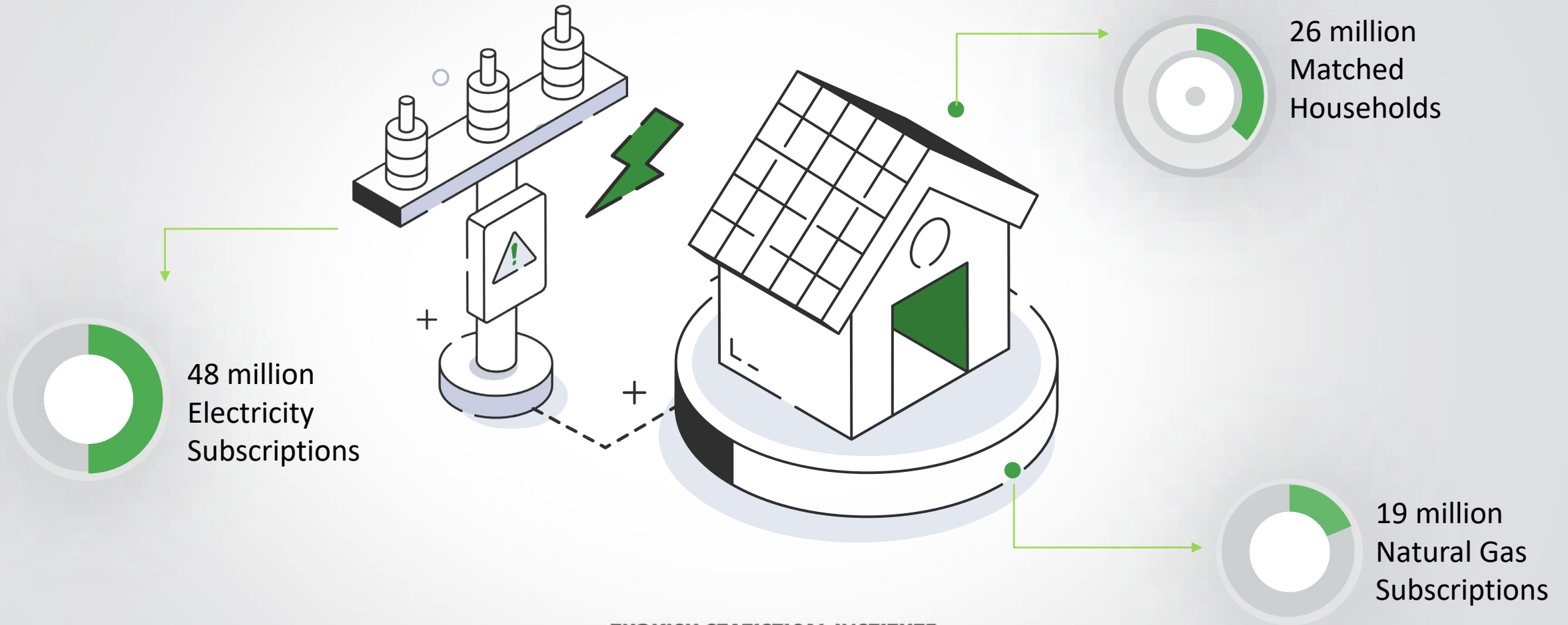


Use of AR & Artificial **NEURAL NETWORKS** in Households

Subscription Data.



TURKISH STATISTICAL INSTITUTE

Integration of Administrative Records



Preliminary household
consumption data integrated with
survey responses



Enables additional
monitoring and control

Expanding Coverage of Secondary Homes & Energy Consumption



Secondary dwellings gap –
Vacation homes and unoccupied
residences often missed by surveys.



Admin records solution – Multiple
electricity contracts reveal secondary
dwellings.



Survey frame expansion –
Separate frame includes them in
energy estimates.

