



Norconsult

Norconsult Management Services Phils., Inc



NMS (aka, Norconsult Phils.) actively participates in developing the society of tomorrow by combining engineering, architecture, and digital expertise. Following the tradition of our former mother company, Norconsult AS of Norway, our approach is based on local presence, interdisciplinary expertise, and collaboration. Through invention and innovation, and with our purpose "Every day we improve everyday life", we constantly search for more sustainable, effective, and socially beneficial solutions.



25 years of serving the Filipino people

Member:

- CECOPHIL
- PhilGEPS
- PNBC
- UNGM

Major Clients/Selected References



Oriental Energy and Power Corporation

Transport



Buildings



Renewable energy



Industry



Water



Geo and environment



Architecture



Society and urban development



Digitalisation



NMS took on the expertise of its former mother company, Norconsult AS, as a multi-disciplinary engineering and design consultancy company.

Business Areas

Sectoral/Regional Planning

Institutional Development

Project Management/Planning

Construction Supervision/Owner's Engineer

Design Engineering

Priority Areas

RENEWABLE ENERGY

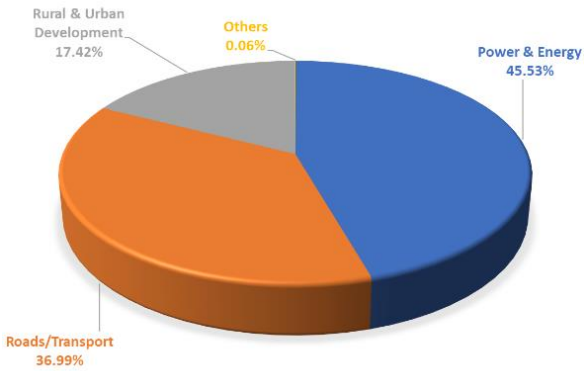
WATER SUPPLY & SEWERAGE

TRANSPORTATION

ENVIRONMENT & SOCIAL

We deliver engineering and consulting services with quality technical expertise and integrity in all project phases.

SHARE BY SECTOR IN TERMS OF PROJECT COST



Our People



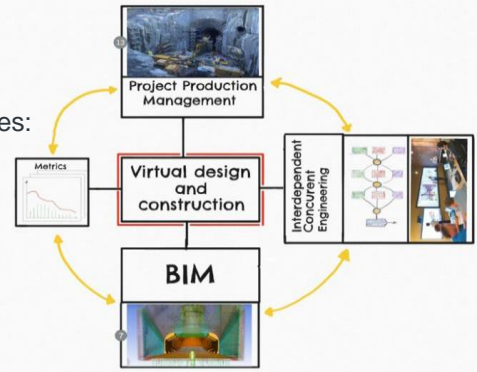
Currently 55+ employees and consultants deployed in central office and in various project locations:

- Central Luzon
- Cordillera Administrative Region
- National Capital Region

BIM and Other Construction Softwares

NMS has BIM-capable engineers who are fully trained in using BIM softwares:

- Revit Architecture
- Revit Structural
- Civil 3D, Road Design and Water Systems
- Navisworks Manage
- AutoCAD



BIM skills have so far been applied to a 2-storey dormitory project of Bridgebuilder Foundation of Norway in Basesy, Samar, and in components of the Cebu-Cordova Link Expressway (CCLEX) Project in the Cebu.





NMS boosts itself with highly skilled human capital composed of seasoned technical experts with high level of competence and integrity in the delivery of engineering and other consulting services in all project phases from inception, feasibility study and design, tender document preparation, implementation/construction and monitoring and evaluation.

Vision

A preferred multi-disciplinary consulting firm in the Philippines and Asia Pacific known for its integrity, competence, happy people and ability to deliver timely and quality outputs.

Mission

To be nimble and responsive to clients' needs by building the right capability and absorptive capacity, hiring and retaining the right people, and operating under the spirit of fairness, mutual respect and teamwork.



