

# The potential contribution of block-chain technology to scale investment into energy efficiency: implications for evaluation

**Ingo Puhl,**  
Director of Strategy

# Our solutions



## Carbon Credit Solutions

- Carbon credits (offset credits)
- Eco-gas for public utilities and energy provider
- Carbon Project Design
- Insetting



## Renewable Energy & EE Solutions

- GoldPower
- Guarantees of Origin (GoO)
- I-REC - the international REC standard
- Green e
- US RECS
- EEC



## Green Finance

- Fund Advisory (renewable energies, clean technologies)
- Due Diligence Services
- Investment Climate Impact Assessment



## Sustainability Advisory

- Advisory on clean supply chains, water risks, city-level climate programs
- GHG Accounting
- Svante GHG Software tool
- Labels
- Monitoring, reporting and verification

---

# Track record: 10 years of creating global impact

---

**80+** million  
tCO<sub>2</sub>e saved

**500+**  
projects  
developed

in renewables, forestry,  
agriculture, industry  
and households

**100,000+** GWh  
renewable energy produced

Our projects have helped improve the health of  
**10+ million people**

across the world



**70,000**  
jobs created  
in developing countries

**15,000+** km<sup>2</sup>  
saved forest from deforestation

**55,000+** km<sup>2</sup>  
land protected or restored

**\$10+ bn**  
clean energy investments mobilised  
in emerging markets



# Internet of Things and Distributed Ledger Technology



# Key Features

“Things” - such as meters - become identities & stores of verified measurement & value

Smart contracts auto-execute without human intervention

Communication & relationships are de-centralized without central authority

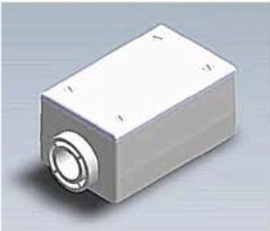
Value (and data) can be transferred between w/ negligible costs

High scalability (IOTA block-chain or PLASMA/ETH)

# Use Cases


## NetObjex IoT Platform

Use of smart meters, IoT and IOTA BC to verify & track data, operation and manage payment for negawatt production  
 Payment is made between meters and digital wallets



