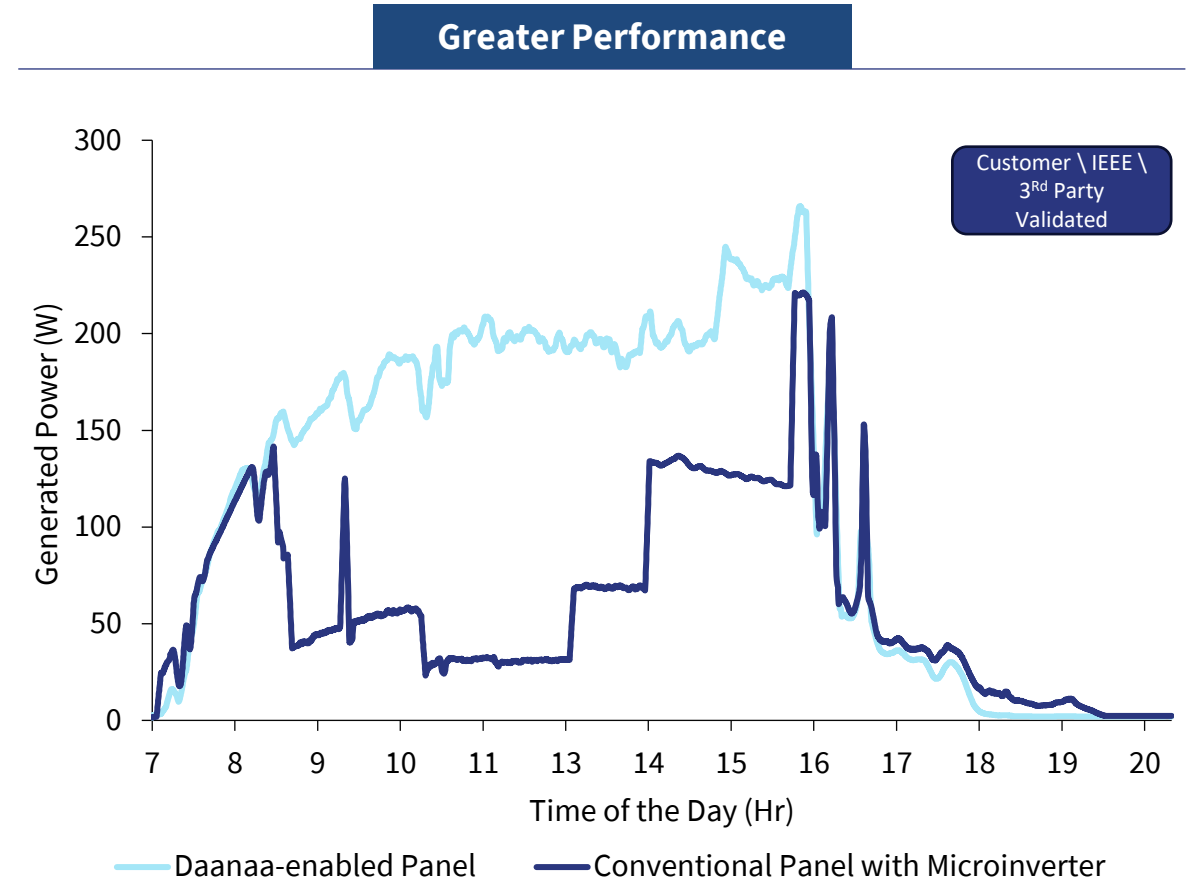
High performance, **baseline increase of >6-10%** under normal conditions, and up to **47%** in any light-obstructed scenarios. Offering great ROI improvement.