Our Expertise



- Enterprise Development Specialists
- Marketing Specialists
- Economic and Financial Specialists
- Business Development Specialists
- Agribusiness Experts
- Commodity/Supply Value Chain Specialists
- Organizational Development Experts
- Local Development Planners
- Agricultural Engineers
- Community Organizers
- Internal Auditors(Operations)
- Financial and Economic Specialists
- Economic/Market Researchers
- International Trade Specialists
- Urban & Regional Planners
- Environmental Specialists
- Social Development Specialists
- Community Organizers
- CSR and Community Development Experts
- Document Management Experts
- Monitoring and Evaluation Specialists
- Training Specialists
- Capacity Development/Building Specialists
- Agricultural Economists
- Investment Modeling Specialists

- Civil Engineers
- Mechanical Engineers
- Electronic & Communications Engineers
- Structural Engineers
- Tunnel Specialists
- Material Engineers
- Quantity Surveyors
- Drainage Engineers
- QA/QC Engineers
- Flood Control Engineers
- GIS Specialists
- Geodetic Engineers
- DED Specialists
- Program of Work (POW) Specialists

- Municipal Engineers
- Rural Infrastructure Specialists
- Solid Waste Management Specialists
- IDC/ICE Services
- Contracts Managers
- Procurement Specialists
- Hydropower Engineers
- Electrical Engineers
- Renewable Energy Specialists
- Power Systems Engineering Experts
- Power Systems Planning Specialists
- Electro-Mechanical Specialists
- Electrical Works Design Specialists

Transport Portfolio

A major part of NMS's experience in the transportation sector is from roads and bridge projects, covering new construction, rehabilitation, upgrading and maintenance of existing ones.

NMS served as Independent Consultant for the Cebu Cordova Link Expressway Corporation (CCLEC), a subsidiary of Metro Pacific Tollways Corp.,

The Project is an 8.25-kilometer toll road connecting the main Cebu City Industrial area to Cordova and the Mactan Cebu International Airport in Mactan Island.

Construction started in January 2018 and the target completion date was June 2021 but was finally completed in July 2022 due to the Covid-19 pandemic.



Cebu Cordova Link Expressway (CCLEX) Project

Candaba 3rd Viaduct



The Candaba 3rd Viaduct Project involves the construction of a 5.3-kilometer bridge that will span the whole length of the existing Candaba Viaduct and will be built between the two existing viaducts, creating a two-bound elevated roadway. When completed, the new viaduct will expand the Candaba Viaduct into a three-lane per bound roadway with wide inner and outer shoulders.

Norconsult serves as Independent Design Checker (IDC) and Independent Certification Engineer (ICE).

IDC and ICE Services for NLEX Segment 10 Project



May 2014

Construction of NLEX Segment 10 Project started in May 2014 – a 5.5-kilometer, 6-lane elevated highway, which starts at the end of Segment 9 going south and ends at C-3 Road.



Jan. 2018

Early works started on the 2.657-kilometer, 6-lane elevated highway, Segment 10 Exit Ramps (R 10) Project – a continuation of Segment 10 going westward to the seaport



2020

IDC for the Navotas Interchange Project (as Variation Order under Segment 10 Exit Ramp)

Norconsult engagements with NLEX Corp. - 2017-2024



- IDC/ICE for Sto. Tomas Interchange
- IDC for Segment 8.2 Section 1A
- ICE for 2024 NLEX Heavy Maintenance Program
- Pasig-Potrero Bridge Foundation Scouring Mitigating Project
- IDC for Various Segment 3 Improvements
- ICE/IDC for Segment 1 Localized Widening
- ICE for NLEX-SCTEX Enhancement Projects- Package 3
- North Luzon Tollways Projects, Phases 1&2
 - San Fernando Interchange Expansion Project
 - Rehabilitation of BuroI Bridge Overpass
 - Removal and Construction of New Acceleration and Deceleration Lanes at Ciudad de Victoria
 - San Fernando North Bound Exit Enhancement Project
 - Bridge Retrofitting of Sta. Rita San Simon Overpass

2015-2016 Cavite Laguna Expressway (CALAX) Project Technical Advisory Services - Pavement & Geotechnical

