MEETING SEQUENCE

1. Opening Remarks by Shri **Amitabh Sinha**, Hon'ble Member- NHEV 3G Energy Working Group (N), Head of Growth- IET India, Member- NHEV Working Group
2. Keynote Address by Shri **Abhijeet Sinha**, Program Director, NHEV
3. Opening Remarks by Chair, Shri **Sudhendu J. Sinha**, Former Principal Advisor, NITI Aayog, Govt of India, Hon'ble Co-Chair, NHEV Knowledge Working Group
4. Introduction of all 7th Energy Working Group Members convened on Renewable Energy Readiness for Decarbonisation of Mobility
5. Presentation: NHEV 3G Stations by Shri **Abhishek Gupta**, Program Manager- NHEV, Member - NHEV 3G Energy Working Group (N)
6. Presentation: Wind by Ms. **Swati Maini**, Founder - Maini Renewables, Member - 3G Energy Working Group (N)
7. Presentation: Solar by Shri **Martin Mesmer**, CEO- Surya Charge LLP, NHEV 3G Energy Working Group (N)
8. Presentation: Hydrogen by Shri **Ritwick Ghosh**, Executive Director – (Hydrogen), NTPC Limited, Member - NHEV 3G Energy Working Group (N)
9. Closing Remarks by Chair, Shri **Sudhendu J Sinha**, Former Principal Advisor, NITI Aayog, Govt of India, Hon'ble Co-Chair, NHEV Knowledge Working Group
10. Thank you note by Shri **Mohammad Rihan**, Director General- National Institute of Solar Energy (NISE), Member-3G Energy Working Group (Appointed as Chair in 7th WGM)
11. Preliminary consensus among the sitting members of the 7th WGM resulted in the selection of the Chair of the Energy Working Group. NISE, represented by Dr. Mohammad Rihan, was chosen as Chair with a full majority.
12. The Convener tabled 20 key considerations for discussion, decisions, suggestions, and nominations. The outcomes are annexed with the MoM.
13. Shri **Abhishek Gupta** has been appointed as the Project Director of NHEV Greenways, a Special Purpose Entity (SPE) registered in New Delhi as a company to manage NHEV 3G Energy Station assets.

Annexure 1:
Opening Remarks by Shri **Amitabh Sinha**
Hon'ble Member- NHEV 3G Energy Working Group (N)
Head of Growth- IET India, Member- NHEV Working Group

Key points captured from his opening remarks:

1. He insisted on clarifying the Scope Beyond "3G Charging".	9. He mentioned mobility will transform completely in the coming times.
2. He noted that energy transition is vital for an entire nation.	10. He noted that mobility is India's lifeblood for economic growth.
3. He explained the democratization of Mobility.	11. He explained data as the critical layer, enabling intelligent, scalable, and responsive mobility systems.
4. He highlighted the downstream Impact of Technology.	12. He described NHEV's legacy of moving beyond proof-of-concept.
5. He outlined the long-term national-level impact of NHEV 3G stations.	13. He outlined the shift from technology to techno-economics, emphasising viability, sustainability, and impact.
6. He linked mobility reforms to India's long-term aspirations.	14. He stressed the need for consumer-centric consistency, ensuring trust, reliability, and seamless user experience.
7. He questioned conventional electricity transition models.	15. He clarified that charging infrastructure must evolve beyond hardware.
8. He stressed that future-focused integration must guide decision-making across the E-mobility sector.	16. He stated that money is not the real challenge; rather, success depends on four imperatives: credibility, confidence, continuity, and cogency.