## Resilient Solar PV Modules:

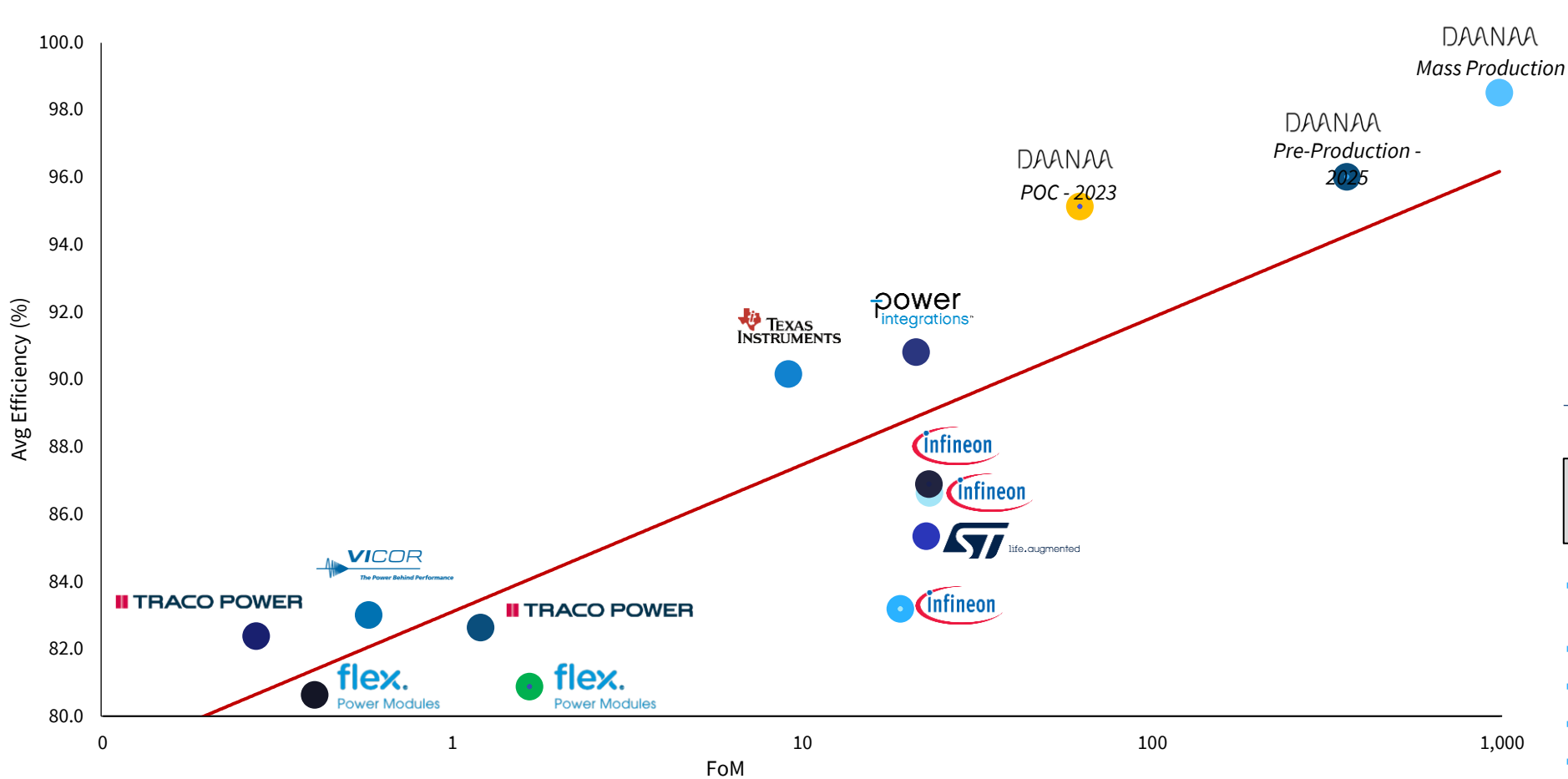
Distributed and Integrated electronics **eliminates multiple points of failure** with independent highest performance components. **Eliminates hotspots and cell damage** cascading to module failures and fires, minimizing downtime and increase electricity production. Built-in diagnostics allow for remote problem isolation and superb customer service.

## Increase Revenues and Sales:

Eliminate supply chain dependency, **Increase revenue** and generate carbon credits while providing zero configuration and plug and play **seamless installation process** for customer adoption.



# Competitive Figure of Merit ("FoM")\*



Daanaa's patented PTU topology is **600x better** when considering Conversion Ratio, Power Density, Efficiency and functionality; while providing dynamic input range and providing a **best-in-class thermal profile**.

### Power Converters Metrics

$$FoM \approx PD \times VCR \times \eta_{10\%} \times \frac{P_{max}}{P_{no-load}}$$

- $\eta_{avg}$ : Average Efficiency (Load: 100%, 75%, 50%, 25%)
- $\eta_{10\%}$ : Efficiency at 10% Load
- VCR: Voltage Conversions Ratio
- PD: Power Density
- $P_{no-load}$ : No Load Power Consumption
- $P_{max}$ : Maximum Power (W)

\* The reported maximum VCR is only valid for buck mode for these competitor products.