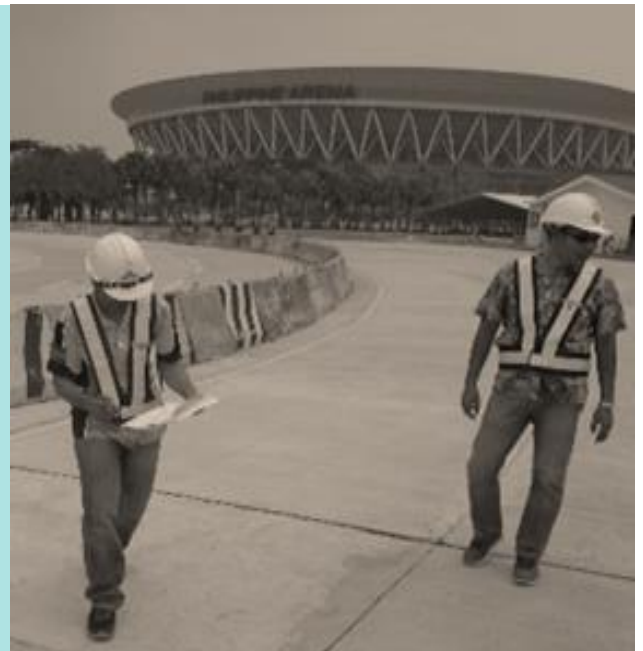
2015- IDC/ICE services for various North Luzon Tollways Projects, Phases 1& 2:

- ICE for Segment 8.1
- ICE for Segment 9
- IDC for Segment 10
- IDC for the NLEX-SCTEX integration
- IDC for Bocaue Toll Plaza Expansion
- IDC for Sta. Rita/San Simon Bridge Retrofitting

IDC for Ciudad de Victoria (CDV) Interchange to the Philippine Arena/INC Church with Bouwwerken, Inc. as the counterparty

1999-2014 - North Luzon Tollways Projects, Phases 1& 2

- Independent Design Checker and Independent Certification Engineer (IDC/ICE)
- Technical Study for MNTC on retrofitting the piles of the Candaba Viaduct and review of the Heavy Maintenance Program of SCTEX and CaviteX.



Subic Freeport Expressway (SFEX) Widening Project (2019-2022)

The Project has an approximate length of 8.8 kilometers involving road widening, construction of new bridges parallel to the existing ones (Argonaut and Jadjad Bridges) and a new tunnel with horseshoe shape.

Norconsult Phils. served as Independent Consultant for the Project to review the detailed engineering design (DED), program of works, quality control checks, review of cost of construction and issue Certificate of Construction upon completion of all works. Norconsult is also tasked to review the heavy maintenance program of the Contractor.



Norconsult AS, NMS's former mother company, was engaged by the then Department of Highways as the designer and construction supervisor of the Manila North Expressway Project (MNEP) from Burok to Dau back in 1971-1978. Its engagement continued until the Stage 2 of the project in 1978-1986 by the Philippine National Construction Corporation (PNCC). Due to its excellent performance, Norconsult AS was retained as independent consultant of all projects along the expressway (i.e., widening, expansion, etc.) until the creation of its Philippine subsidiary in 1998. Now that NMS is a wholly owned Philippine company, it continues to live up to its former mother company's high standards of competence and ethics.

Manila North Expressway Extension (MNEE)



Montclair (Porac) Interchange Project (2020-2023)



Engaged by Robinsons Land Inc. for the IDC/ICE role in the construction of interchange of Montclair Development Project in Porac, Pampanga.

Urban and Regional Development

NMS provides support for project development and management, Its services include the following:

- preparation of strategic local economic development plans
- feasibility studies for water supply system, wastewater management, solid waste management, flood control and embankment protection, urban roads and drainage.
- Prepares scope and framework for capacity development in:
 - project management,
 - procurement and financial management,
 - monitoring and evaluation
 - social and environmental safeguards.



Mindanao Basic Urban Services Sector Project (MBUSSP) 2003-2008

Engaged as Consultant by the Department of the Interior and Local Government (DILG) in cooperation with Norconsult AS

- provided support for project development and management
- sub-project preparation and implementation, including capacity building of LGUs.

The project was implemented in cooperation between DILG and the Land Bank of the Philippines, with external financing from the Asian Development Bank (ADB) and the Nordic Development Fund (NDF).



