

**indra**

# Revenue assurance:

## Tools for effective energy loss reduction

**Giovanni Polizzi** ([gpolizzi@indracompany.com](mailto:gpolizzi@indracompany.com))

Energy Solutions manager

Indra Australia

[www.indracompany.com](http://www.indracompany.com)

---

SAMOA 2017

26th Annual PPA Conference



# Indra

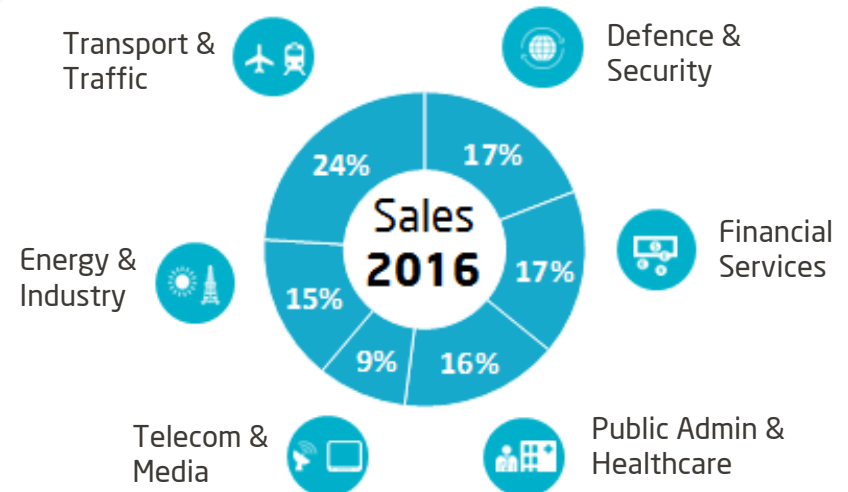
No. 1 IT company in Spain and one of the leading companies in Europe and Latin-America, with a high growth in Asia Pacific & Africa.



Own Technology R&D 163 M€ invested



Presence in all vertical sectors Diversification





## InGRID: Indra Distribution & Metering

<b>Argentina:</b> ENERSA EMERSA EDELAPZO	<b>Brasil:</b> DEMEI ELECTROCAR HIDROPAN CERGA CERSUL COORSEL EFLUL Iguaçu Distribuidora de Energia Ltda. CEMIRIM CETRIL CPFL Jaguarí, Mocooca, CPEE, CSPE, Santa Cruz HVN (NEK)	<b>Filipinas:</b> MERALCO <b>Guatemala:</b> DEORSA DEOCSA EdH <b>Haiti:</b> KPLC <b>Kenia:</b> UNION FENOSA REDES <b>Moldavia:</b> EDM <b>Mozambique:</b> DISSUR <b>Nicaragua:</b> DISNORTE <b>Panamá:</b> Edechi Edemet <b>Perú:</b> ElectroDunas <b>Rumania:</b> EMN ETN ETS <b>Uganda:</b> UMEME <b>Venezuela:</b> SENECA <b>Zambia:</b> ZESCO <b>Zimbabwe:</b> ZETDC ZESA
<b>Bahrein:</b> Electricity and water Authority, Kingdom of Bahrein	<b>Bulgaria:</b> EEC	
<b>Brasil:</b> ELEKTRO Eletricidade e Serviços S.A. Certaja Cermissoes Creluz Coprel Eletoacre Manaus Energia S.A CEA Boa Vista Energia S.A. CHESP ELFSM ENERGISA DME COCEL CENF LIGHT CERON CEEE CERILUZ	<b>Colombia:</b> EEC ELECTRO COSTA ELECTRICARIBE EPSA	
	<b>Dominicana:</b> EDENORTE EDESUR EDEESTE	
	<b>España:</b> REE Ence Enagas gasNatural fenosa UFD	