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THANK YOU

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# APPENDICES

PROPRIETARY AND CONFIDENTIAL

# Company Journey



**Apr 2019**  
Builds proof of concept ("PoC") for PTU and demonstrates its use in e-bike charging

**Nov 2020**  
2<sup>nd</sup> place in New Ventures BC Start-up Competition 🏆

**Jan 2021**  
First IC tape-out of core tech

**Sep 2021**  
Builds Solar PoC



**Nov 2022** 🏆  
Wins 2<sup>nd</sup> place at the VentureLAB HardTech Pitch Competition

Solar use case validated in third-party testing by [CFV Labs](#) in New Mexico

**Jun 2023**  
Signs its first solar customer at 100 MW / year

Releases PoC for cell-level battery conversion

Signs its first battery customer

**Q1 2024** 🏆  
Recognized as one of [Canada's Best Startup Employers](#)

Named a finalist for [Foresight Startup of the Year](#)

**Q4 2024** 🏆  
Named [BC Tech TIA Startup of the Year](#), a [Foresight 50](#) honouree, and nominated for the [BC Emerging Export Award by Business in](#)

**Q2 2025**  
Launches solar commercial pilots in the U.S. and India

**Feb 2018**  
Daanaa is founded and incorporated by three PhD students from University of British Columbia

## Founding

## Initial PoC

## Product Development

## Initial Customer Launch

**May 2020**  
Udi Daon joins the team as CEO



**Dec 2021**  
[Series A](#) raise closed on the strength of the solar business case



**Sep 2022** 🏆🏆  
Wins [Innovate BC Ignite](#)

[Selected as a finalist](#) for BC Tech Impact Awards, Start-up of the Year

**Nov 2023**  
First paid automotive application

Named a [Foresight 50 2024](#) honouree, recognized as one of Canada's most investible cleantech ventures

**Aug 2023**  
Signs its second solar vertical customer at 400 MW / year

**Q1 2025**  
Integrated VIPV , high voltage charging, low voltage charging and computer integration in moving vehicle.

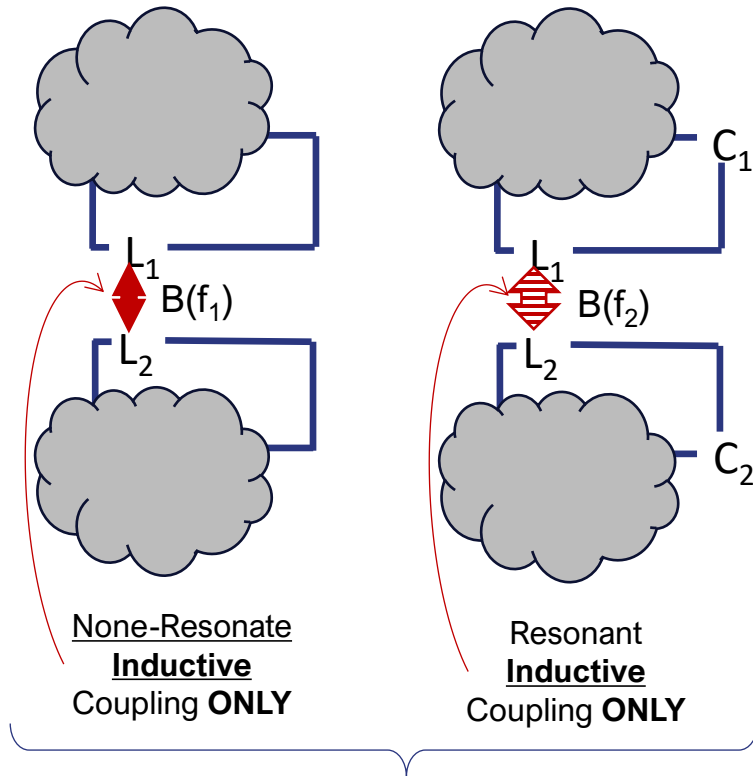
**Q2 2025** 🏆  
Named Canada's Semiconductor Council's [Startup of the Year](#)

Executed LOI with Luxury EV OEM for Vehicle Integration

Design win for Integrated Generation and Storage

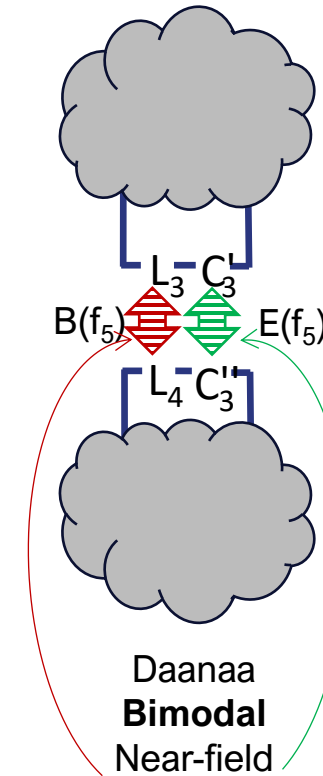
# Converters Topologies Comparison

## Existing Dominant Topologies



transfer power via L-based, H-field

## Daanaa



The L & C in the Tx **both** participate field-wise (H and E respectively) in the power transfer to the L and C in the Rx. No matter how the resonant frequency  $f_5$  varies, it is inherently equal for not just L and C but for both Tx and Rx. The system is self-tuning.