Other ADB-Funded Projects

Greater Mekong Subregion (GMS) Corridor Towns Development Project – 2011 to 2013

Second Greater Mekong Subregion Tourism Infrastructure for Inclusive Growth Project – 2018



In 2014, NMS also provided expert to support Norconsult AS in the Thilawa Export Zone Project in Myanmar.

Power and Energy Portfolio



NMS, as a former subsidiary of Norconsult AS, has been at the forefront of hydropower development in the Philippines since the 90s. Today, our business includes the entire renewable energy industry, and we continue to collaborate with Norconsult AS in gathering the right experience and expertise for each project.

OWNER'S ENGINEER ROLES

- 60MW Kapangan HPP in Benguet
- 8.4MW Maladugao HPP in Bukidnon
- 18MW Timbaban HPP in Aklan
- 5MW Janopol RoR Mini-HPP in Loboc, Bohol
- 105MW Ambuklao HPP and 125MW Binga HPP in Benguet



Environmental, Social and Governance (ESG) Advisory Services for the 18MW Kiangon Hydroelectric Project 2021-2024

Norconsult Phils. provides ESG advisory services to verify and monitor compliance with environmental and social safeguards applicable to the Project on behalf of Norfund as the lender and Kiangon Mini-Hydro Corporation as the project owner and operator.



DUE DILIGENCE & RESEARCH

- Technical Due Diligence for the 25MW Lake Mainit HEPP in Agusan del Sur 2022
- Conducted early phase assessment of offshore wind potential in the Philippines such as, identification of policies and regulations, potential sites, grid connection points, and infrastructure readiness of the country.
- Overview and Analysis of the Energy Sector Situation in the Philippines
- Investment Guide for Norwegian Investors interested to invest in the Philippines.



Other Consultancy Services

2023 – **Detailed Engineering Design** of the Olongapo Solar Power Plant Access Road (Aboitiz Power)

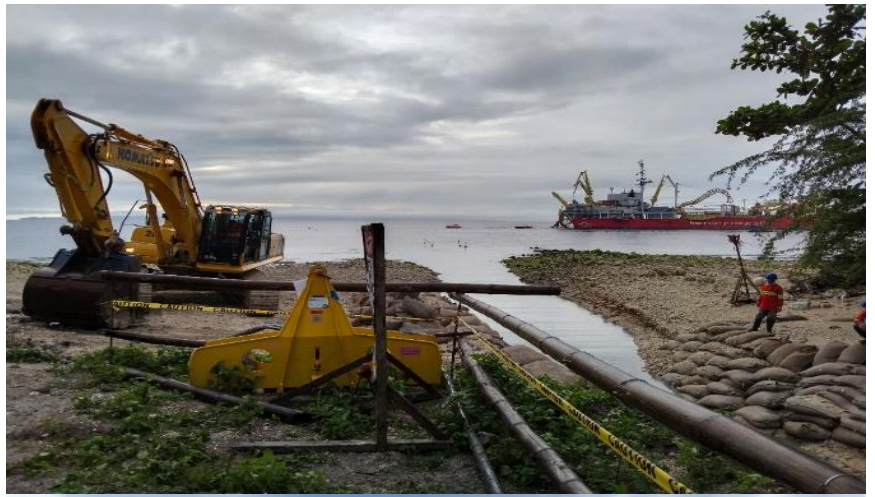
2021 – **Technical Assessment** of access roads and topo/geotech conditions of weir/powerhouse sites for a mini-hydro complex project in Ifugao (Norfund)

2019-2022 – **Project Site Administration & Management** (incl. HSE services) for the Cable Terminal Stations/Mindanao-Visayas Interconnection Project (CTS/MVIP) of NGCP (Nexans Norway):

- Santander (Cebu) Cable Terminal Station
- Dapitan City (Zamboanga Del Norte) Cable Terminal Station

2019 – **Pre-investment Adviser** of WeLead Group for its mini-hydro prospects in Palawan and North Luzon.

2020 – **Review of road design and cost of access road** for the Alimit HEP Project (Aboitiz Power)



Some selected hydropower pump-turbine storage plant references of Norconsult AS

Myruverkid II PSH - Faroe Islands – 2017: ongoing

- Separate 40 MW turbine and 70 MW pumping capacity in one powerplant (separate units)
- + 30 MW turbine in downstream powerplant. Tender design
- Power system analysis of the entire Faroe Island.