## InCMS: Indra Customer Management System

<b>Argentina:</b> EDEMSA EDEN EDES EDESAL EDELAP ENERSA EDES EDEER EDELAR	<b>España:</b> gasNatural fenosa UFC gasNatural fenosa UFC Portugal gasNatural fenosa GNCOM gasNatural fenosa GNCOM Luxemburg gasNatural fenosa GNCOM Belgium gasNatural fenosa GNCOM France GALP GLP Orange R	<b>Nicaragua:</b> DISNORTE <b>Panamá:</b> Edechi Edemet <b>Paraguay:</b> ANDE SEDAPAL Electrodunas GALP Retailer GLP Lusitaniagás Lisboagás Setgás Beiragás Duriensegás Medigás Dianagás Paxgás <b>Rumania:</b> Electrica Muntena nord Electrica Trans nord Electrica Trans sud nord <b>Uganda:</b> UMEME <b>Uruguay:</b> OSE <b>Venezuela:</b> URU Conecta HIDROCAPITAL CADAPE ELECTRICIDAD CARACAS ELEVAL Seneca ZESCO ZESB
<b>Bahrein:</b> Electricity and water Authority, Kingdom of Bahrein	<b>Filipinas:</b> Meralco Meralco- Large customers Meralco- retailer CEPALCO MANILA LAND ECG	
<b>Brasil:</b> RGE AES Sul AES Sonel Empresas EMEL	<b>Ghana:</b> DEORSA <b>Guatemala:</b> DEOCSA EdH <b>Haiti:</b> NCWSC <b>Kenia:</b> KPLC GECOL	
<b>Camerum:</b> EDESTE <b>Chile:</b> CAESS <b>Colombia:</b> EDENORTE Dominicana Edesur Edeeste CAESS DELSUR EPCo	<b>Libia:</b> Servicios de Agua y Drenaje de Monterrey I.P.D. SOAPAP Agua de Hermosillo Agua y Saneamiento de Toluca Red Chişinău Nord Red Chişinău SUD	
<b>Costa Rica:</b> Aguas y alcantarillados <b>Dominicana:</b> EDENORTE Dominicana Edesur Edeeste CAESS DELSUR EPCo	<b>México:</b> gasNatural fenosa UFD gasNatural fenosa UFD gasNatural fenosa ZARZO	
<b>El Salvador:</b> gasNatural fenosa UFD <b>Etiopia:</b> gasNatural fenosa UFD <b>España:</b> gasNatural fenosa UFD gasNatural fenosa UFD gasNatural fenosa ZARZO	<b>Nicaragua:</b> DISSUR	