Annexure 2:
Keynote Address by Convener, Shri **Abhijeet Sinha**
Program Director, National Highways for Electric Vehicles (NHEV)

Key points captured from his keynote address:

1. He questioned renewable energy readiness for the decarbonisation of mobility.	10. He substantiated 20% year over year Growth and achieved a 5-year breakeven with data from NHEV.
2. He examined models from other countries, such as Germany and the United States.	11. He aligned the discussion with the Viksit Bharat National Masterplan.
3. He outlined the key challenges in India, including the diversity of EVs, high costs, and the need for an open network.	12. He shared insights on the 3G Energy Station, covering services, EV costs, asset management, and economies.
4. He outlined the Indian E-mobility market demands.	13. He outlined Delhi's current crisis: 5 stations- Noida, Ghaziabad, Gurgaon, Faridabad, Sonipat to be developed as logistics hubs.
5. He described the accomplishment of building India's own model.	14. He applauded the 1000 trucks' ongoing deployment with Transvolt Mobility.
6. He compared operations with and without renewable energy integration.	15. He explained the CCV protocol and its benefits to OEMs and fleet operators.
7. He outlined the energy spectrum of 3G energy stations.	16. He outlined the NHEV 5500 KM expansion overview with a zone-wise spread and coverage.
8. He described Phased RE Adoption in the 3rd Generation NHEV Energy Station.	17. He detailed the rollout across all four zones (East, West, North and South).
9. He outlined the 2030 decarbonisation goals, aligning them with the broader direction of the discussion.	18. He concluded by noting NHEV's participation in India Energy Week and announcing the 9th WGM during the event.

Annexure 3:

Opening Remarks by Chair, Shri **Sudhendu Jyoti Sinha**

Former Advisor-NITI Aayog, Govt of India, Hon'ble Co-Chair, NHEV Knowledge Working Group

1. He emphasised the need to deepen understanding through collaboration.
2. He explained India's vehicle stock & replacement opportunity.
3. He outlined India's mobility patterns and how people and goods move across the country.
4. He elaborated the objectives of the Working Group.

   Objective 1: Accelerate Prototyping

   Objective 2: Create a National Roadmap
5. He mentioned renewables are critical & non-negotiable.
6. He sought the expected timeline and process of NHEV stations' RE integration.
7. He presented a vision for the participants and partners to achieve this integration.

Key points captured from his valedictory address:

1. He explained the truck entry points for charging infrastructure.	4. He explained the impact of heavy-truck decarbonisation.
2. He shared insights on RDSS (Revamped Distribution Sector Scheme). He recommended NHEV to reach out to state(s) for joint preparedness with GRIDS & DISCOMS.	5. He emphasised the need to involve OEMs, IITs, and Intelligent Transport forums to address interoperability and connectivity issues for EV service partners.
3. He highlighted the interoperability gaps in vehicle services connectivity and their implications for scalable deployment.	6. He outlined the need for a unified, interoperable digital backbone**,** enabling seamless integration of EVs, charging infrastructure, and related services.

Introduction of all Energy Working Group Meeting Members convened on Renewable Energy Readiness for Decarbonisation of Mobility