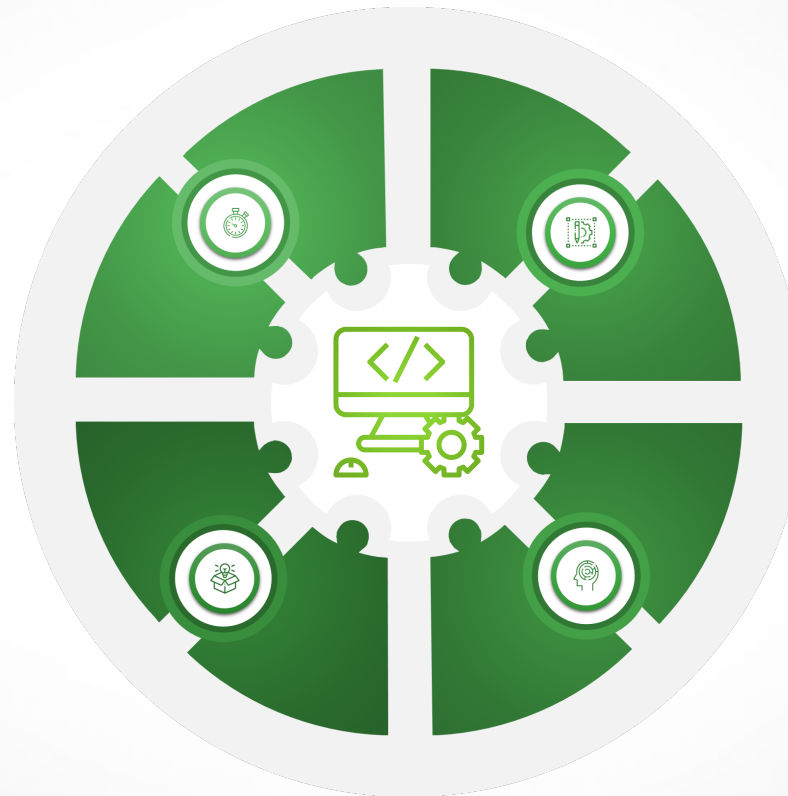


Complete energy picture – Address–
registry matching improves coverage
and accuracy.

Enhancing Energy Consumption Statistics with Machine Learning and e-Invoice Text Mining

E-invoice & ML – Using text mining and machine learning for energy statistics.

Faster, accurate results – Improves timeliness and reliability of official data.

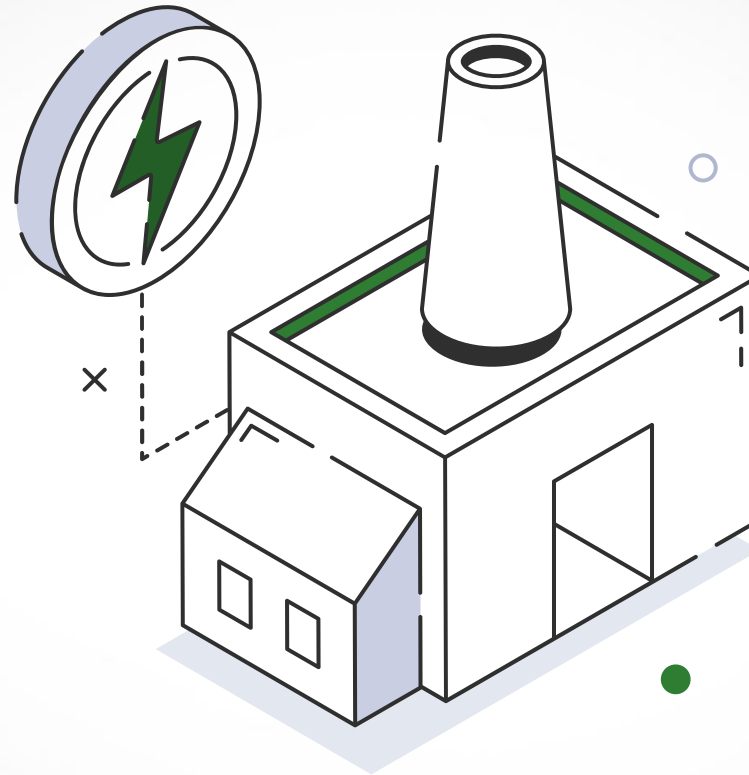


Process overview – Motivation, data value, and classification methods.