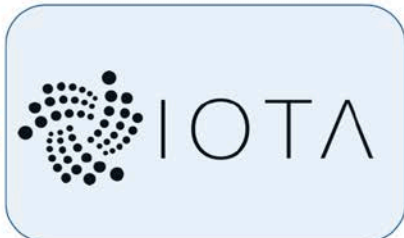
**GlenCan Challenger Smart Meter**

↔



**NetObjex Platform**

↔



**IOTA Network**

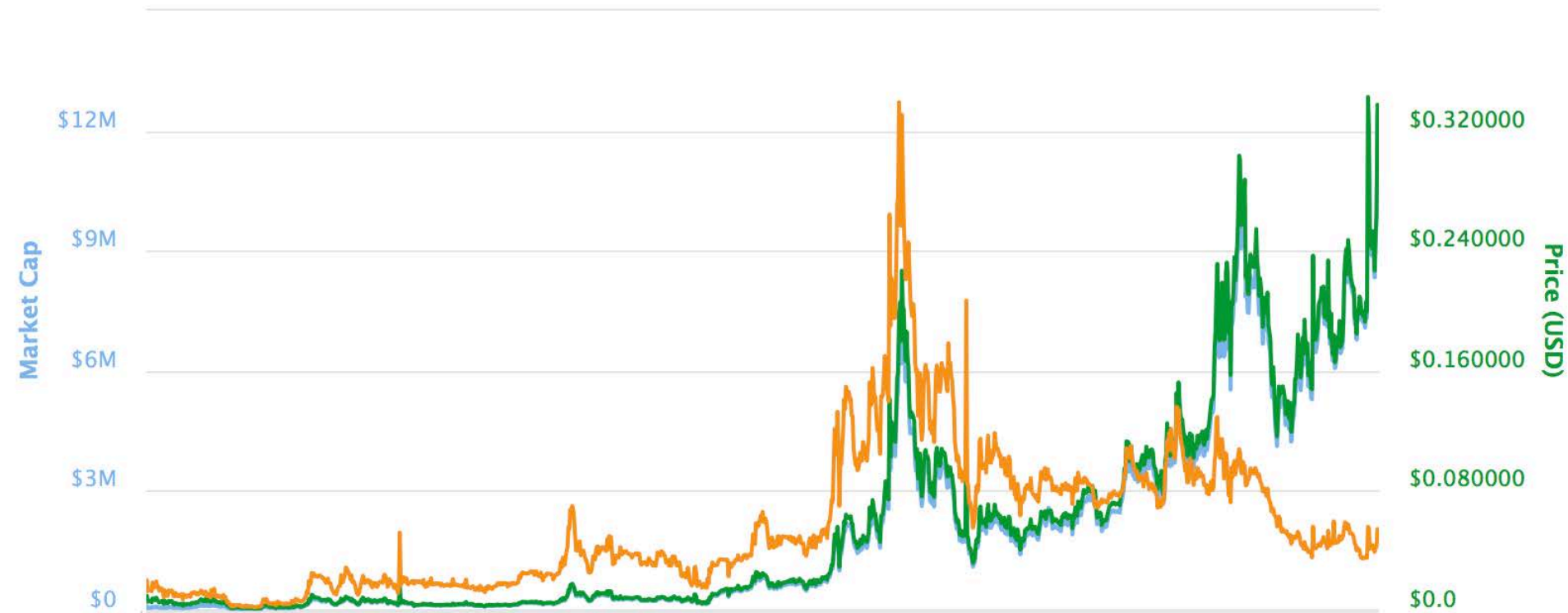
Serial Number	Date	kWh	kW	V	I	kWD	KVARh	KVAR	φ	f	T	Sent	Read
101	00:00:00 12/19/2016	61.909	0.134	121.196	4.238	0.144	105.129	-0.329	0.378	60	47.5	2016-12-19 00:02:00	2016-12-19 17:49:07
101	00:00:00 12/25/2016	69.76	0.134	121.891	4.248	0.144	124.059	-0.33	0.378	60	42.1	2016-12-25 00:01:08	2016-12-25 00:02:55
101	00:00:00 12/26/2016	72.98	0.132	120.646	4.234	0.144	131.889	-0.324	0.379	60	46.3	2016-12-26 00:01:08	2016-12-26 00:09:50
101	00:00:00 12/27/2016	76.19	0.132	120.457	4.204	0.144	139.72	-0.323	0.378	60	46.2	2016-12-27 00:01:15	2016-12-27 08:00:29
101	00:00:00 12/28/2016	79.4	0.134	121.141	4.261	0.144	147.52	-0.327	0.379	60	47.7	2016-12-28 00:01:16	2016-12-28 10:28:33
101	00:00:00 12/29/2016	82.58	0.131	119.913	4.176	0.144	155.27	-0.32	0.38	60	47.9	2016-12-29 00:01:22	2016-12-29 00:04:00
101	00:00:00 12/30/2016	85.769	0.133	120.528	4.123	0.144	163.029	-0.322	0.381	60	47.4	2016-12-30 00:01:26	2016-12-30 09:50:31
101	00:00:00 12/31/2016	88.959	0.134	121.339	4.145	0.144	170.779	-0.326	0.381	60	46.1	2016-12-31 00:01:29	2016-12-31 09:42:05
101	00:00:00 01/01/2017	92.169	0.135	121.841	3.96	0.144	178.58	-0.329	0.381	60	48.3	2017-01-01 00:01:18	2017-01-01 00:18:05
101	00:00:00 01/02/2017	95.37	0.133	120.992	4.272	0.144	186.399	-0.325	0.378	60	47.6	2017-01-02 00:01:48	2017-01-02 10:07:13
101	00:00:00 01/03/2017	98.599	0.132	120.928	4.155	0.144	194.25	-0.325	0.378	60	47.1	2017-01-03 00:01:44	2017-01-03 12:13:59
101	00:00:00 01/04/2017	101.819	0.131	120.674	4.138	0.144	202.089	-0.323	0.375	60	46.8	2017-01-04 00:01:39	2017-01-04 00:16:11
101	00:00:00 01/05/2017	105.019	0.131	120.33	4.189	0.144	209.88	-0.323	0.377	60	49.1	2017-01-05 00:01:40	2017-01-05 00:23:11
101	00:00:00 01/06/2017	108.209	0.132	120.856	4.226	0.144	217.689	-0.324	0.377	60	46.8	2017-01-06 00:01:47	2017-01-06 00:30:33
101	00:00:00 01/07/2017	111.43	0.132	120.846	4.087	0.144	225.47	-0.324	0.379	60	47.2	2017-01-07 00:01:48	2017-01-07 00:07:50
101	00:00:00 01/08/2017	114.639	0.132	120.83	4.224	0.144	233.3	-0.325	0.377	60	47.8	2017-01-08 00:01:47	2017-01-08 09:59:16

**Data is captured**  
 In the form of JSON packets.  
 Parsed and then written to the IOTA distributed ledger  
 and a fee charged based on consumption

# Use Case: Solar Coin & Solar Pi

Uses RaspberryPi device to log data from electrical device to claim pre-mined Solar Coins (award for solar power generation) that are stored in the device

Solar Coin are digital currency (analogue to negawatt)



# Use Case: W+ Coin

Uses W+ Social Standard ([wplus.org](http://wplus.org)) to quantify project-related benefits related to women empowerment (on a per unit basis)

I.e. efficient cookstoves that create time savings

W+ units are tokenized = converted into digital currency = money backed by women empowerment





# Implication for Evaluation

Reliable/trusted claims

Total Automation – substantial cost reduction

Injection of value into value of EE & SDG claims

Disruptive to the evaluation service industry

South Pole Group

# Contacts

**[southpole.com](https://southpole.com)**

**Regional Headquarters Bangkok**

**[i.puhl@southpole.com](mailto:i.puhl@southpole.com)**

**+ 66 86 778 2869**

## **Offices worldwide**

Addis Ababa, Amsterdam, Bangkok, Beijing, Berlin, Bogota, Hanoi, Hong Kong, Jakarta, London, Madrid, Medellín, Melbourne, Mexico City, New Delhi, San Francisco, São Paulo, Stockholm, Sydney, Zurich

