

## LOCAL RE IPP & ICT Service Provider

**Hybrid:** Wind, Sun, Water, Thermal, variable mixture, typical Wind/PV 50 kW

**Intelligent:** Locally relevant combination of RE and RE powered services

**Clean Energy :** Electricity, water, heat, cold, storage, decarbonisation .....

**Communication:** 3G, 4G LTE, 5G, MNO, MVNO, VSAT, TDT, cloud .....

**Computer:** Clean energy system security plus payments, crypto mining, .....

**Digital Life applications:** e-mobility, education, health, IoT, blockchain, crypto .....

**Highest kW & kWh/m2 & CAPEX :** Vertical hybrid ICEMGs

**Highest decarbonisation/m2 & CAPEX :** kWh, blockchain, crypto mining

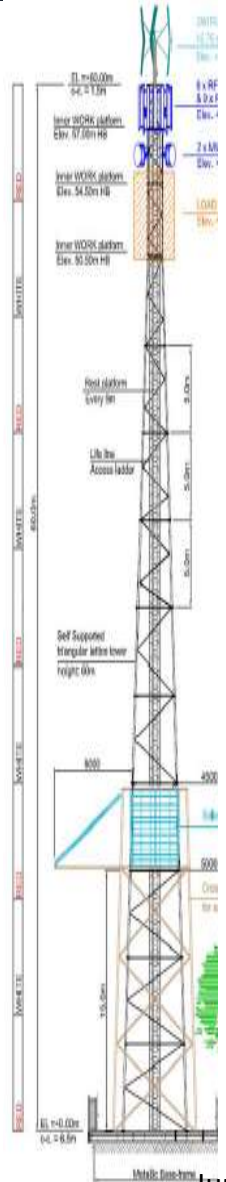
**Highest Revenue/CAPEX & kWh :** clean energy, ICT services & decarbonisation