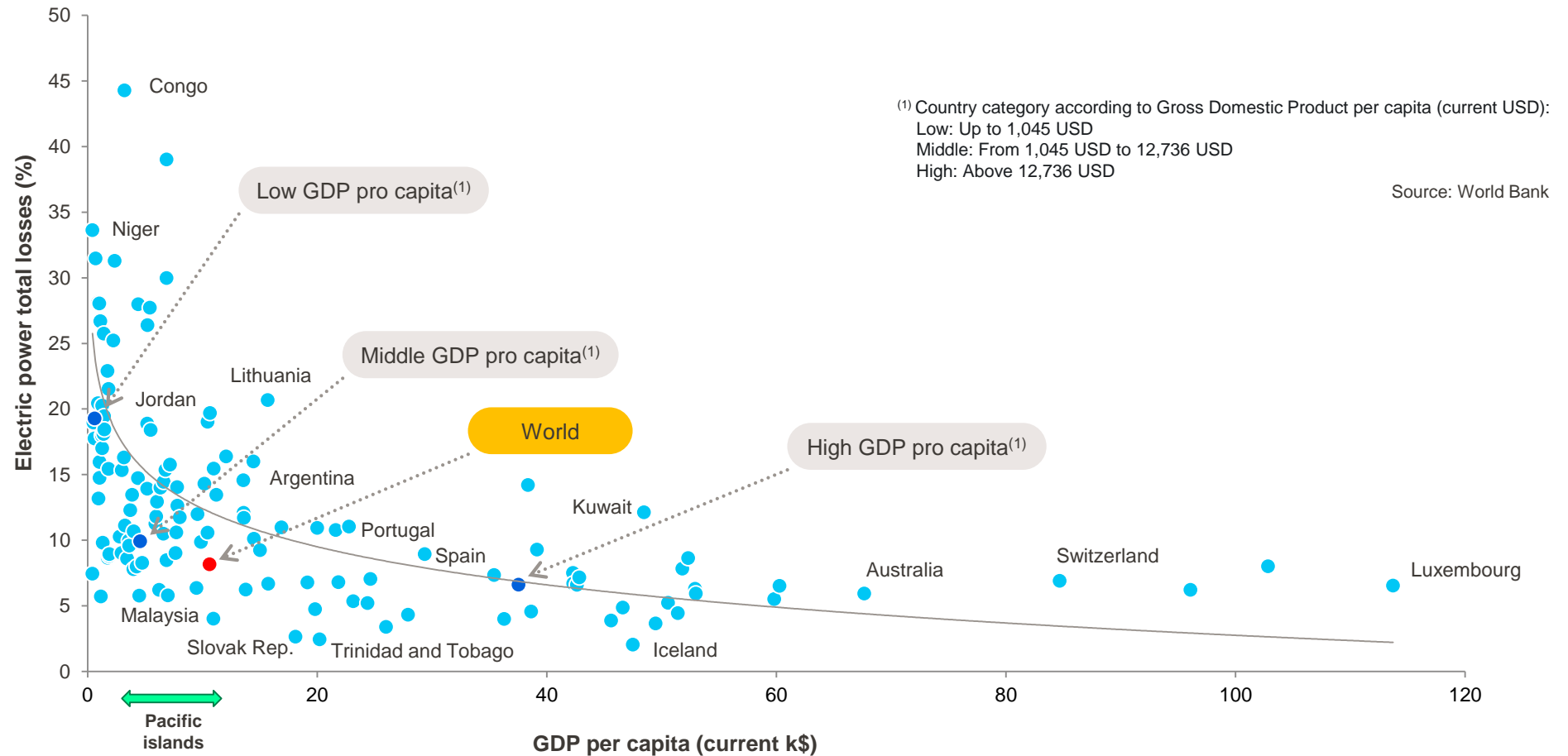
# The revenue assurance challenge

How big a problem are energy losses?



# Power losses: a world survey

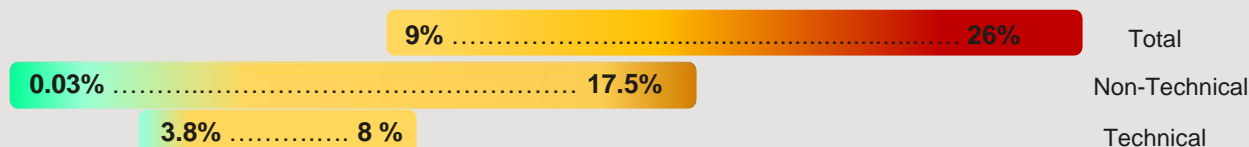
## 2013 Electric power total losses (%) / GDP per capita (current US\$)



# Power losses: the Pacific Islands and Independent Territories

Year 2012

## Energy Loss value range across the region <sup>(1)</sup>



## Tariff range across the region



**USD 1.00+/kWh**

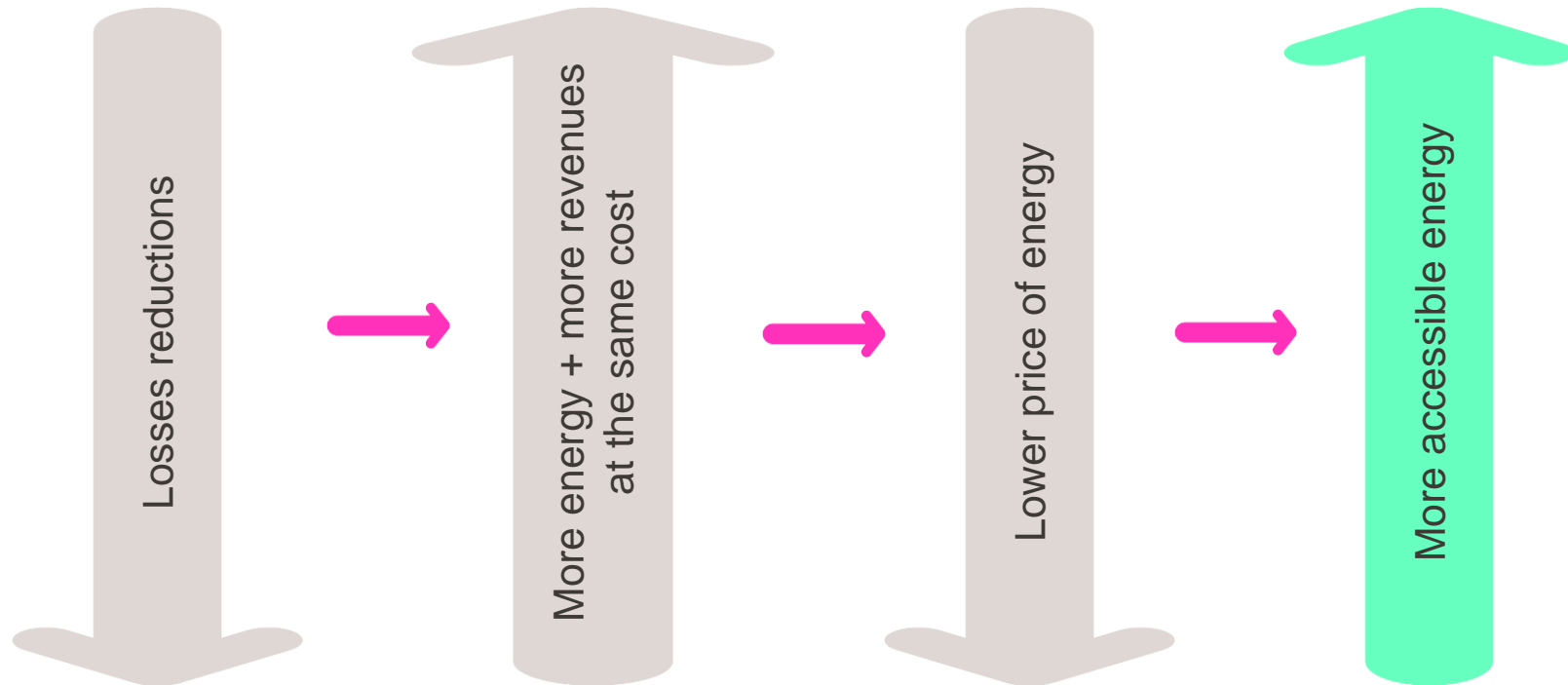
The actual cost of electricity in the outer islands or the smaller grids.