Patent Protecte

# PTU Systematic Benefits

**Higher Efficiency Systems:** The PTU provides a single-stage high-efficiency power converter with outputs that can be programmed in real time to the level that enables subsystem loads to operate at their most efficient point.

**Build Real-time Adaptable Systems:** The PTU senses and maintains consistent output levels (e.g., voltage) independent of the state of charge (“SOC”) or state of health (“SOH”) of the battery cells. PTUs can also be connected in parallel and controlled independently in real time; this enables scaling for more power and dynamic load balancing in response to ever-changing conditions.

**Build More Resilient Systems:** Each PTU has built-in monitoring and diagnostics, allowing for fine-grained problem isolation and minimizing downtime. PTUs can also be connected in parallel to build redundancy into the system.

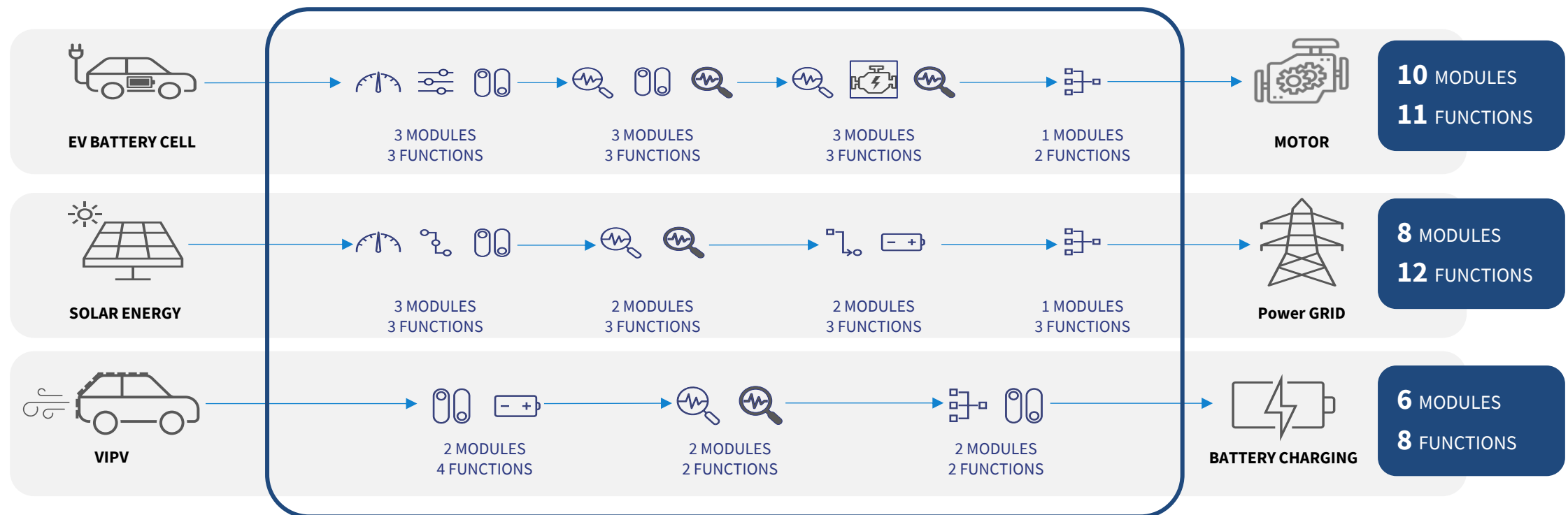
**Engineer & Design Efficiently:** By removing multiple conversion stages, PTUs reduce the space, components, and cost required for implementation. This simplifies engineering efforts, provides greater design flexibility, and ensures modularity and scalability for diverse applications.

**Maximize Operational Efficiency:** The simplified architecture streamlines inventory management and optimizes the supply chain, making operations more efficient and cost-effective.