1. Dr. **Mohammad Rihan**, Director General- National Institute of Solar Energy (NISE), Ministry of New and Renewable Energy, Member – 3G Energy Working Group (Appointed as Chair in 7th WGM)
2. Dr. **Abhay Sinha**, Director General, Services Export Promotion Council (SEPC), Ministry of Commerce and Industry, Government of India, Member-3G Energy Working Group (Represented)
3. Shri **Amitabh Sinha**, Head of Growth- IET India, Member- NHEV Working Group, Member-3G Energy Working Group
4. Shri **D.M.R. Panda**, Executive Director – Hydrogen, NTPC Limited, Member-3G Energy Working Group (Represented)
5. Shri **Abhishek Ranjan**, SVP and Chief Executive Officer, BSES Rajdhani, Member-3G Energy Working Group
6. Shri **Jaxay Shah**, Chairperson, Quality Council of India, Ministry of Commerce and Industry, Government of India, Member-3G Energy Working Group (Represented)
7. Shri **Friederich Kupzog,** Head of Centre for Energy, Austrian Institute of Technology (AIT), owned by the Republic of Austria (through the Ministry of Climate Action and Energy), Member-3G Energy Working Group
8. Shri **K.N. Hemanth,** Director - E-mobility, International Copper Association, Member-3G Energy Working Group
9. Shri **Sudhir Malik,** Ex CGM, Bharat Petroleum Corporation Limited, Member-3G Energy Working Group
10. Shri **Subrahmanyam Pulipaka,** CEO, National Solar Energy Federation of India (NSEFI), Member-3G Energy Working Group
11. Shri **Arth Patel,** CEO, Tirex Chargers, Member-3G Energy Working Group (Represented)
12. Shri **Kaushik Basu,** Associate Professor, Indian Institute of Science (IISC), Bengaluru, Member-3G Energy Working Group
13. Shri **Krishna Chaitanya Reddy,** AGM, Aisin Automotive Haryana, Member-3G Energy Working Group
14. Shri **Martin Mesmer**, CEO, Surya Charge LLP, Member-3G Energy Working Group
15. Shri **Pradeep Kumar Verma,** Managing Director, Accord Transformer and Switchgear, Member-3G Energy Working Group
16. Shri **Ronak Bhatt,** GM - Technical Cell & Product Management, RR Kabel, Member-3G Energy Working Group
17. Ms. **Swati Maini**, Founder, Maini Renewables, Member - 3G Energy Working Group
18. Shri **Vishnu Prasad**, Head of Research And Development, Lakshmi Electrical Control System, Member-3G Energy Working Group
19. Shri **Binu S. Pillai**, Director, Lotus Wireless Technologies India, Member-3G Energy Working Group (Represented)
20. Shri **Abhishek Gupta**, Program Manager, National Highways for EV (NHEV), Member-3G Energy Working Group

Annexure 4:
Presentation: Wind by **Ms Swati Maini**
Founder - Maini Renewables, Member - 3G Energy Working Group (N)

Key points captured from the presentation:

1. She introduced wind turbine integration for highway charging stations.	9. She described central curb utilisation, highlighting its role in optimising space along highway corridors.
2. She illustrated the compact system design, positioning highways as distributed energy corridors rather than standalone assets.	10. She explained the distributed energy corridor positioning highways as decentralised energy assets.
3. She validated efficiency performance for wind integration in 3G Energy Stations.	11. She detailed high-speed stall protection in wind turbines.
4. She clarified that no yawing mechanism is required.	12. She outlined the low-maintenance architecture, explaining how design simplicity reduces lifecycle costs.
5. She outlined the scalable modular deployment of wind turbines.	13. She noted the civil engineering dependency, underscoring the importance of structural integration in deployment.
6. She detailed electrical system integration requirements.	14. She stressed the need for EPC (Engineering, Procurement, Construction) coordination.
7. She emphasised the need for on-site feasibility assessments.	15. She emphasised safety & compliance considerations.
8. She highlighted the reduced lifecycle cost advantage.	16. She highlighted grid load offset potential.

Annexure 5:
Presentation: Solar by **Surya Charge**
Member of the 4G Energy Stations Working Group, delivered Shri **Martin Mesmer** and joined by Ms **Lipika Sharma**

Key points captured from the presentation:

1. He described the solar-powered EV charging station concept as the most favoured and needed.	4. He explained Surya Charge's solar engineering consultancy and project management services.
2. He detailed the services delivered by him for a 5.2 MW + 200 kW robotic tracker system in Tempe, Arizona, showcasing technical capability and operational scale.	5. He outlined the services led by him for a 640 MW single-axis tracker plant in Provo, Utah, demonstrating experience in large-scale renewable energy projects.
3. He presented the services executed by him for a 96 MW EPC-managed project in Hosoe, Japan, emphasising global execution and cross-market expertise.	6. He articulated the vision of Surya Charge for NHEV 3G Energy Stations, aligning solar integration with scalable, future-ready electric highway infrastructure.