(1) Quantification of the Power System Energy Losses in Southern Pacific Utilities, prepared by: KEMA International B.V. May 25, 2012 – Consolidated Report

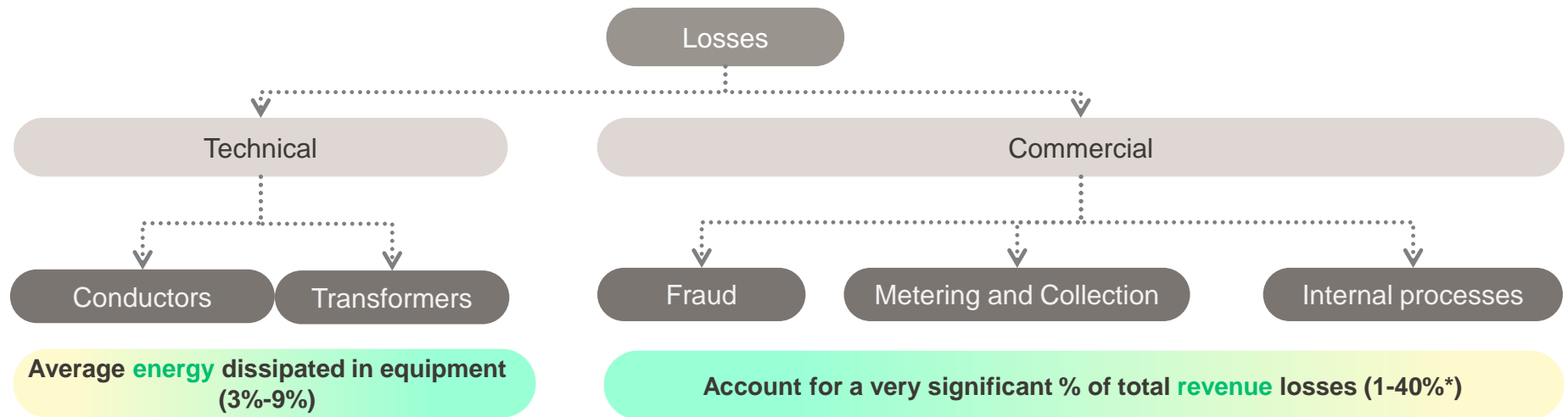
(2) Pacific lighthouses – Renewable Energy Roadmapping for Islands, International Renewable Energy Agency (IRENA)