**New Revenue Sources:** The integrated PTU integrates functions currently distributed

# Faster Time To Market

One programmable component instead of 8-12, highly efficient single stage distributed conversion. PTUs reduce the space and cost, as well as ancillary systems such as cooling required to implement power conversions and power transfers. This simplifies engineering efforts, provides greater design flexibility, and ensures modularity and scalability for diverse applications. This reduces design time, time to market, and streamlines inventory management and optimizes the supply chain, making operations more efficient and cost-effective

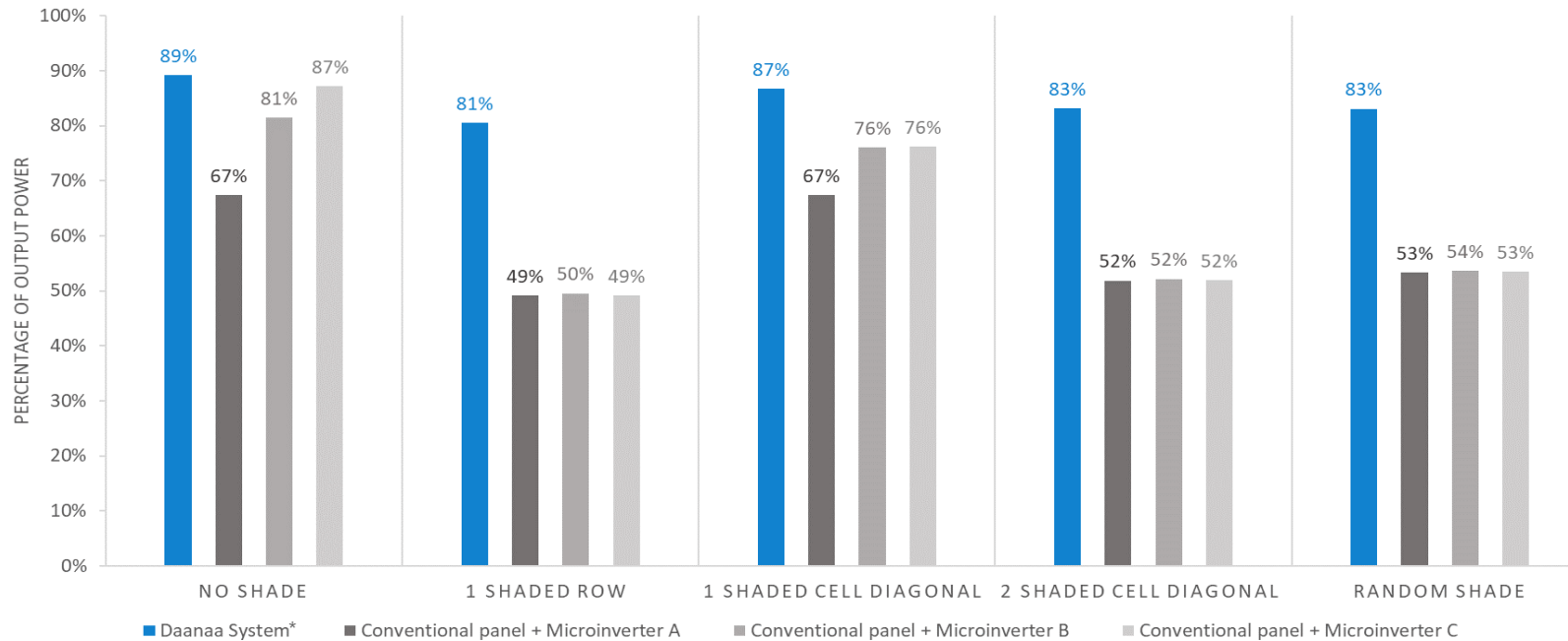


# 3<sup>rd</sup> Party Validation - Best in Class

CFV labs in New Mexico, tested alpha version of Zodiac-enabled PV modules against conventional PV modules with leading microinverter models under multiple indoor and outdoor shading scenarios. Testing was done using a residential solar module with first prototype system. This was published in IEEE peer reviewed papers.

- Daanaa-enabled module demonstrated consistently higher output power in all shading and non-shading scenarios
- Performance gain observed across varying irradiance and temperature conditions