Before vs. after – Demonstrating clear gains from the approach

Motivation

Current approach – Sector energy statistics are still based on surveys, which can miss some data.



New data source – E-invoice system contains electricity and natural gas records that can be leveraged.

Potential benefit – Cleaning and classifying this data allows reliable sectoral energy consumption estimates.

Results: Immediate Gains

Reduction of Operational Load

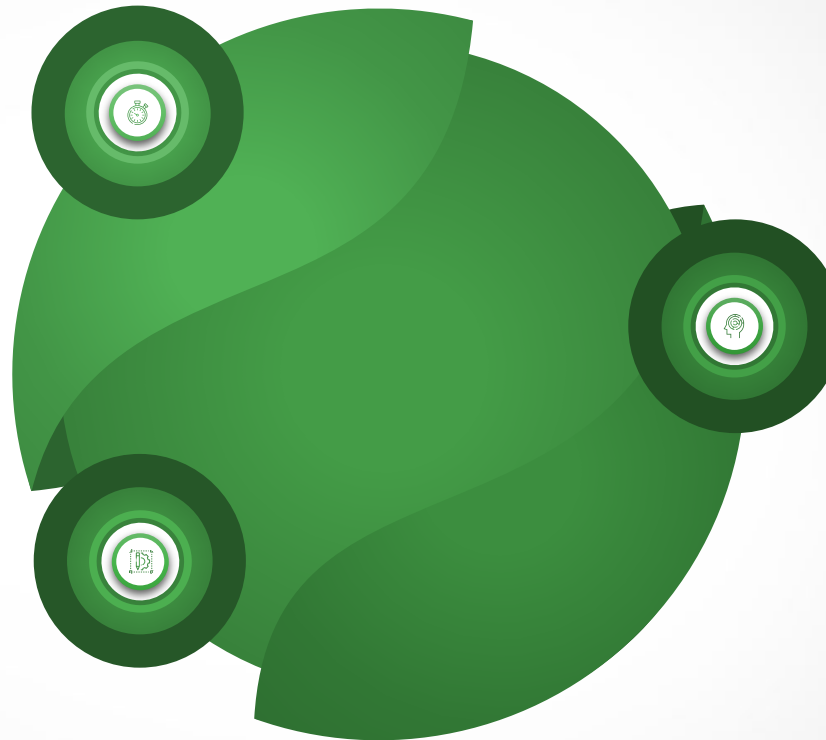
More efficient fieldwork planning
Focused, cost-effective data collection

Better Sampling for Surveys

Targeted firm selection based on administrative records
Avoid firms with no or minimal energy consumption.

Survey Quality Assurance

Cross-check survey responses using e-invoice data
Identify unrealistic or missing consumption entries