# The consequences of reducing losses





# Technical vs. non-technical losses

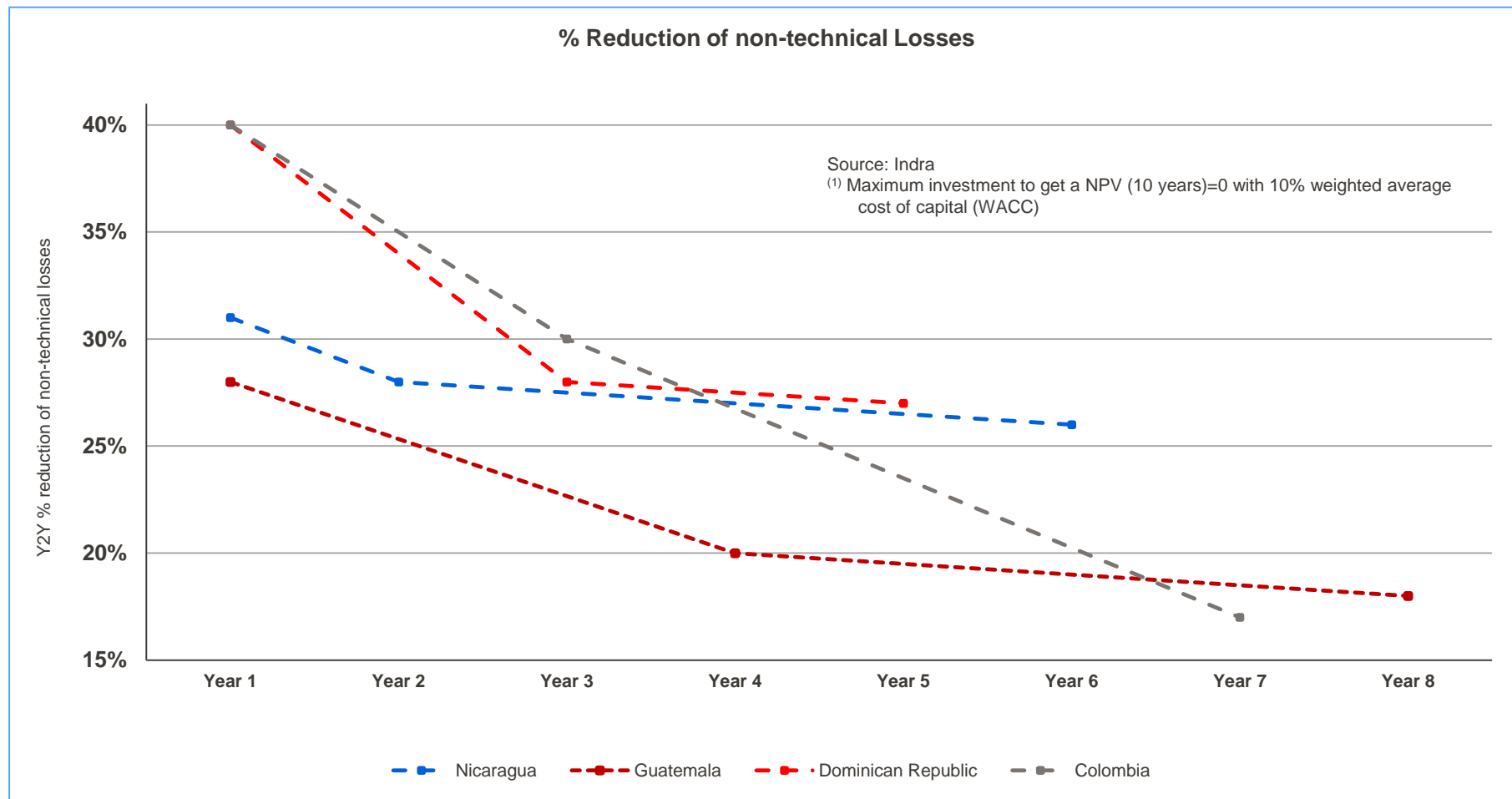


(1) According to Indra's experience



# Revenue Assurance investments are profitable investments

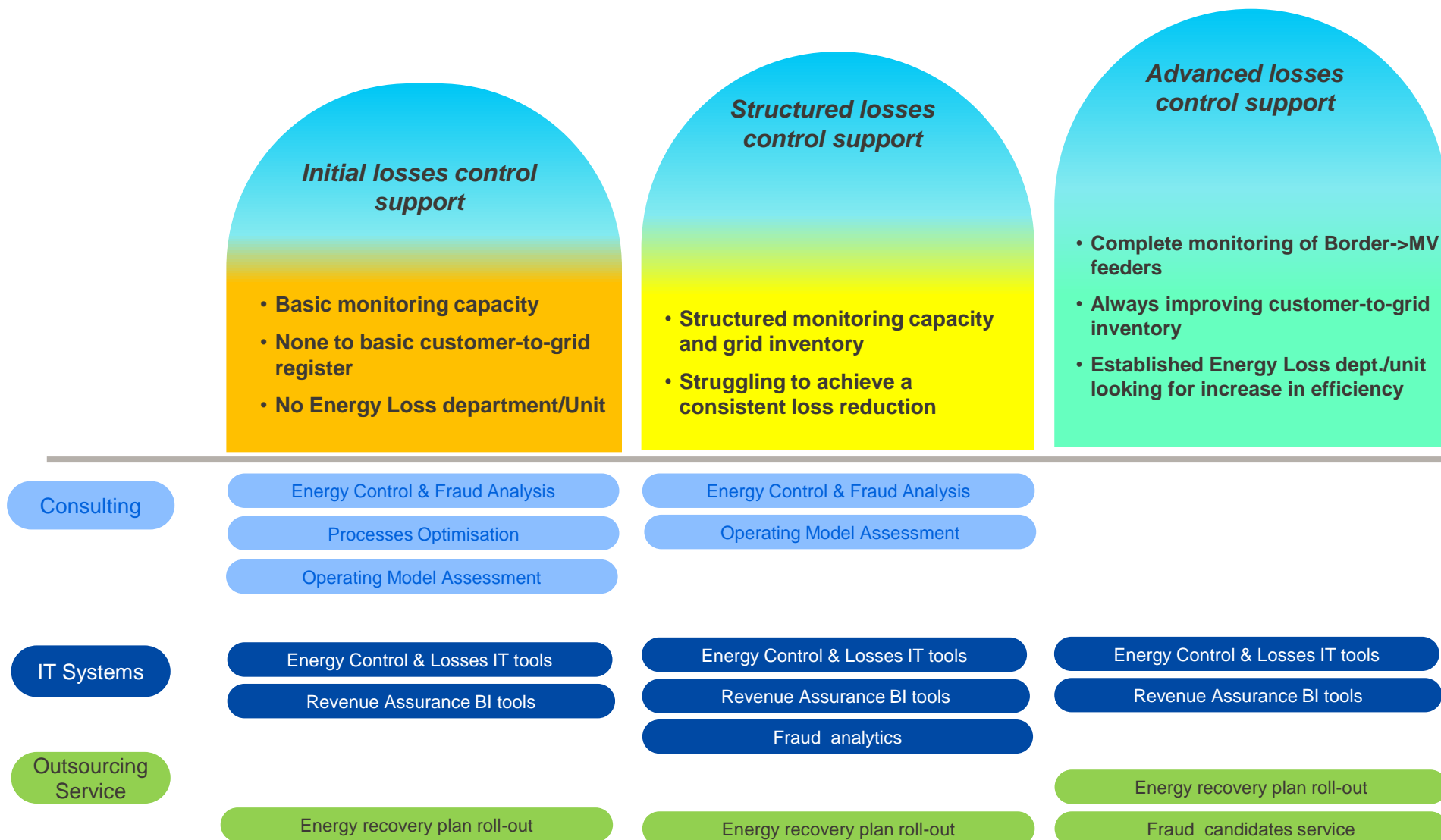
## Indra's relevant references



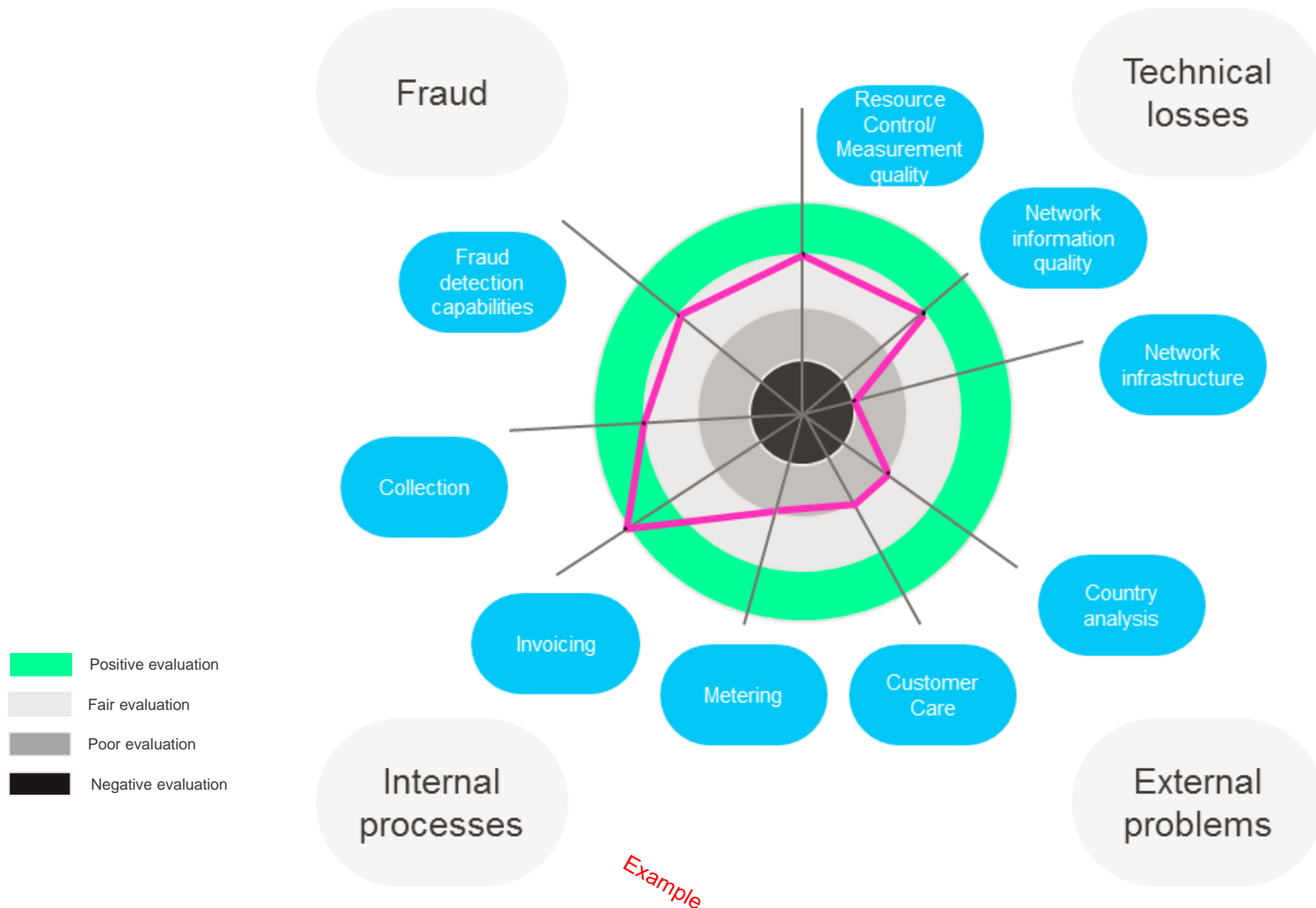
# The revenue assurance challenge

The path to energy loss reduction

# Defining the losses control support in the company



# Defining the losses control support in the company





# The Implementation Plan: the road to improvement

## Implementation Plan

- Organisation and planning
- Change Management
- Monitoring committee
- Dashboard design

## Deliverables

### Detailed Implementation Plan



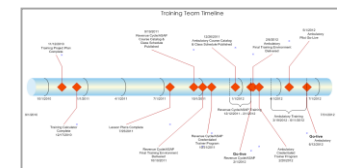
### Stakeholders and actions to manage stakeholders list



### Strategy and communication plan

Channel	Program	Activities	Resources	Owner
Internal	Internal communication program	Internal communication program	Internal communication program	Internal communication program
External	External communication program	External communication program	External communication program	External communication program
Website	Website communication program	Website communication program	Website communication program	Website communication program
Video	Video communication program	Video communication program	Video communication program	Video communication program
Podcast	Podcast communication program	Podcast communication program	Podcast communication program	Podcast communication program
Webinar	Webinar communication program	Webinar communication program	Webinar communication program	Webinar communication program
Newsletter	Newsletter communication program	Newsletter communication program	Newsletter communication program	Newsletter communication program
Blog	Blog communication program	Blog communication program	Blog communication program	Blog communication program
Twitter	Twitter communication program	Twitter communication program	Twitter communication program	Twitter communication program
Facebook	Facebook communication program	Facebook communication program	Facebook communication program	Facebook communication program
LinkedIn	LinkedIn communication program	LinkedIn communication program	LinkedIn communication program	LinkedIn communication program
YouTube	YouTube communication program	YouTube communication program	YouTube communication program	YouTube communication program

### Training Plan



### Dashboard





# Targeting energy control actions with specific fraud detection sw



## Configuration and Entities Management

- Control areas
- Update network settings
- Errors to allocate clients to circuits