**Output power of 350W Zodiac-enabled PV module vs. leading microinverter models**



# Customer Results - Outdoor Test

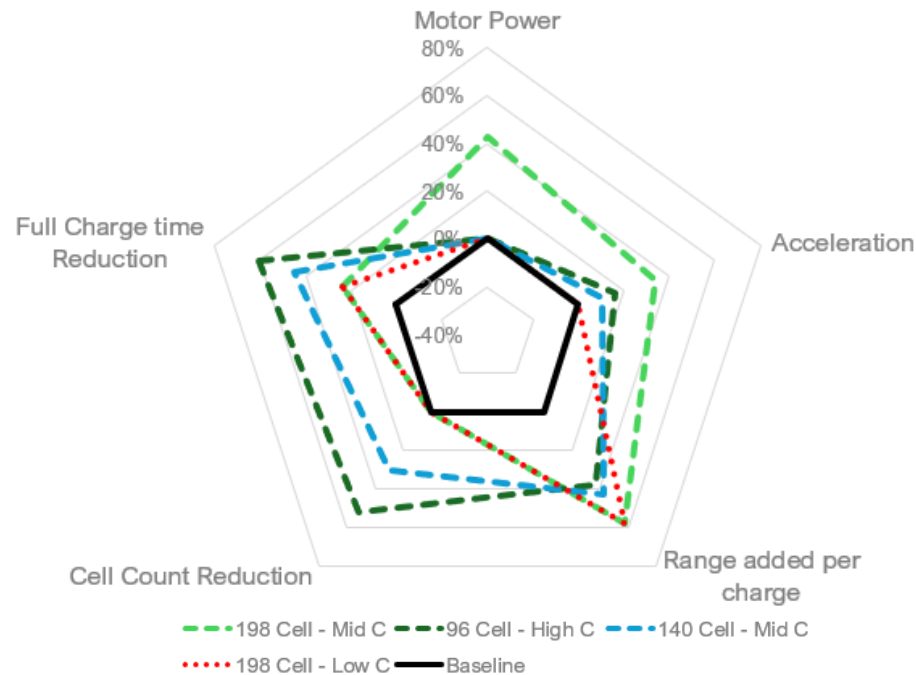
North American Customer integrated and tested Beta version of Zodiac-enabled PV modules against expected leading microinverter performance in real life, straight out of manufacturing scenario.

Conditions*	Zodiac Rev A-enabled module output power (W)	PV module with DC optimizer output power (W)	Expected output power using microinverter** (W)	Zodiac Rev A-enabled module performance improvement
No shade	<b>340</b>	330	<b>320</b>	<b>6%</b>
One substring shade	<b>270</b>	200	<b>180</b>	<b>47%</b>
Four substring shade	<b>220</b>	175	<b>160</b>	<b>36%</b>
Six substring shade	<b>160</b>	165	<b>150</b>	<b>7%</b>
Pole shade	<b>275</b>	255	<b>240</b>	<b>14%</b>

\* The peak efficiency of microinverter is corrected based on the panel's output power and voltage.

\*\* PV modules have nominal DC output power of 420W and installed with non-optimized tilt angle

# Customer Validation - EV Battery Integration



Performance simulation validated by EOM and Tier 1. Impact of cell reduction and change of battery mix.

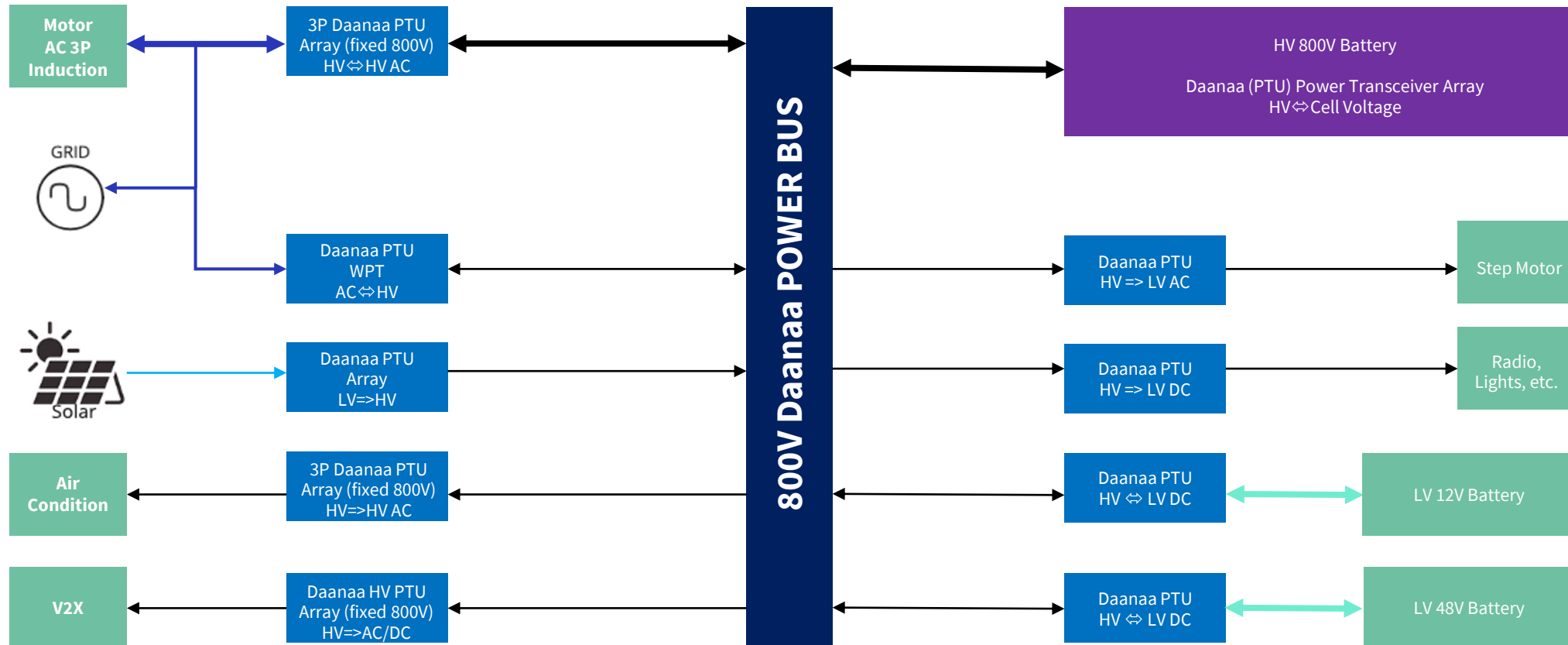
The cost impact is not presented here for confidentiality reasons.