Annexure 6:

Presentation: Hydrogen by Shri **Ritwick Ghosh**
Executive Director – (Hydrogen), NTPC Limited, Member - NHEV 3G Energy Working Group (N)

Key points captured from the presentation:

1. He highlighted concerns about diesel genset downtime and the use of renewable fuel, hydrogen, for household and mobility applications.	5. He referenced over a decade of operational experience in hydrogen dispensing.
2. He discussed the Hydrogen Leh Pilot, evaluating cost, output, efficiency, and storage feasibility.	6. He proposed 2027 as a realistic consideration timeline for hydrogen integration under NHEV, allowing technology and economics to stabilise.
3. He outlined the concept of NHEV hydrogen stations at 200 km intervals.	7. He recommended tabling the hydrogen corridor proposal under the National Hydrogen Mission.
4. He explained potential hydrogen funding structures, and shared his views on a tri-party NDA framework involving NHEV, tentative station allottees, and NTPC.	8. He detailed phased options for NHEV hydrogen storage and dispensing, enabling modular rollout and risk-managed deployment.

Annexure 7:

Thank you note by Dr. **Mohammad Rihan**

Director General- National Institute of Solar Energy (NISE), Member - 3G Energy Working Group (N)

In the thank you note, Dr Mohammad Rihan expressed sincere appreciation to all partners, stakeholders, and participants for their active participation and valuable contributions. He acknowledged the collective efforts of industry, academia, and government representatives in advancing meaningful discussions on sustainable energy and mobility, while reaffirming NISE's strong commitment to supporting the NHEV initiative. He highlighted the critical role of solar and renewable energy integration in enabling sustainable electric highway infrastructure and emphasised NISE's readiness to contribute through technical expertise, research support, pilot validation, and policy-aligned renewable solutions. He further noted that continued engagement and cooperation between NISE and NHEV would be instrumental in advancing clean energy–led mobility, strengthening energy resilience, and accelerating India's transition towards a low-carbon, future-ready transport ecosystem.

Annexure 8:

20-Point Agenda Presented at the 7th Working Group Meeting (WGM) for Deliberations and Discussion:

1. If power is unavailable at NHEV stations, how will vehicles be charged, and can diesel gensets be replaced with a renewable fuel such as hydrogen?
The recommendations will be published for wider consultation with NTPC Limited. However, consensus could not be reached on replacing diesel gensets with hydrogen.
2. If consensus is reached on the aforementioned adoption of a hydrogen genset, should the budgeting and deployment of all four phases (Genset Replacement, Storage, Generation of Hydrogen, Dispensing) be done simultaneously or in a phase-by-phase manner?
The members voted in favour of implementing the approach phase-by-phase, and this was recorded in the Minutes of Meeting (MoM). The phases include: Phase 1 – installation of a hydrogen generator; Phase 2 – provision of hydrogen storage; Phase 3 – commencement of on-site hydrogen generation; and Phase 4 – development of dispensing capability to refuel hydrogen trucks and buses.
3. Does the NHEV project require stronger alignment with the National Green Hydrogen Mission (NGHM), and should recommendations from the WGM be considered to achieve this?
Yes, stronger alignment with the National Green Hydrogen Mission (NGHM) should be considered for the NHEV project. To facilitate this, relevant stakeholders will be contacted, and the recommendations will be taken into consideration for further evaluation and implementation.
4. What is expected from NHEV to learn from the NTPC's Hydrogen bus deployment in Ladakh?
By scaling the volume of hydrogen, NHEV will learn from NTPC Limited how bankability, viability, and scalability can be achieved.
5. What are the possible ways to finance the Hydrogen (H_2) transition using renewable energy inputs in NHEV, as discussed by the Working Group?
Deliberations between NHEV and NTPC Limited concluded that around ₹2,100 crore would be required to develop 5,000 km of NHEV highways as Green Hydrogen Highways, by installing hydrogen-related assets at stations approximately every 200 km in the initial phase. For the development of hydrogen infrastructure at NHEV 3G Energy Stations, recommendations will be sought from the WGM regarding the possible financing mechanisms and funding avenues that can support the implementation of this initiative.
6. Deliberations on technically and commercially available permutations and combinations to ensure maximum optimisation, assetization, and monetization of WIND as RE input of NHEV 3G stations.