**Highest local impact on SDG targets:** objectives & means for success

**Lowest OPEX:** Resilient structure & components, stand-alone or network & BIRE

**Projects 2018/19: 2 to 3 million €**  
**Aggregator Business Model based on PPAs**

**Smart Grid Market 50.65 Billion USD by 2022, CAGR of 19.4%**

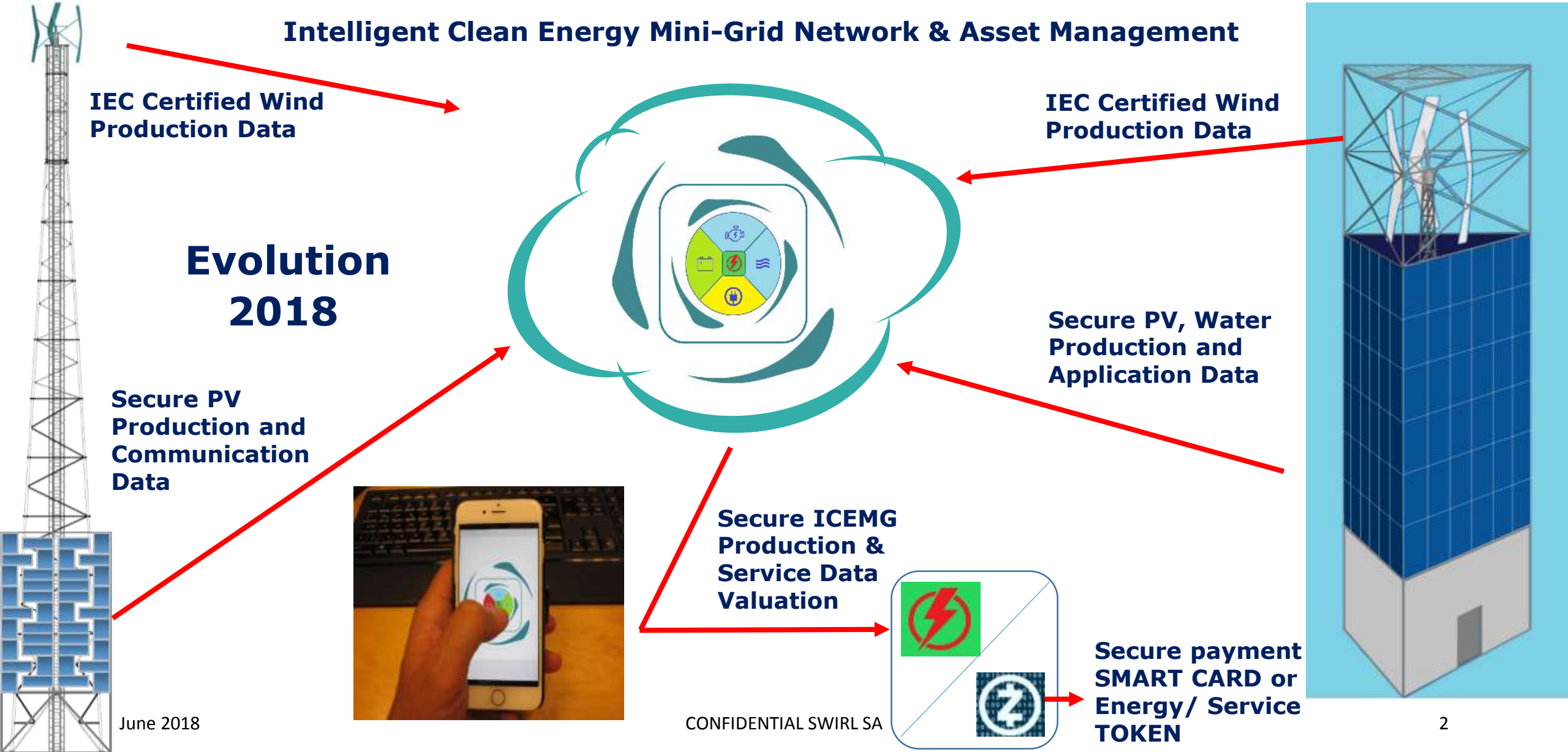


June 2018

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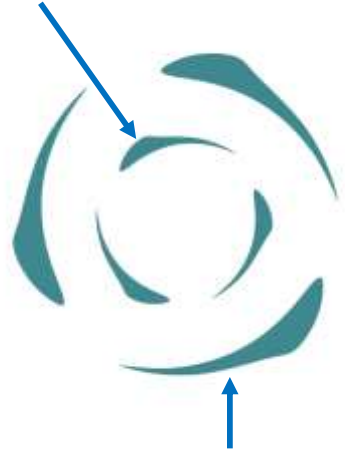
## Intelligent Clean Energy Mini-Grid Network & Asset Management



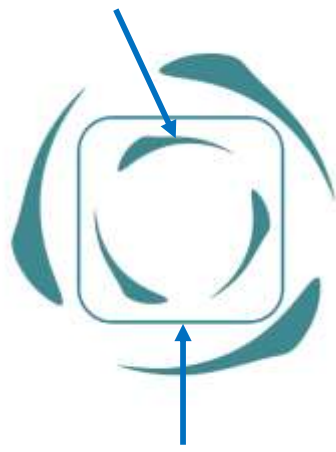
# INTELLIGENT CLEAN ENERGY MINI-GRID S FOR THE DIGITAL SOCIETY



Functional level



Wind-turbine level



System components level



Storage

PV

kWh

Diesel-Gen

Feed-in

Hydro



Metadata level

Particular ICEMG

ICEMG systems & services, interactions, correlations, importance

Example: SWiRL company logo as multilevel API base for SWiRL ICEMG S Network & Asset Management Custom API Licences for IPP & Services



**MULTILEVEL SEMIOTIC USER INTERFACE WITH COGNITIVE CAPABILITIES**  
Patent US 8,280,827/WO Appl.



kWh

Crypto coin

Particular ICEMG system valuation

ICEMG System on cloud

# INTELLIGENT CLEAN ENERGY MINI-GRID S FOR THE DIGITAL SOCIETY



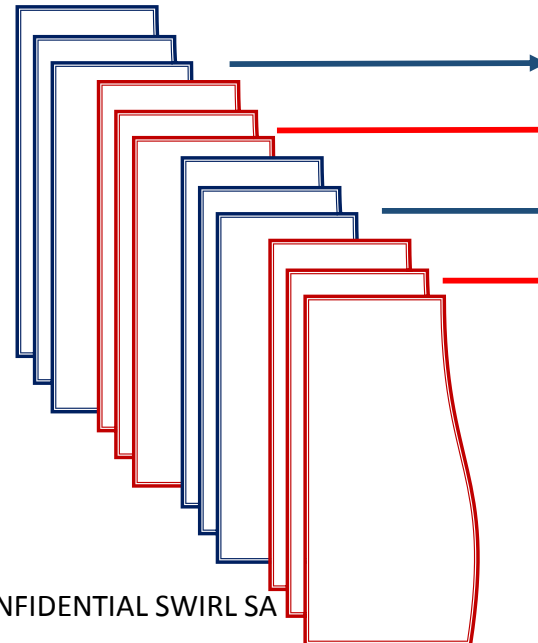
## Individual site Metadata

- Data layers
- Correlations

## Individual ICEMG Data Access:

- Levels of Meaning
- Levels of Significance
- Logic Descriptor sets
- Degrees of Inference
- Layer of Cyber Security

Qualitative Process Data Relationship and Significance Processing (Fuzzy Logic)  
 Fuzzy Front-End processing  
 Cognitive Capabilities  
 ICEMG built-in Machine Learning  
 ICEMG Expert System  
 Basis for AI evolution



- ICEMG Confidential & Security data
- ICEMG Specific Data Access Security
- ICEMG Process Data
- ICEMG Local & Remote Site Access Security

ICEMG API based on Syneola Patent US 8,280,827

## MULTILEVEL SEMIOTIC USER INTERFACE WITH COGNITIVE CAPABILITIES

End to End Security API for ICEMG off-grid & grid-edge  
**Operator <-> Mini-Grid <-> User**

# INTELLIGENT CLEAN ENERGY MINI-GRID **S** FOR THE DIGITAL SOCIETY



## ISO 9001 & ISO 9100 Production

### Airfoils



### Basalt fibres



**CAPAUL SA**  
Mechanic Precision Components

## Electrical, Control System & Cloud Network



**SIEMENS**

**API/Machine learning**

**S7 Cloud Connection**

**PV panels according to local availability**  
**Secure PV & ESTREYA LX wireless string monitoring system**

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## ISO 9001 & IEC 61400-2 Engineering



**Hybrid ICEMG Structural Engineering, Towers, Foundations**  
**P.E. Concepts GmbH**



**IPR, Secure PV & Wind Energy Concept**

**Supply Chain & Project management**

**Control & Remote monitoring software**  
**Application engineering, API Development**

**Direct Sales / Licensing Local subsidiaries**  
**Commissioning & after sales service**

**Asset Management, IPP & 3<sup>rd</sup> party networks**