Impact and rate of change

Evaluation Points	Max C-rate	Motor Power	Acceleration	Cell Count Reduction	Full Charge time Reduction	Range added per charge
96 Cells	46%	0%	16%	52%	60%	38%
140 Cells	0%	0%	11%	30%	45%	43%
198 Cells	-30%	0%	0%	0%	24%	58%
198 Cells	0%	43%	34%	0%	24%	58%
Baseline 198 Cells, 4C	0%	0%	0%	0%	0%	0%

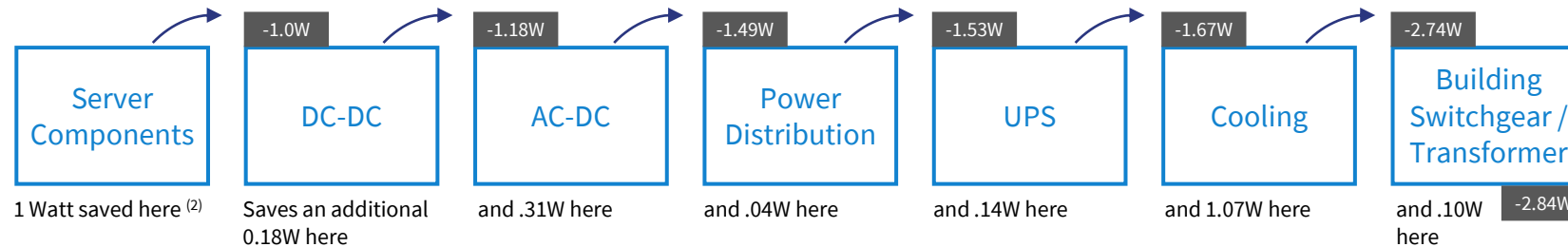
# Significant Simplification and Cost Reduction

Unify 6-9 Different electrical systems and reduce time to market with design and build efficiency. Normalized fixed HVDC node from LVDC sources Improves the efficiency of system and reduces the load and losses. Reduce copper from cables and eliminate and minimize redundant components. Improve thermal profile of the system



# Data Center - \$M Cascading Power Savings

Reducing losses in power conversion and ohmic losses has a cascading effect on total data center power consumption. For one watt saved at the server, 2.8 watts saved of total power at the building switchgear / transformer