After the wind presentation by Swati Maini from Maini Renewables, a discussion was held on different possibilities for integrating wind energy. Various permutations and combinations were explored to determine how wind energy requirements could be effectively achieved. The prototype requirements to be shared by Swati Maini will be facilitated and provided at the earliest.
7. What decision was taken regarding megawatt charging using solar renewable energy input, whether power should be arranged through onsite or rooftop solar installations, or generated at an offsite solar park and transmitted to the charging station?
Decision taken by majority to go forward with a hybrid model having onsite rooftop capabilities on each station and balance energy demand to be fulfilled by solar energy from solar parks.
8. Deliberations on compartmentalised safety protocols of each energy component to be designed and prototyped together for PESO licensing, allowing a multifuel modular arrangement to meet various non-fossil fuel demands of green mobility.
Decision taken by voting/voice of the majority in favour of the Motion. Minutes shared for any additional mention.
9. Recommendation to introduce the Common Connected Commercial Vehicle Protocol for all ZET vehicles, be it electric or hydrogen, to the upcoming Network Working Group meetings scheduled on 23rd December, 2025.
Yes, the recommendation was accepted and shared with the next WGM network meeting held on 23 December at Le Méridien New Delhi
10. DELHI CRISIS: Recommendation for considerations of 5 NHEV 3G Energy stations on Delhi Entry points Ghaziabad, Faridabad, Noida, Gurugram & Sonipat capable to host electric trucks to eliminate diesel truck entry in city reducing significant tailpipe carbon emissions; latest by 2027-2028 FY.
Recommendations to be published for wider consultation in the upcoming Climate Financing Summit on 22nd April, 2026, in New Delhi.
11. Recommendations to extend the budgeted India Infrastructure Project Development Fund (IIPDF) for states to accelerate their DISCOM's readiness to join this nationwide energy transition and to meet mobility demand from RE.
Ease of Doing Business will connect with the governments of the states through which the project's E-Highway passes, in order to extend and communicate its benefits to them.
12. Inclusivity and availability of Battery Energy Storage System (BESS) related to recent ministerial guidelines for commissioning a commercial BAAS model at stations.
The guidelines published by the Government of India through the concerned ministry for wider consultation were discussed in detail and shared with all members of the Working Group Meeting (WGM) for their review and inputs.
13. Participants' interest in joining the Blended Climate Financing instrument for Union Budget input on climate finance taxonomy in March 2026.
Expressions of interest were gathered from participants regarding their participation in the next WGM to be organised on the sidelines of IEW in Goa. Their inputs were also considered while compiling NHEV's recommendations and wishlist during the pre-budget consultations for Budget 2026–27.

14. Identification of critical roadblocks to implement it at 270 stations and 5000 kms. Immediate RE availability to power 1000 heavy-duty electric trucks in the energy infrastructure.
Companies such as Goldi Solar, Biteck Solar, and several others presented their inputs and recommendations during the meeting. Their suggestions and related action plans were recorded to ensure the immediate RE availability to power 1000 heavy-duty electric trucks in the energy infrastructure.
15. International references for consideration while planning the Indian 3G version.
Inputs from Surya Charge were recorded, and discussions were held regarding their requirements submission. The objective is to enable the development of 4G Energy Stations after the Indian 3G version, built according to international standards. The resource, finance, and land-related requirements for this will be further discussed in the next Working Group Meeting (WGM).
16. WGM Recommendations on guiding principles for Procurement and Selection criteria based on merit, productivity, and performance at the prototype level.
NHEV shall publish and disseminate Merit, Productivity and Performance hybrid principles for partners and Working Group attendees, which shall also include the technical and commercial examination process of RE technology, product and services.
17. Early capitalisations of support from Carbon Markets to incentivise this transit.
Matter Classified for interministerial consideration exclusively. Expecting positive announcements for decarbonisation and Carbon Abatement in the upcoming budget announcement in Feb 2026. The same shall be tabled at the Climate Financing Summit 2026.
18. Need for vital publications, allocations, timelines and partnerships, synergy to partner with all national stakeholders at IEW - 2026.
Following timelines for the upcoming quarter 4 of FY 2025-2026: January 2026 - Input February 2026 - Consultation March 2026 - FY 2027- Final
19. Megawatt compact substations and balancing the energy spectrum for efficiency
Partners for managing Multi Fuel Grid Balancing to be onboarded by the project team on priority on Merit, Productivity and Performance before 31st March, 2026.
20. Energy Working Group of 20 members to choose Chair & Co-Chair organisations
A decision taken by the voice of the majority. The Chair Organisation voted is the National Institute of Solar Energy (NISE) for the Energy Working Group, to be chaired by Dr. (Shri) **Mohammad Rihan**, Director General- National Institute of Solar Energy (NISE).