### Measurement Management

- Interfaces batch CMS, MDM
- Measurement validation

### Energy Balances

- Daily monitoring reports
- Physical Losses

### Technical Losses

- Technical losses network maps
- Network reconfiguration to minimise losses

### Customer Fraud detection

- Fraud detection algorithms

## Strategic Planning

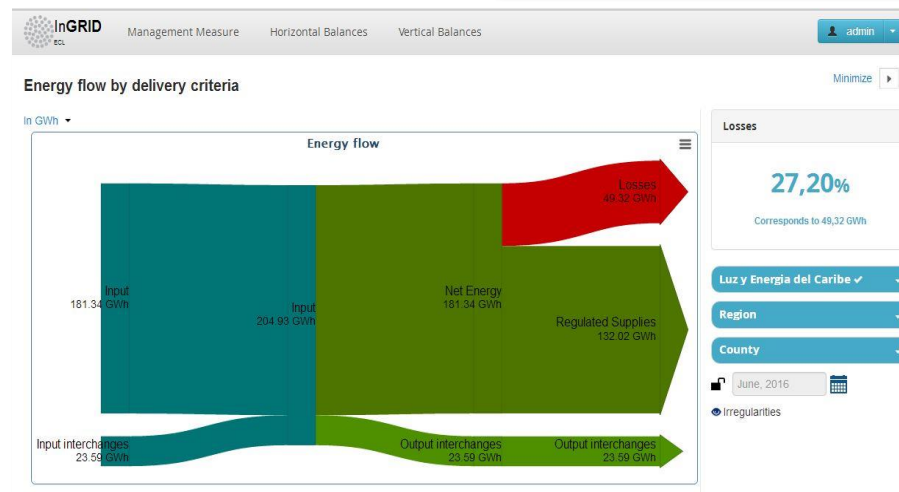
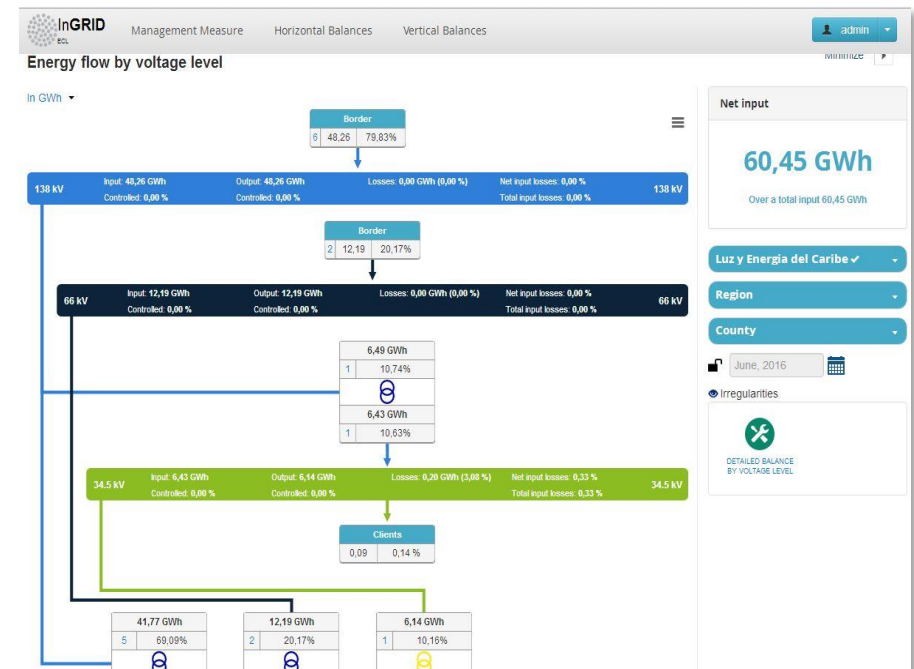
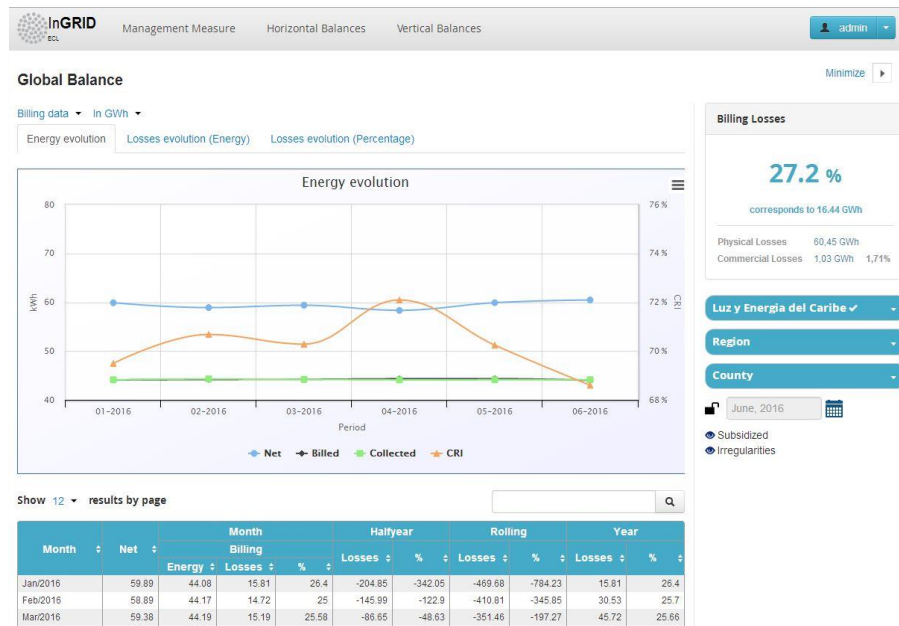
Core modules

Add-on modules





# Spatial and temporal visualization of losses



**InGRID** | INDRA FOR  
Energy Control & Losses | ENERGY







# THINK SMART

Thank you