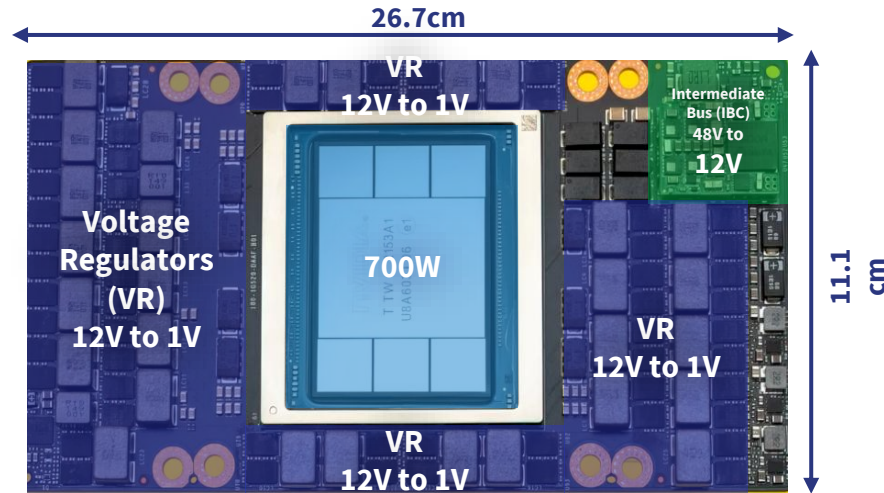


Cumulative Savings from Higher Conversion Efficiency, Reduced Ohmic Losses and Downstream Power Reductions\*:

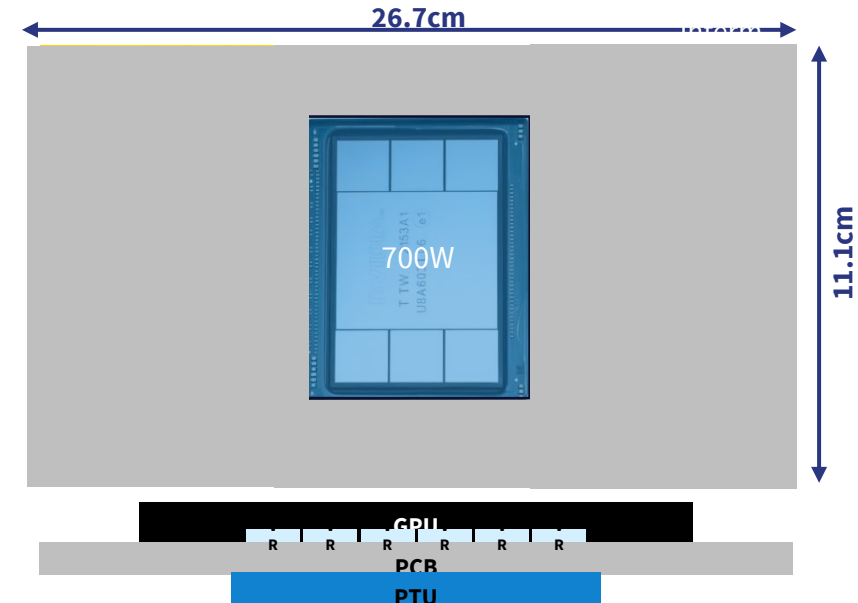
INCLUDING COOLING AND DOWNSTREAM REDUCTION				POWER SAVINGS							
Data Center	Number of Servers <sup>(1)</sup>	Per Server Power (W)	Total Server Power (kW) <sup>(1)</sup>	Higher Conversion Efficiency (kW)*	Ohmic Loss Reduction (kW) <sup>(1)</sup>	Downstream Power Reduction (kW) <sup>(1)</sup>	Total Power Savings <sup>(1)</sup>	Cost of Power (kWh) <sup>(1)</sup>	Hours / Year	Annual Savings <sup>(1)</sup>	Opex Reduction
	A	B	C = (A × B) / 1,000	F = E – D*	G	H	I = F + G + H	J	K	L = I × G × H	
Small Data Center	1,000	700	700	58	43	243	344	\$0.15	8,760	~\$470K	20%
Medium Data Center	6,000	700	4,200	350	256	1,459	2,065	\$0.15	8,760	~\$2.8M	20%
Large Data Center	50,000	700	35,000	2,917	2,135	12,158	17,210	\$0.15	8,760	~\$23.3M	20%

\* Showing analysis for 700w GPU, with the new generation of 1600w the impact grows to 30%

# Voltage Regulator, Area and Ohmic Losses



NVIDIA H100 Tensor Core GPU



Vertically mounted PTU converts 400 V -> 3.6V for embedded VR

## Current State: Lateral Power Delivery (LPD)

- PCB trace ohmic losses is ~6.5% of processor power due to high current. For higher power processors the ohmic losses are higher (e.g., 1600 W processor is ~14%)
- Voltage regulator (VR) occupy 70-90% of the server blade

## DAANA: Vertical Power Delivery (VPD)

- Daanaa supplies 3 - 3.6V making it possible to reduce the VR space requirement and size
- VR can then be vertically integrated with the GPU to reduce ohmic losses to ~0.4% (97.2% improvement)
- Free >70-90% of PCB surface
- Reduce Cooling requirements and Cost by 18-30%