Annexure 9:

<u>Action Points</u>

Minutes of the 7th Energy Working Group Meeting for 3G Energy Stations (Physical) held on 05.12.2025 under the Chairmanship of Shri **Sudhendu J. Sinha**, Former Adviser, (Infrastructure Connectivity & Electric Mobility) at NITI Aayog, Govt of India.

S No.	Points Discussed	Observations	Action Points
1	Strategic Vision & 3G Station Overview from a Decarbonisation Point of View	The integration of solar, wind, and hydrogen into NHEV 3G charging stations is essential for reducing reliance on thermal energy and ensuring long-term sustainability. The phased approach—starting with thermal, then solar, wind, and hydrogen—ensures scalability and adaptability to evolving technologies and market conditions.	NHEV to develop a phased implementation plan, beginning with thermal load, then integrating solar, wind, and hydrogen in subsequent stages. Ensure each phase is technically and commercially viable, with continuous monitoring and optimisation. This action is to ensure that NHEV meets the Viksit Bharat National Masterplan of decarbonization of surface transport by 2030, as envisaged by the **PMO** in the meeting on the need for the establishment of an apex ***"Transport Planning Authority"*** for integrated long-term transportation planning.

2	Wind Energy Pilot Project	1. Higher than global average (25%); needs methodological transparency. 2. Compact, uses vehicular wind; intended to generate 30–40% station energy. 3. Large-scale pilot needed for real-world data. 4. Suggested that Wind guidelines should be included along with Solar for Charging Infra	1. IIT & QCI to review and validate efficiency standards for vertical turbines. 2. Identify 1 pilot site; approve anemometer installation. 3. Approve pilot under working group oversight; connect EPC partners and the National Institute of Wind Energy (NIWE). 4. NHEV will ensure that the guidelines for wind energy in charging infrastructure have been met and complied with.

3	Solar & Storage Integration	1. Rooftop solar, open access procurement, green tariffs, and battery storage (10–20%) are crucial for efficient energy sourcing and grid balancing. Maximising available space and optimising power management are key to ensuring a reliable and sustainable energy supply. 2. Hybrid Solar Model Proposed Using Rooftop, Canopy, and Adjacent Land. 3. Hybrid sourcing ensures 100% RE compliance. 4. Required for uptime, night charging, and peak shaving. Ensures intelligent energy routing between RE sources. 5. Are we capable of giving RE integration options for charging infra to Transvolt for the upcoming 1000 electric trucks deployment?	1. NHEV, Surya Charge, and BSES to implement rooftop solar and battery integration on a prototype to maximise available space and optimise power management. Regularly review and update installation protocols to incorporate new technologies and best practices. 2. Conduct detailed solar potential mapping for all stations with the NISE digital map. 3. NHEV to evaluate DISCOM green tariff feasibility for all corridors. Define BESS minimum capacity guidelines (1–1.5 hr backup) with appropriate partners. 4. Initiate the BAQ process with NSEFI for immediate solar onboarding for heavy-duty EVs. 5. Solar must be commissioned immediately; no dependency on DISCOM timelines should be ensured. 6. Solar Partners to give recommendations at the earliest so that procurement concludes; failure to do so will result in this infrastructure going without solar integration.