Results: Number



E-invoice Data

165,792 GWh



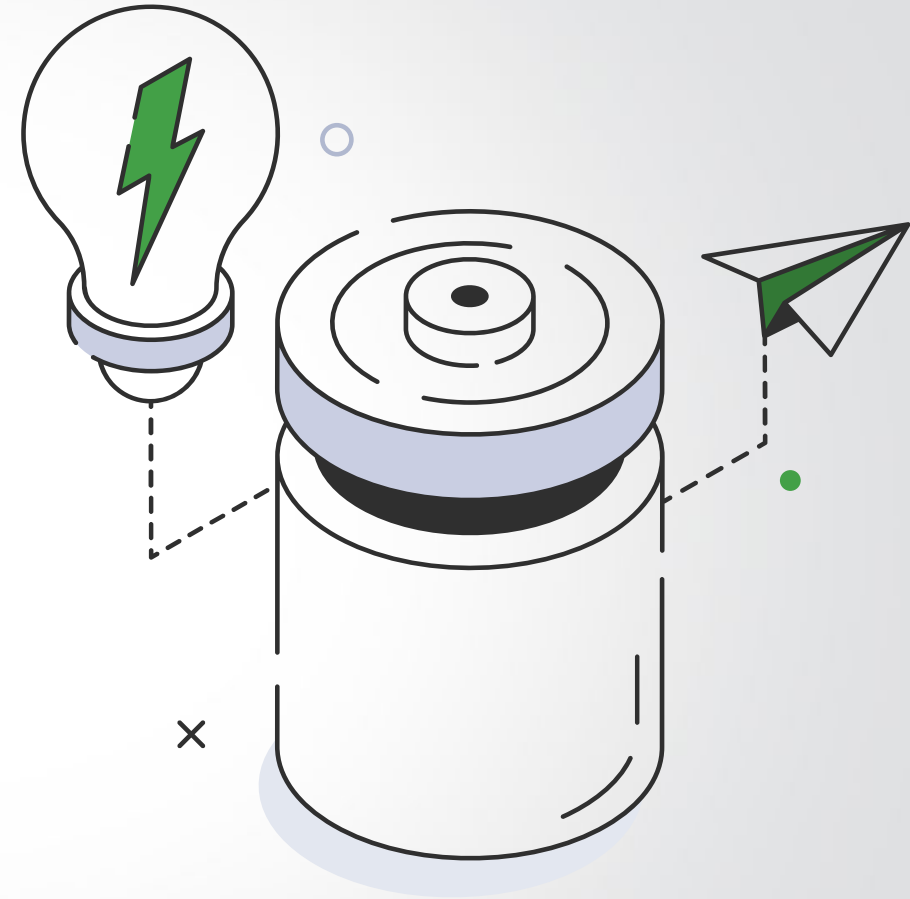
Gap

23,4% GWh

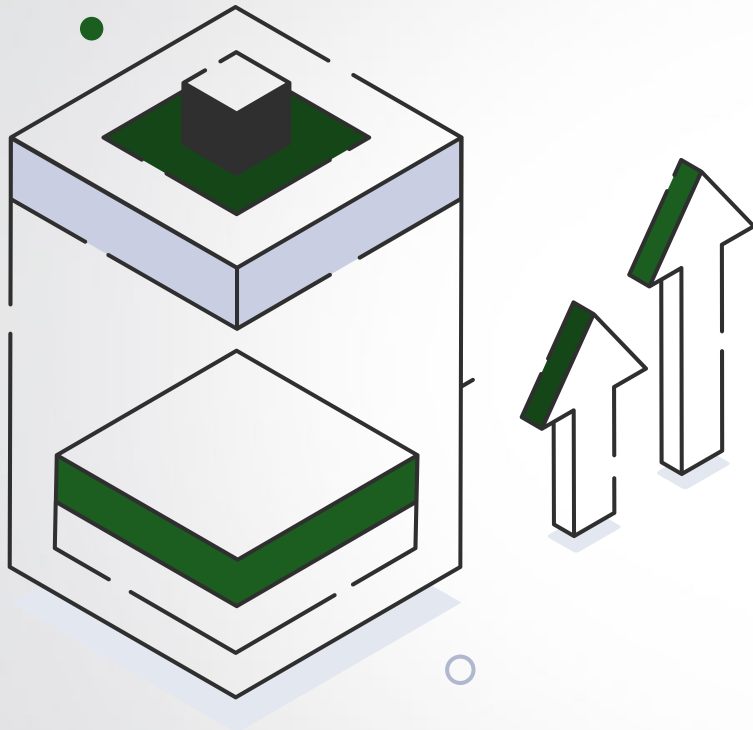


Survey Data

126,983 GWh



Strategic Impact: Looking Ahead



Shift Toward Administrative Data

Future surveys can be smaller or even replaced Increased reliance on e-invoice systems



Lower Respondent Burden

Fewer surveys, less paperwork for firms
Lighter workload for field staff and regional offices



Enhanced Statistical Accuracy

Higher quality national energy consumption estimates Broader coverage, fewer missing firms

THANK YOU FOR ATTENTION

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