Duge PSH – Norway – 2021:2022

- 2 x 100 MW Reversible Pump Turbine plant with head variations from 249 mWc down to 127 mWc
- Stability analysis, measurements and operational advice

Nido Pumped Storage – Chile - 2021

- 350 MW, 500 m head, 2 Reversible pump-turbines
- Prefeasibility study, CAPEX estimate and Execution Schedule + improvement of design, governing stability and operational safety

Undisclosed – Eastern Europe –2020:2021

- 5 * 300 MW, Design max head 640 mWc
- Feasibility study of the plant including civil, mechanical and electrical design including coarse cost estimates

Undisclosed – Spain – 2019:2020

- 900 MW pumped storage
- Cost reduction study by using unlined tunnels + improvement of plant design and governing stability

Lysebotn II – Norway – 2012:2019

- 2 x 185 MW Francis turbines with 686 mWc head
- Francis turbines with condenser mode (spinning in air), uploading from zero to maximum flow (load) within a minute
- Feasibility, tender and detail design of the entire plant
- including civil, mechanical and electrical design.

Faroe Islands

- Norconsult is planning an upgrade of the island electrical supply system
- Goal 100% renewable by 2030 from 60% fossil fuel production
- Challenges:
 - ✓ Grid stability (island)
 - ✓ No seasonal water storage
 - ✓ Wind extremely variable
 - ✓ Summer: less wind and rainfall
- How to (almost) get there: pumped hydro, wind, solar & battery



Wind Energy

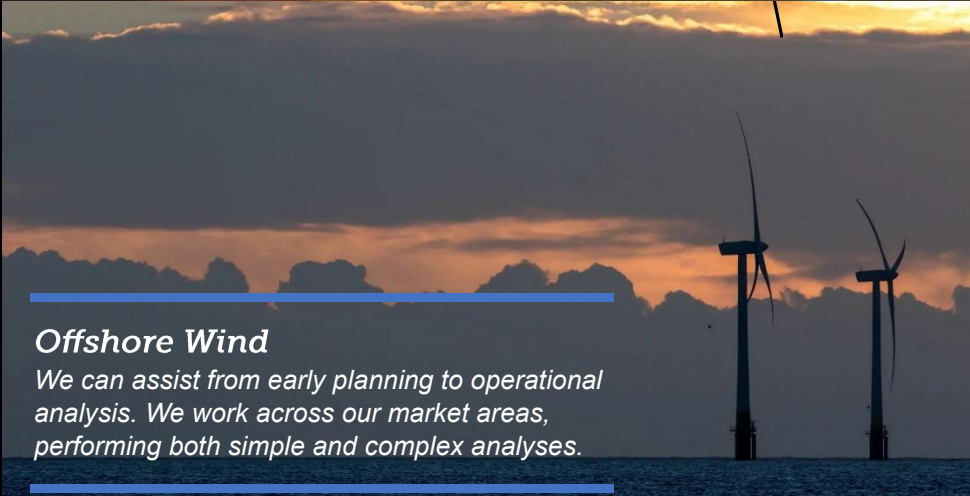


Wind Farm

We can provide assistance through all phases of wind farm planning, from feasibility studies and screening, through license applications and EIA to construction and operation.

NMS Services for Wind Power in close collaboration with Norconsult AS:

- Screening for identification of suitable wind farm sites
- Feasibility studies
- Wind measurements and energy yield assessments
- Technical pre-design
- Impact assessments
- Permit applications
- Preparation of tender documents for various contract types
- Detailed design
- Contracting
- Project and construction management
- Analysis and forecast of risks
- Post construction production assessments
- Technical and environmental due diligence (DD) – advice on purchase or sale of wind farms



Offshore Wind

We can assist from early planning to operational analysis. We work across our market areas, performing both simple and complex analyses.