4	Hydrogen Integration and Pilot Project Success	1. Hydrogen can replace diesel gensets and enable full decarbonization of charging stations. A phased implementation from storage to on-site generation and dispensing ensures gradual adoption while minimising risks. 2. On-site hydrogen generation (1 MW per station). 3. Successful Ladakh pilot for Hydrogen Buses done by NTPC. (80 kg/day, 20 km/kg bus efficiency). NTPC invited NHEV for an on-ground visit for the same. 4. Storage economics: 200 bar better for stationary, 500 bar for vehicle 5. Hydrogen Bus and Truck NHEV Technical Trial IV on Yamuna Expressway proposed with NTPC.	1. NTPC and National Hydrogen Mission to proceed with phased hydrogen infrastructure rollout, focusing on cost reduction, regulatory approvals, and PESO compliance. Conduct regular audits and assessments to ensure safety and efficiency throughout the implementation process. 2. NTPC to provide phased hydrogen infra blueprint for 66 stations. 3. Draft feasibility for a 200 km spacing hydrogen network. Publish Ladakh learnings as a technical whitepaper, and the NHEV Program Director and partners visit to the Ladakh Site to be scheduled. 4. Include hydrogen cost optimisation in the ANRF project proposal. Prepare PESO-compliant hydrogen storage standard template. 5. Discussions between NTPC and NHEV to be initiated for the Drafting of Technical Trial IV agenda, to be scheduled in September 2026.

5	Standards, Safety & Certification	1. New FS norms will be mandatory for 2025 manufacturing. 2. Need for third-party certification for EV infra. 3. Finalisation expected within a month. 4. Will define a full hydrogen safety ecosystem. 5. Individual Component design approvals by nodal agency for components like hydrogen and battery storage, then gradually increase in sequence of sensitivity to place in front of PESO. 6. National Centre for Hydrogen Safety (NCHS) established by MNRE in NISE, which includes policy makers, regulatory bodies and ministries relevant to the Green Hydrogen ecosystem that cater to further areas such as production and software modelling simulation for the safest layout for hydrogen on station and not restricted to storage and dispensing in case of PESO. 7. Advanced cables solution for EV Charging Infra to be recommended.	1. BIS to issue updated BESS FS guidelines summary to WG. 2. QCI and ICA to take the discussion forward for Quality Standards. 3. QCI and NHEV to draft the charging infra uptime certification framework. 4. RR Kabel to submit “zero smoke, zero flame” cable solutions for NHEV consideration by Jan 15. 5. RR Kabel, along with ICA, to recommend cables for the 3G Station, considering the published BIS guidelines. 5. NISE to collaborate with WG for hydrogen layout safety codes and parameters. 6. Meeting to be scheduled with the Secretary General, QCI, in February 2026 to form a committee for EV Charging Infra standards with stakeholders. 7. NHEV and CPOS of India agreed in principle to constitute a Joint Council for drafting a progressive and forward-looking document, with QCI as the Anchor Partner alongwith Constitution of a Multi-Stakeholder Task Force A Task Force of approximately 40 members representing Technology, Products and Services (TPS) stakeholders shall be formed for constituting standard for 3G Energy Stations.

6	Consumer Perspective	Credibility, confidence, continuity, and cogency are essential for building consumer trust in charging stations. Consistent, reliable, and transparent services are key to addressing consumer concerns and ensuring widespread adoption	Design and operate stations to ensure consistent, reliable, and transparent services, addressing all four consumer concerns. Regularly gather feedback from users and make necessary improvements to enhance the overall experience.
7	Grid Balancing and Deployment Timeline and requirements of the multi-fuel management partner for grid balancing.	1. Battery energy storage systems (BESS) and bidirectional arrangements are necessary for grid stability and renewable optimisation. 2. Commissioning solar and thermal by 2027–2030, wind by 2030–2035, and hydrogen by 2035–2040 ensures a balanced and sustainable energy mix.	1. Commission solar and thermal by 2027–2030, wind by 2030–2035, and hydrogen by 2035–2040, with EPC and construction support for turbine placement. Regularly review and update deployment plans to incorporate new technologies and best practices. 2. Partners for Multi Fuel Grid Balancing to be onboarded by the Project team on priority.
8	Need to eliminate diesel gensets	DG backups undermine RE goals, carbon credit eligibility & public trust.	Begin pilot with hydrogen-based backup at 5 stations.

9	Infrastructure, EV Operations & Delhi Crisis	1. 50–100 entry points; need electrified freight corridors. 2. Immediate impact on NCR emissions. 3. Voltage/amperage analysis can predict failures 20–30 days early. 4. OEMs, ITS India Forum and NITI Aayog with MoRTH and NHAI to be roped in CCV protocol integration with Charging Infra	1. Expedite 5 stations around Delhi before 2027 in Noida, Ghaziabad, Gurugram, Faridabad, and Sonipat. 2. Finalise land & load assessments for 5 fast-tracked stations. 3. Integrate predictive maintenance APIs and create a connected ecosystem between charging infra and vehicles with CCV Protocol as well. 4. OEM and tech Procurement to be initiated and concluded at the earliest.
10	Battery Energy Storage (10–20% of demand)	Required for uptime, night charging, and peak shaving.	Define BESS minimum capacity guidelines (1–1.5 hr backup).
11	DC bus with SCADA recommended	Ensures intelligent energy routing between RE sources.	Goldi Solar to prototype DC bus architecture for prototype stations.
12	4G Charging Stations and Future Upgradations	1. International engineering expertise validated for high-capacity stations. 2. Ensures 20+ year lifecycle performance. 3. 3G stations considered “almost sorted”; focus shifting to 4G readiness. 4. Partners sought from NHEV for consultation on 4G Stations.	1. Identify 3 stations for 4G prototyping with Surya Charge. 2. Include “Owner’s Engineer” requirement in tender guidelines. 3. Begin 4G design consultations for 2025-26 rollout. 4. NHEV Procurement team to introduce Surya Charge with EPC Solar partners during India Energy Week for initiating discussions and consultations for 4G readiness during the 9th Energy WGM at IEW Goa.

13	Commercial, Financing & Implementation	1. Need component-level cost analysis of ₹2,100 crores investment, required for ANRF funding proposal, similar to the petrol pump operator-franchisee hybrid model. 2. RE integration must reduce OPEX significantly. 3. Bankability percentage check- RE Inputs. 4. 25%+ bankability required for central assistance.	1. WG to prepare detailed cost breakup by January meeting. 2. Draft alternative PPP model frameworks for stations. 3. Create an RE-linked financial model with ROI projections. 4. Submit a request to the State Energy & Transport Secretaries to join future collaboration to meet E-mobility demand.
14	Way Forward	1. Prototype expected for demonstration. 2. Actionable frameworks required. 3. Coordination required between NISE, QCI, NTPC, BIS, ICA, OEMs. 4. Instructions by the Chair to conclude the components, expenditure and revenue on an urgent basis for allocation and not wait for any pending component considering strict timelines. 5. Chair Organisation is NISE for Energy Working Group, Chaired by Dr. (Shri) **Mohammad Rihan**, Director General- National Institute of Solar Energy (NISE)	1. Finalize RE-integrated prototype model by IEW 2026. 2. Chair to release consolidated publication by Jan WGM. 3. Create a task-force for Solar, Wind, Hydrogen, BESS under WG. 4. Co-Chair recommendation for WG consideration to be published.

Annexure 10:

Conclusion and Way Forward

The 7th Working Group Meeting concluded with a shared understanding that the outcomes and deliberations would be carried forward and further strengthened at the 9th Working Group Meeting during India Energy Week. The discussions reinforced the importance of coordinated policy frameworks, technology integration, and infrastructure readiness to support a secure, reliable, and sustainable energy transition.

As a way forward, members agreed to focus on strengthening grid resilience through multi-fuel integration, accelerating deployment of clean and transitional energy solutions, and enabling scalable, digitally driven energy management systems. Continued collaboration among governments, industry stakeholders, and technology partners was identified as essential to convert strategic intent into on-ground implementation, with the 9th WGM at India Energy Week serving as a key platform to review progress and align next-phase actions.