Measurements

- Mast installations
- Heights up to 170m
- Planning, permits, installation, operations, decommissioning
- LIDAR measurements

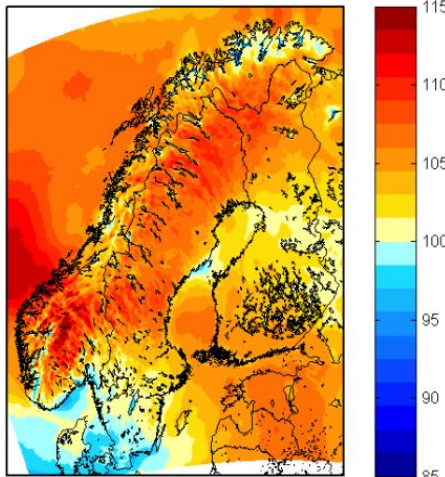


Stations, electrotechnical

- Onshore
 - Complete GIS and open-air insulated stations
- Offshore
 - Cable connections
 - Other services, like HVAC

Pre-construction

- Meso-Scale modelling
 - Screening
 - Wind maps & Long-term reference data
- Layouts
- Energy Yield Assessment
 - Bankable reports
 - Consultancy support
- Wind farm icing
 - Ice Loss modelling: World leading expertise combined with operational experience
 - Icing Risk Modelling : Modelling the risk of Ice throw



Analysis of operational wind farms

- Measurements
- Daily follow up of wind energy production
- Post Production Assessment
- Warranty Evaluation
- Wind and Ice Forecasting
- Course – Education of service personnel
- Technical due diligence

Solar Power



Through continued cooperation with Norconsult AS of Norway, NMS can assist its customers from finding the best areas for solar power development and support in licensing and construction processes, through to ensuring that the facilities produce power as expected throughout their lifetime.

Floating PV

- Feasibility studies
- Hybridization and sizing studies
- Energy yield assessments
- Financial assessments
- Mooring studies
- Hydrodynamic studies
- ESIA
- Extreme weather analysis
- Hydrological impact studies
- Ice impact analysis
- And more



Credit: Moz Outdoor Adventures

Solar Services

Assistance in project development for a vast number of utility scale solar projects in the Nordics, and internationally with services such as:

- Solar resource assessments
- Climate analysis
- Site screening
- Feasibility studies
- Hybridization studies
- Environmental and social impact assessments
- Permit applications
- Procurement assistance
- Construction phase oversight
- Due diligence
- And more

We also provide equivalent services for floating solar power plants, hybrid wind and solar power projects, larger battery installations, micro grid systems, and more.

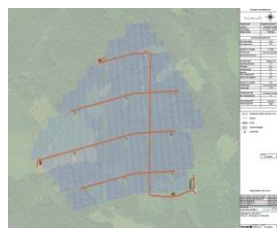
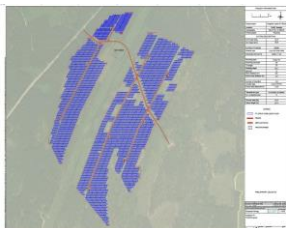
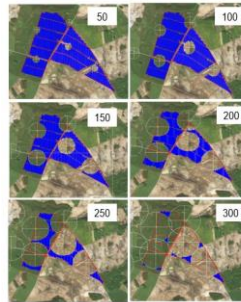
Solar PV and Wind Hybridization

Analysis

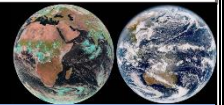
- Curtailment
- Ice throw risk and damage
- Shading and flickering
- Area utilization / Safety distance
- Sizing optimization
- Typical meteorological year for hybrid energy yield estimates
- ++

Engineering

- Control strategy
- Switchgear planning
- ++



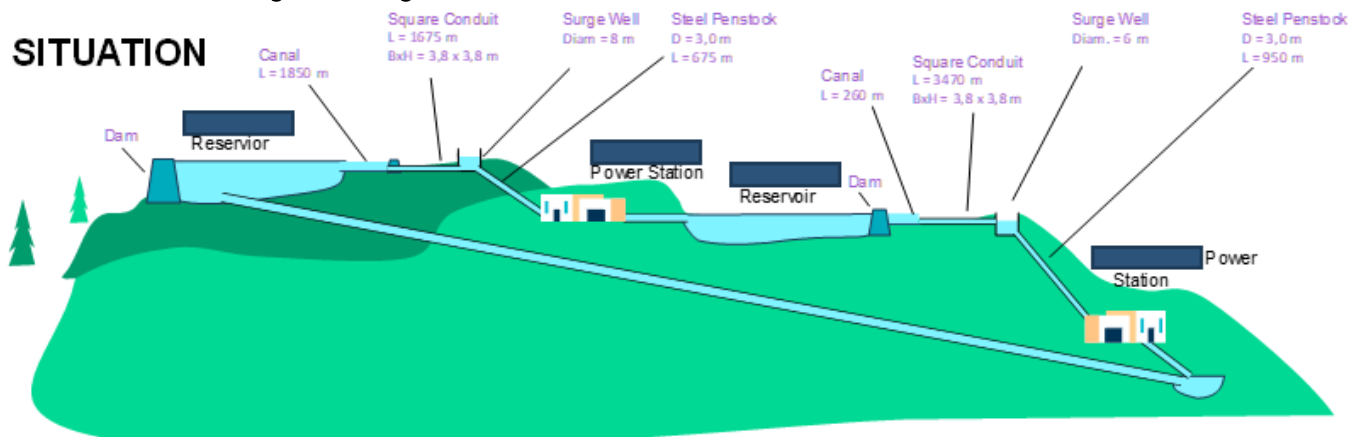
Solar resource assessment



- Assessment of solar resource databases
 - Images from which satellite to use for South-East Asia?
 - Does the solar resource database have validation in close proximity to the sites?
 - Are there any measurement location nearby?
 - What uncertainties can be expected?
 - If measurements at site - Site-adaptation
- Other considerations
 - Assessment of transposition and decomposition methods
 - Wind and temperature assessment

Solar PV and Hydro Hybridization

SITUATION



We use our knowhow to enhance the world around us.

ETHICS

All our behaviour shall be able to withstand public scrutiny.

LEADERSHIP

- Ambition
- Cooperation
- Transparency
- Trust
- Care
- Accountability

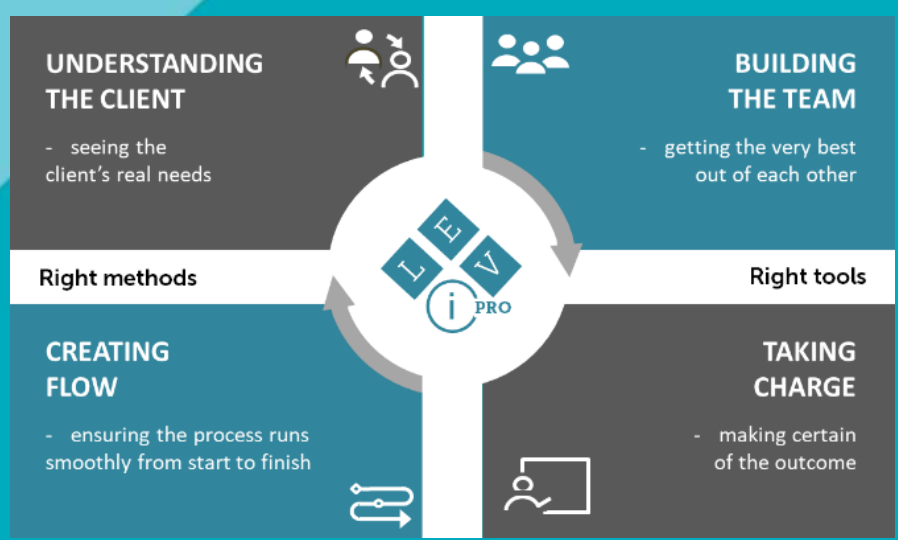


VALUES

- Honest
- Competent
- Inclusive
- Engaged

Leadership, Values and Ethics (LiVE)

LiVE PRO describes our actions





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CONTACT INFORMATION



RODOLFO T. AZANZA, JR.
President and CEO

Emails:

rodolfo.azanza jr@nmsph.com
info@nmsph.com

Tels: +63 2 8635 3819 to 20

Unit 506 East Tower
Tektite Towers, Exchange Road
Ortigas Center, Pasig City 1605
Metro Manila, Philippines

  **Nmsphils**

www.nmsph.com

